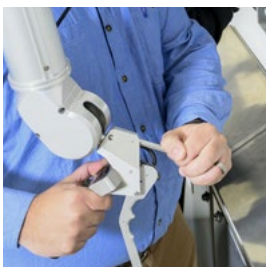
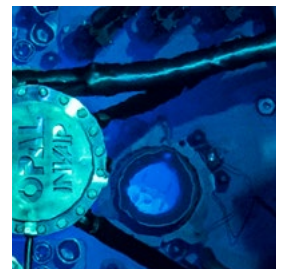
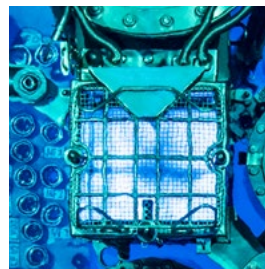
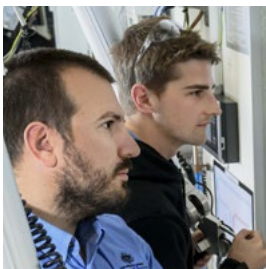
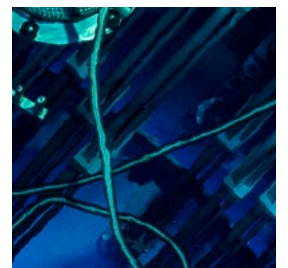
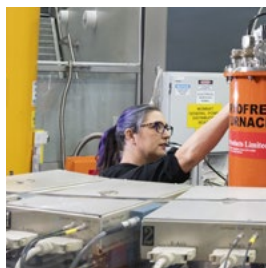
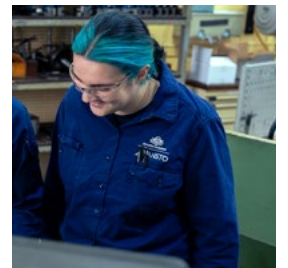
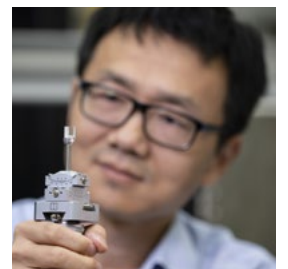




Annual Report

2022 – 2023



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Section 1:

Introduction

Letter of Transmittal

21 September 2023

The Hon Ed Husic MP
Minister for Industry and Science
Parliament House
CANBERRA ACT 2601

I am pleased to present the Annual Report of the Australian Nuclear Science and Technology Organisation (ANSTO) for the period 1 July 2022 to 30 June 2023.

This report has been prepared in accordance with the requirements of the Australian Nuclear Science and Technology Organisation Act 1987 (Cth) ('ANSTO Act') and section 46 of the Public Governance, Performance and Accountability Act 2013 (Cth) ('PGPA Act').

This report has been approved for presentation to you by resolution of the ANSTO Board of Directors on 21 September 2023.

Yours Sincerely



The Hon Dr Annabelle Bennett AC SC FAA



Chair's opening statement

In 2023, ANSTO celebrates the 70th year since Australia began developing our nation's nuclear capabilities through the establishment in 1953 of the Australian Atomic Energy Commission (AAEC), ANSTO's predecessor. It has been an extraordinary journey from the 1950's, in which the accumulated learning and development of ANSTO's expertise has led to high regard for Australia internationally, where Australia is seen as a small but highly sophisticated nuclear nation that is world leading in key areas. By reason of its nuclear capabilities and the application of nuclear science and technology, ANSTO delivers unique benefits to Australia and addresses some of the most challenging issues facing the world today.

As Australia's nuclear centre of excellence, ANSTO continues to be available to advise the Australian Government on all nuclear and science technology matters, including with respect to defence and security. In this reporting period, we continued to advise and assist the AUKUS Nuclear-Powered Submarine Taskforce with respect to Australia's current civilian nuclear capabilities, and we supported the Taskforce to determine the Optimal Pathway, as announced in March this year. ANSTO has also facilitated numerous familiarisation visits and subject-specific workshops for staff from the Taskforce, the broader Department of Defence, and US and UK partners. We welcome the Government's support for ANSTO's collaboration with a wide range of stakeholders to ensure that Australia can continue its support for nuclear security.

Our cutting-edge nuclear medicine continues to provide positive impact on the lives of many Australians, by producing 80 per cent of Australia's nuclear medicines, which are used for the diagnosis, staging, and treatment of many diseases, including cancer. ANSTO also conducts and supports research into areas of human health, including emerging nuclear medicine diagnostic and therapeutic products. Further, our Nuclear Medicine Portfolio has implemented a range of projects that reduced operational and radiological risks within ANSTO Health and ANSTO Nuclear Medicine, investing \$6.4 million in this initiative.

Protecting the environment for future generations remains a key priority for ANSTO. We have formed numerous partnerships and collaborations in inter-disciplinary research, using nuclear and isotopic techniques to address some of Australia's and the world's most challenging environmental problems, such as water resource sustainability, climate change, and the impact of contaminants.

ANSTO is a national resource. The continued support and funding from the Australian Government is central to our present and future nuclear capabilities and operations, and maintaining the relevance and capability of our landmark infrastructure. We welcomed the May 2023 Budget's funding

package, which provides support for our nuclear research, technology, medicine manufacturing and supply activities, and the safe and reliable operation of key infrastructure at ANSTO. Specific projects included are the construction of a new nuclear medicine manufacturing facility, the winding-up of ANSTO Nuclear Medicine Pty Ltd, the next spent fuel shipment in 2025, the planned maintenance shutdown of the OPAL reactor, support for Australia's sovereign nuclear science capability, and support for the Nuclear-Powered Submarine Program. This additional funding is fundamentally necessary to enable ANSTO to enhance the impact of its nuclear science and technology for the benefit of all Australians.

I commend the staff, management team, and the Board for their resilience, patience, and adaptability in ensuring that the critical work of ANSTO proceeded smoothly, despite the challenges of change and uncertainty occasioned by COVID-19.

Oversight of ANSTO and its operations has required continued dedication and effort by the members of the ANSTO Board, especially as the Board was not at full-strength during the year. The relationship between the Board and Management continues to be dynamic and strong and Management has recourse to the individual skills of Board members, not limited to Board and Committee meetings. The diversity of skills will be enhanced by a full complement of Board members. The members of the Board are to be commended for their commitment, flexibility, and insight. In addition, I thank the independent members of the Risk and Audit Committee for their commitment to ANSTO and the value of their advice. By reason of the functioning of the Board and the Risk and Audit Committee, supported by Management, ANSTO functions according to good governance, accounting, auditing, and risk management standards.

We have much to be proud of at ANSTO, in particular over this reporting period. There is more to come, to the benefit of all Australians.

The Hon Dr Annabelle Bennett AC SC FAA

Board Chair



Message from the Chief Executive Officer

2023 marked a wonderful milestone for ANSTO – the celebration of 70 years of nuclear excellence, stewardship, and the peaceful application of nuclear science and technology for the benefit of all Australians. ANSTO maintains, operates, and makes available a unique range of landmark infrastructure that is supported by a dedicated, passionate, and highly capable workforce.

ANSTO is driven by excellence to apply nuclear science and technology to help address some of the most complex challenges facing our society, delivering beneficial outcomes in health, the environment, advanced manufacturing, national security, and supporting Australian industry.

Our own research in areas focused on health, the environment, and nuclear technologies, confirms our position as Australia's trusted source on nuclear science and technologies. The research we enable supports the university sector and adds value for Australia's largest industries to deliver quality products to customers.

In addition to our role at the heart of research, ANSTO plays a critical role in the manufacture and distribution of nuclear medicine, vital for the health system of Australia and the broader global market.

ANSTO's key priority remains the timely delivery of nuclear medicine products and services. With the commitment of government funding toward upgrading ANSTO's nuclear medicine manufacturing facilities, we will secure our ability to reliably deliver our nuclear medicine products and promote positive health outcomes for all Australians.

We continue to be the centre of excellence for Australia's nuclear capabilities and infrastructure. Our work improves the health of Australians in supporting current and future technologies for current and emerging diseases. Our contribution to understanding how adaptive immune cells recognise and interact with the SARS CoV-2 virus over the past few years has been particularly important. With over 120 COVID-19 experiments conducted at ANSTO, we have developed important insights during this difficult time. Collaboration will be key to further growing our nuclear capabilities and improving our landmark infrastructure, especially as we strive to expand our sovereign capabilities.

ANSTO advances Australia's national and international interests as the nation's trusted advisor on nuclear science and technology, including in national defence and security. We continue to support the AUKUS trilateral security partnership through our commitment to successfully deliver nuclear-powered submarines. ANSTO provides technical advice, collaboration, and support to all areas of government. ANSTO is working to build a nuclear-capable workforce which will deliver Australia's essential nuclear capabilities for Australia. ANSTO will ensure a future nuclear workforce is suitably qualified and trained to effectively deliver Australia's nuclear expectation. We support the Government's objective of net zero

emissions by 2030 and we work to meet the highest standards of environmental protection, sustainable operations, and the application of research and innovation to support policy advice and solutions for a sustainable planet. Our work contributes to the priorities of the Government's National Reconstruction Fund through the resources sector and support for industry and advanced manufacturing. ANSTO's world leading capability in silicon irradiation is critical to help meet the growing global demand for high quality neutron transmutation doped (NTD) silicon. NTD Silicon is essential for high voltage switching devices used to support efficient power transmission, greener power grids, high-speed rail, industrial automation, and the international electric and hybrid electric vehicle automotive industry, which are critical for the progression toward net zero.

From a regional perspective, we have contributed toward developing technical capability, knowledge transfer, and technical capacity. This is primarily through our role within the International Atomic Energy Agency's (IAEA) Regional Cooperative Agreement (RCA) for Research, Development and Training Related to Nuclear Science and Technology for Asia and the Pacific. In May this year, ANSTO had the privilege to host the 45th National Representative Meeting of the RCA in Sydney, with over 50 delegates from 21 government parties in attendance. Being able to share our expertise in fields such as nuclear medicines, engineering, and isotopic analysis of water, soil, and air resources, has been central to helping improve the socio-economic outcomes for other RCA government parties.

Having been accepted as an Australian representative on the Nuclear Energy Agency's High-Level Group on Stakeholder Engagement, Trust, Transparency and Social Sciences, we will be able to further ANSTO's international leadership on public trust and social license. The group is focused on advancing member countries' efforts to develop effective policy-level initiatives for advancing the relationship between the nuclear sector and civil society.

I would like to take this opportunity to thank the ANSTO staff, management, and Board, who consistently showcase excellence, professionalism, and dedication toward achieving our mission. We have already achieved so much in the past 70 years around nuclear science and technology, and it's exciting to think of the progress we will make over the next 70 years that will not only benefit Australians, but the entire world.

Shaun Jenkinson
Chief Executive Officer

Section 2:

About ANSTO

Our Annual Report

This Annual Report provides a summary of our activities and performance for the financial year ending 30 June 2023 against the performance measures in our 2022-2023 Corporate Plan and Portfolio Budget Statements.

Vision

Nuclear science and technology for the benefit of all Australians.

Mission

To deliver knowledge, value, and trust through the application of nuclear science, technology, and engineering.

What we do

As Australia's sovereign nuclear organisation, ANSTO is actively working to address some of the most challenging issues facing Australia today. ANSTO produces nuclear medicines to improve the health of the Australian community and plays a vital role as an adviser to the Australian Government, industry, and education sectors, as well as the broader community on nuclear technology.

ANSTO activities span manufacturing, research, and advisory functions linked to our mandate including:



Nuclear medicine production and human health research:

ANSTO produces 80 per cent of Australia's nuclear medicines used for the diagnosis, staging and treatment of diseases, including cancer. ANSTO also conducts and supports research into human health,

including emerging nuclear medicine diagnostic and therapeutic products. As an Australian Government organisation, ANSTO provides a platform for secure sovereign control of these critical products.



Advanced manufacturing and support for the resources sector:

ANSTO contributes to Australian industry and advanced manufacturing through its activities, including ground-breaking materials research for extreme operating conditions in space and the oceans, as well as solutions for energy generation and storage. ANSTO also supplies over 50 per cent of the world's requirements of irradiated silicon critical for high voltage and high-powered switching.

These devices are critical for the progression toward net zero as they are essential for efficient power transmission, reliable grids, and the ability to connect renewable energy sources. NTD Silicon is also used in high-speed rail, industrial automation, and the electric vehicle industry. In addition, ANSTO plays a key support role in Australia's critical minerals strategy which is aimed at ensuring greater self-reliance and diversity of international supply of critical minerals.



Defence and national security:

ANSTO advises the Australian Government on the application of nuclear technology, including the acquisition of nuclear-powered submarines as part of the AUKUS initiative. ANSTO assists the defence and national security industry by providing access to a unique combination of scientific infrastructure and expertise in materials

engineering and advanced manufacturing. ANSTO also supports teams working with radiation, so they are able to operate safely using advanced imaging solutions, provision of relevant training programs and nuclear waste consultancy services.



Research infrastructure and scientific support capabilities:

ANSTO is home to some of Australia's leading scientific research infrastructure. This includes Australia's only nuclear reactor known as OPAL, the Australian Centre for Neutron Scattering, the Centre for Accelerator Science, and the Australian Synchrotron. Collectively this infrastructure represents a capital investment of more than \$1 billion and supports more than 8,000 users from universities, research institutions, and industry from around Australia and internationally.

This makes Australia a leader in translational research and innovation for the benefit of public health, industry, and the environment. ANSTO also provides services to business and industry including detection and imaging, minerals and radiation protection consulting, irradiation services, environmental monitoring, and training. The ANSTO Innovation Precinct in Southern Sydney is the

home of ANSTO's *nandin* Innovation Centre, where business leaders and entrepreneurs engage with science, technology, and industry. *nandin* has over 30 start-ups that are connected to ANSTO's leading research talent, including industry-focused graduates, seeking to develop the next generation of thinking that will support our industries into the future. Many of these start-ups draw on ANSTO's infrastructure and expertise, and are leading innovation in the fields of cybersecurity, artificial intelligence, and space.

The work of ANSTO is directly relevant to the Australian Government's National Science Priorities and provides a direct benefit to the nation in terms of its economic performance, favourable health outcomes, a nuclear workforce for the future and translational research with real national benefit.

Values



Safe. Secure. Sustainable.

Three key principles that underpin everything we do and every decision we make

Curiosity

Harness our curiosity to explore new opportunities and create an environment where ideas can thrive

Leadership

Ownership, accountability and working with integrity to inspire and motivate others

Excellence

Consistently delivering high value outcomes and looking for ways to improve the quality of our performance

Working Together

Success through collaboration, team work and a sense of collective purpose

Trust + Respect

An inclusive environment that's built on our trust and respect for each other's contributions and capabilities

Celebrating our people

ANSTO researcher appointed to Powerhouse Museum Fellowship

Joseph Bevitt, Senior Instrument Scientist at the Australian Centre for Neutron Scattering, was appointed as a Visiting Research Fellow at the Powerhouse Museum in Sydney. The Powerhouse Research Fellowship Program provides a supportive environment to undertake research related to the museum's collection, education, conservation, and museum practice. The fellowships enable researchers to access Powerhouse resources to support their research for a short period of time. Joseph will work on projects for "The Invisible Revealed" exhibition, and publication pathways for those projects where conclusions were drawn on objects. Further papers will be prepared that focus on the research outcomes of individual objects, or groups of objects, and/or focus on the technical innovation of the applied non-destructive nuclear methods toward cultural heritage studies.



Australian Nuclear Association (ANA) recognises former manager of nuclear reactor and waste operations

In February, **Lubi Dimitrovski**, former Manager, ANSTO Waste Operations (1995-2012) and former General Manager Nuclear Operations (2013-2018), received the 2022 ANA Award in recognition of his leadership role in radioactive waste management in Australia.



ANSTO part of the team recognised with high commendation for innovative defence research

ANSTO is part of a team that received a High Commendation at the AVALON 2023 National Innovation Award for a collaborative project demonstrating sovereign industrial capability gains and delivering sustainment cost reductions for Defence. DMTC Limited and its industry and research partners are pairing advances in the use of existing additive manufacturing technologies, such as laser additive deposition, with novel technology developments to successfully repair worn or degraded airframe components. The team comprises Melbourne-based Rosebank Engineering, research expertise from Swinburne University of Technology and RMIT and scientists from Defence (DSTG) and ANSTO. **Prof Ondrej Muransky** and ANSTO are honoured to be part of the recognised team, with contributions in developing multi-scale physics-based numerical models of additive manufacturing processes.



ANSTO Awards

The 2022 ANSTO Awards took place in June 2023, where we celebrated our people and recognised the contribution of staff for their outstanding work, innovation, and excellence. 390 staff were nominated by their peers and 52 winners across various areas of work, including:



Dr Inna Karatchevtseva

Dr Inna Karatchevtseva was recognised for her considerable contribution to defence science and nuclear materials that has brought her professional acclaim with the George Collins award for Innovation. In 2019, she was recognised for her contribution to the partnership with Thales Australia to develop an Australian supply chain for critical components of submarine sonar transducer equipment. In work that started about a decade ago, Inna took up the challenge to grow a specific kind of single crystal for transducers in sonar detection systems. The Defence community recognised the potential of this material and continued to fund this research with the aim to develop an Australian sovereign capability in this area. Today the technology is mature enough to be transferred to a defence supplier for industrial implementation, and Inna is working with the THALES team to achieve this.



Dr Karina Meredith

Dr Karina Meredith is a world expert in using a variety of chemical and isotopic tracers in water to investigate water resource sustainability in a variety of natural environments in Australia and globally, and the 2022 ANSTO award winner in the Excellence in Research category. She is an authority in the use of tritium, radiocarbon, and chlorine-36 as independent tools to assess water resource sustainability. Outcomes of her research have provided a scientific understanding of crucial water resources in many parts of Australia, including the Darling River system, aquifers in Western Australia (WA) and NSW and other areas. Her collaborative work is helping with predictions of how environmental change will impact water resource availability in Australia. She leads ANSTO's contribution to Australia's \$36M project to Secure Antarctica's Environmental Future (SAEF) 2020-2027. At ANSTO, Karina is passionate about developing the next generation of environmental scientists through mentoring and guiding Postdoctoral Research Fellows and PhD students.



The Groundwater Team

The Groundwater Team **Dr Dioni Cendón, Dr Cath Hughes, Dr Karina Meredith, Dr Jagoda Crawford, Dr Liza McDonough, Stuart Hankin, and Chris Dimovski** won the 2022 ANSTO award for Partnerships and Collaborations with Impact Award for their NSW state-wide groundwater investigation work. This project has enabled ANSTO to partner with federal and state government agencies that are directly managing Australia's precious groundwater resources. The Groundwater Team has secured almost \$600,000 of revenue for ANSTO with work that fits within the Environment Research Themes Strategic Goals aiming to characterise how groundwater resources are changing due to climate across NSW catchments.



Dr Liza McDonough

Dr Liza McDonough has contributed to multiple projects in the Environment Theme in 2022, with innovative outcomes, and was the winner of the category for Early to Mid-Career in 2022. Dr McDonough led a paper published in May 2022 in *Geochimica et Cosmochimica Acta* showing for the first time ever that stalagmites can be used as archives of fire to show changes in fire intensity relating to the cessation of indigenous cultural burning after European arrival. She has also been working on novel research identifying the sources and degradation pathway of groundwater dissolved organic matter. Dr McDonough led a paper published in *Nature Communications* in April 2022 which proposes a new transformation pathway for dissolved organic matter in aquifers and highlights its importance for inclusion in global carbon budgets, for which groundwater is overlooked. In 2022 she was also contributing to ANSTO's work on the ARC special research initiative "Securing Antarctica's Environmental Future" (SAEF) and led a review paper submitted to *Earth Science Reviews* in December 2022, which is now being used to guide the future Antarctic and sub-Antarctic Lake water studies that are being conducted by ANSTO as part of the SAEF project.



Key highlights in 2022-2023

Radioactive capsule identified in the Western Australian outback

A dedicated team from ANSTO were behind the successful detection and rapid retrieval of a missing radioactive source that was lost on a 1,400-kilometre stretch of road in outback Western Australia.

Working alongside authorities from the Australian Radiation Protection and Nuclear Safety Agency, Defence, and the Western Australia Department of Fire and Emergency Services as part of a multi-agency response, ANSTO's team of radiation experts located the minuscule-sized source during a vehicle search using a suite of radiation equipment including ANSTO's own custom-developed radiation detection and imaging technology, CORIS360®.

The radioactive source was found two metres from the roadside on the Great Northern Highway near the town of Newman, when the CORIS360® unit – which was mounted in the back of the vehicle - detected the presence of gamma rays whilst travelling at 70 kilometres per hour.

www.ansto.gov.au/news/wa-outback-proves-no-match-for-aussie-nuclear-know-how

"For the team to find this missing source over a span of 1,400 kilometres and in the formidable conditions of the outback after only being on the ground for two days, is not only a phenomenal feat, but a testament to Australia's highly sophisticated nuclear capabilities and our people.

The sensitivity of the modified CORIS360® technology gave us the confidence it would be found, and this scenario is an incredible exemplar of Australian nuclear innovation which is aiding defence, the mining industry, and supporting nuclear safeguards and security."

Dr Miles Apperley

ANSTO's Group Executive for Nuclear Safety, Security, and Stewardship Group

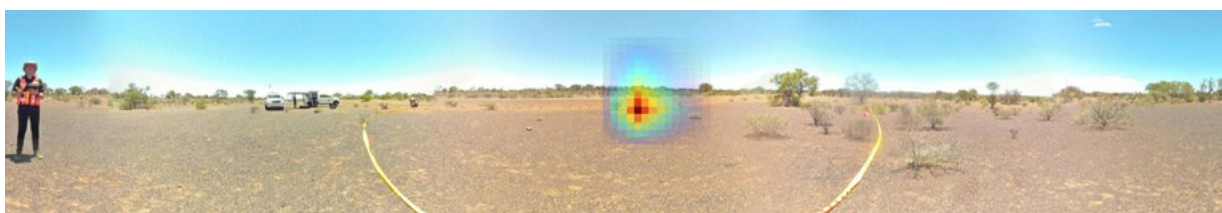


About the CORIS360®

The portable radiation detection technology was a modified version of ANSTO's own CORIS360®, an Australian innovation by Chief Technology Officer and Principal Scientist of ANSTO's Detection and Imaging unit, Dr David Boardman.

The CORIS360® technology produces fast, precise, and high-quality 360-degree images that pinpoint the identity and location of radiation in an area, whilst minimising the need for workers to stay within a radiation environment. Prior to deployment, ANSTO staff performed drive-by test runs of the detection equipment at its Lucas Heights campus using an equivalent radioactive source activity, and evaluated different speeds and terrain conditions to ensure that the missing capsule could confidently be detected.

Since its launch in 2020, the CORIS360® radiation detection technology has captured the global attention of agencies and organisations that support nuclear operations and national security activities.



ANSTO and the University of Singapore sign Australian Synchrotron Agreement

ANSTO and the National University of Singapore signed an agreement to enable Singapore researchers to access ANSTO's state-of-the-art beamline facilities at the Australian Synchrotron. The agreement was formally signed at a ceremony in Canberra in October, by ANSTO CEO, Shaun Jenkinson and Prof. Chen Tsuhan, Deputy President, Research and Technology, National University of Singapore. Funded by the National Research Foundation and operated by the National University of Singapore, the five-year agreement with ANSTO is the first partnership supported by Singapore's International Synchrotron Access initiative under its newly launched National Synchrotron Program.

www.ansto.gov.au/news/ansto-and-university-of-singapore-sign-australian-synchrotron-agreement



ANSTO researcher recognised for contribution using modelling methods to defence science

Dr Luiz Bortolan Neto, a structural materials engineer at ANSTO, received an Industry Partnership award for his significant contribution to defence science at the DMTC annual conference in Canberra. The award is given to an individual researcher who has contributed significantly to the industrial capability being developed in a DMTC project. Dr Bortolan Neto has worked for seven years on successive projects related to modelling the response of material to blast events and life-of-type assessments for naval shipbuilding steels. The assessments involved developing and enhancing complex algorithms that are used to study and predict deformation and component failure.

www.ansto.gov.au/news/ansto-part-of-team-recognised-high-commendation-for-innovative-defence-research



ANSTO technology supports environmental monitoring of ancient Aboriginal rock art

Dr Scott Chambers and Dr Alastair Willians worked on installing a radon detector on Murujuga, in the Pilbara region of WA, as part of the Murujuga Rock Art Monitoring Program (MRAMP), led by the WA Department of Water and Environmental Regulation (DWER) and Murujuga Aboriginal Corporation (MAC).

The data contributes to improved understanding of changes in concentration of atmospheric pollutants across Murujuga to which rocks are exposed and the identification of weather conditions, environmental conditions and industrial output conditions which are likely to pose the greatest risk of degradation to petroglyphs. This may include pollutants from local and remote industry, port and shipping emissions, natural emissions from marine aerosols and emissions from bushfires on Murujuga, which may be capable of accelerating the natural weathering of Murujuga's petroglyphs. This work is in alignment with the Government's Expectations of *Advancing First Nations Science*.

www.ansto.gov.au/news/ansto-technology-supports-environmental-monitoring-of-ancient-aboriginal-rock-art



Section 3:

Our purpose and strategic objectives

Our purpose

ANSTO's purpose is derived from section 5 of the *Australian Nuclear Science and Technology Organisation Act 1987 (Cth)* (the ANSTO Act), which directs the core functions we undertake for the benefit of Australia:

- conduct research and development in relation to nuclear science, engineering and technology;
- produce and use radioisotopes, isotopic techniques and nuclear radiation for medicine, science, industry, commerce, and agriculture;
- encourage and facilitate the application and use of results gained from research and development;
- manage radioactive materials and waste arising from various prescribed activities;
- provide goods and services related to core activities;
- provide advice to government and liaise with other countries on behalf of Australia in nuclear-related matters;
- collaborate with universities, professional bodies and other education and research institutions;
- make available to other persons – whether or not on a commercial basis – the knowledge, expertise, equipment, facilities, resources, and property of the organisation for the purposes of scientific research, innovation, and training;
- publish scientific and technical reports, periodicals, and papers, and provide public information and advice; and
- facilitate education and training in nuclear science and technology, including through granting scientific research studentships and fellowships, in cooperation with universities, professional bodies and other education and research institutions.



Our strategic objectives

OUR VISION



Nuclear science and technology for the benefit of all Australians

OUR MISSION



To deliver knowledge, value and trust through the application of nuclear science, technology and engineering

OUR STRATEGIC OBJECTIVES



1. Deliver on Australia's priorities for the benefit of people, industry and the environment through nuclear excellence in research and the use of national infrastructure



2. Improve the health of Australians by supporting access to current and future nuclear technologies for diagnostic, therapeutic and innovative treatments for current and emerging diseases



3. Australia's source of nuclear expertise, advice and services to governments, academia, industry, and community



4. Lead the development of a nuclear capable workforce aligned with government policy objectives

OUR VALUES

Curiosity

Leadership

Excellence

Working together

Trust + Respect

Safe. Secure. Sustainable.

Section 4:

Annual Performance Statement

Introductory statement

We, the ANSTO Board, as the accountable authority of ANSTO, present the 2022-2023 Annual Performance Statements of ANSTO, as required under paragraph 39(1)(a) of the *Public Governance, Performance and Accountability Act 2013* (Cth) (PGPA Act). These Annual Statements are based on properly maintained records. They accurately reflect the performance of ANSTO and comply with subsection 39(2) of the PGPA Act.

Summary of performance

Strategic Objective	Performance criterion	Measure and target	Result (2022-2023)	
1. Deliver on Australia's priorities for the benefit of people, industry, and the environment through nuclear excellence in research and the use of national infrastructure	<i>Deliver and translate research that has scientific and industrial impact for Australia.</i>	Eight case studies per reporting period demonstrating the impact of our research	ACHIEVED 8	✓
		580-650 total publications	ACHIEVED 581	✓
		\$5.25M external revenue from research and research services	ACHIEVED \$5.8M	✓
	<i>Form strategic partnerships and collaborations to leverage more effective research outcomes for Australia and the world</i>	≥ 95% publications undertaken with national and international collaborators	ACHIEVED 97%	✓
		<i>Operate world-class research infrastructure and leverage capabilities to deliver outcomes for Australia</i>	290 OPAL days at power	ACHIEVED 303.6 days
	95% Utilisation Australian Synchrotron		ACHIEVED 98%	✓
	85% Utilisation Australian Centre for Neutron Scattering		NOT ACHIEVED 84%	✗
	65% Utilisation Centre for Accelerator Science		ACHIEVED 65%	✓
	90% Utilisation National Deuteration Facility		NOT ACHIEVED 82%	✗
	90% User Satisfaction (NPS)		ACHIEVED 91%	✓
	≥95% NTD Silicon DIFOT		ACHIEVED 96%	✓
	<i>Ensure ANSTO operates sustainably</i>	Campus Renewal Plan 2035 Developing an Environmental Strategy Automation Projects	ACHIEVED	✓
	<i>Use knowledge incubation, research translation and collaboration within the Innovation Precinct to produce real-world benefits</i>	≥360 new jobs supported each year within the Innovation Precinct	ACHIEVED The <i>nandin</i> Innovation Centre is currently supporting over 400 jobs through 35 members	✓

Strategic Objective	Performance criterion	Measure and target	Result (2022–2023)		
2. Improve the health of Australia by supporting access to current and future nuclear technologies for diagnostic, therapeutic, and innovative treatments for current, and emerging diseases	Ensure the reliable and sustainable supply of nuclear medicines, products, and services	≥95% ANM (Mo-99) DIFOT	NOT ACHIEVED 94.1 %	✘	
		≥95% ANSTO Nuclear Medicine Production Facility DIFOT	NOT ACHIEVED 92.0 %	✘	
3. Australia's source of nuclear expertise, advice, and services to governments, academia, industry, and community	Deliver expert advice to local, state, and federal governments, and other stakeholders to support the national interest	75% Australian Government stakeholder satisfaction — federal, state and local government	ACHIEVED 85.72 % either very satisfied or satisfied	✔	
		≥ Four case studies to highlight and assess the impact of our engagement with government-related stakeholders	ACHIEVED	✔	
		RCA — Participation in 80% of active projects , Leading ≥1 project	ACHIEVED 100% Lead in 4 projects and participation in at least 80% of active projects	✔	
	Participate in global and regional nuclear discussions and forums to ensure that Australia remains a leader in the application of nuclear science and technology	IAEA CRP — Participation in ≥10 projects relevant to nuclear applications	ACHIEVED 100% participation in 11 projects	✔	
		≥ Two case studies per annum to highlight and assess the impact of our engagement with international stakeholders	ACHIEVED	✔	
		Grow a more informed generation of Australians who understand the benefits of nuclear science and technology	≥ 36 science stories published on the ANSTO website per annum	ACHIEVED 78 articles	✔
	Deliver ≥ six national programs per annum	Increased accessibility of STEM teacher training programs through the delivery of teacher professional development days	ACHIEVED 966 Teacher professional development days	✔	
		≥15,000 visitors to ANSTO's campuses per annum	ACHIEVED 16,016 Visitors to Lucas Heights 2,500 – 3,000 Visitors to Australian Synchrotron	✔	
		4. Lead the development of a nuclear capable workforce aligned with government policy objectives	Leadership team — Male 40% Female 40% Discretionary 20%	NOT ACHIEVED 65% Male 35% Female	✘
			ANSTO-wide — Male 40% Female 40% Discretionary 20%	NOT ACHIEVED 67.77% Male 32.16% Female 0.08% Indeterminate	✘
Develop a workforce plan for the next generation of specialised nuclear professionals	150 postgraduates supervised	ACHIEVED 155	✔		
Ensure a highly reliable, safe, and secure environment	Increased opportunities for improvement (OFI) to actual incidents recorded	ACHIEVED 7:10	✔		
	Zero Class 1 incidents Year-on-year decrease in Class 2 & 3 incidents	NOT ACHIEVED 0 Class 1 or 2 injuries 8 Class 3 injuries	✘		



STRATEGIC OBJECTIVE 1:

Deliver on Australia’s priorities for the benefit of people, industry, and the environment through nuclear excellence in research and the use of national infrastructure

Deliver and translate research that has scientific and industrial impact for Australia

Performance criterion	Measure	Result (2022-2023)
Case studies demonstrating the impact of our research	Eight case studies per reporting period	ACHIEVED 8 ✓
Total publications*	580-650	ACHIEVED 581 ✓
External revenue from research and research services**	\$5.25M	ACHIEVED \$5.8M ✓

* ANSTO only. ANSTO with national co-authors, ANSTO with international co-authors, ANSTO with both national and international co-authors.
 ** Excluding National Collaborative Research Infrastructure Strategy (NCRIS) Grants.

Analysis of performance

Total publications

In 2022-2023, a total of 581 publications with ANSTO authors were recorded. Whilst this figure is down from the previous year, it aligns with the natural variation in publication figures in recent years. This confirms that ANSTO has maintained a good level of research activity over the past year.

External revenue from research and research services

The external revenue figure includes revenue from consulting services, collaborative research income, and other products and services. These impressive results are attributed to strong stakeholder engagement, which provides ANSTO with the ability to always keep a finger on the pulse and deliver successful outcomes.

Key activities for 2022-2023

How we deliver on our strategy and purpose.

Updated ANSTO research and development strategy and implementation

Corporate Plan 2022-2023 planned progress:

Implementation

Translating our research into scientific and industrial impacts is a priority for ANSTO. In developing our updated research and development strategy, we created an alignment between ANSTO’s new vision, strategy, and resources and Australia’s national science and research priorities. Through its implementation, we will also drive improved communication and engagement about the value and impact of our research and development. This will be supported by process improvements to systems which are tailored to research and development, including finance management, IT data management, intellectual property (IP) and commercialisation.

ANSTO consistently concentrates its research and development efforts around areas that respond to national needs and which are based on ANSTO’s unique nuclear sovereign capabilities. ANSTO supports nuclear science and technology research through the work of our own researchers and indirectly by making our research infrastructure accessible to users external to ANSTO. ANSTO’s research priorities and those of our visiting researchers will change over time, in response to the needs of Government and the Australian and international communities.

Analysis of performance

Work has been delivered in all cross-cutting areas that support the translation of our research into scientific and industrial impacts. Work has progressed on our business systems, including the Current Research Information System and Portal (CRISP) project and enhanced development of IP policies and management. Our concentration of research and development effort on areas of national priority is evidenced by the fact that we are a partner-of-choice for a number of leading organisations:

- In October 2022, ANSTO signed a 5-year Preferred Access agreement with Singapore to facilitate paid access to Australian Synchrotron beamlines. This new program will support research collaborations between Australian and Singapore and enable the sustained growth of the Singapore synchrotron research community.
- ANSTO is a Partner Investigator on the successful ARC Research Hub for Advanced Manufacture of Targeted Radiopharmaceuticals grant. ANSTO is positioned within the Research Hub to lead late-stage manufacturing development of alpha radiopharmaceuticals and radioisotopes. Participation will enhance ANSTO as a partner of choice for industry and academic collaborators – there are over 15 Australian and international universities and industry partners – and support the translation of radiotherapeutic products and technologies potentially into ANSTO Nuclear Medicine.
- In August 2022, ANSTO joined the *ARC Centre for Fragment-Based Design* (ARC CFBD). The Centre brings together academic and industry partners to develop and facilitate access to the transformative technology of Fragment-Based Design in conjunction with the MX Crystallography beamlines for the development of new pharmaceutical medicines.
- ANSTO has signed a Memorandum of Understanding with the Australian National University to formalise the relationship between the two organisations as the two organisations collaborate on future projects such as the fusion energy project ITER, and space research. The agreement will facilitate more opportunities for access to resources and infrastructure between the organisations and enhance research in nuclear science, the nuclear fuel cycle, human and animal health, agriculture, manufacturing, minerals, and the environment.
- In March 2023, ANSTO signed an agreement with Monash University to host a new on-site research partner, the *Medicines Manufacturing Innovation Centre* (MMIC). While MMIC has been operating out of the Australian Synchrotron Biochemistry Laboratory in FY2023, they will move into their new purpose-built building containing laboratories and offices in early 2024.
- ANSTO has signed a Memorandum of Understanding with the large German research centre, Helmholtz Zentrum Dresden-Rossendorf (HZDR), to enhance collaboration between the organisations. HZDR comprises eight institutes and research infrastructure that includes radiation sources, ion beam accelerators, among other specialist capabilities. Their research focuses on resources and energy, radio oncology, and the behaviour of materials under extreme fields and in the smallest dimensions. The strategic alliance between the two organisations will include scientific and technical cooperation in accelerator mass spectrometry (AMS) to benefit society and industry.

ANSTO is partnering with universities and industry partners in two new ARC Centre of Excellence grants, commencing in 2023:

- ARC Centre of Excellence for Indigenous and Environmental Histories and Futures – awarded \$35M over 7 years. ANSTO's environmental research expertise and capabilities in radiocarbon dating, lead-210 analysis, and ITRAX core scanning will support the research and training objectives of the Centre.
- ARC Centre of Excellence for Carbon Science and Innovation – awarded \$35M over 7 years. The centre will use pioneering methods to transform the fundamental science of carbon and develop clean solutions for fossil-fuel-based energy generation and chemical production. ANSTO has capabilities to assist the Centre of Excellence in understanding how new carbon materials will perform in extreme environments which is crucial to the development of new energy technologies and space exploration.

For both grants, ANSTO will benefit from the co-supervision and co-location of students and Postdoctoral Fellows.

ANSTO continued its engagement with X-Lab (X-band Laboratory for Accelerators and Beams), a collaboration with CERN and the University of Melbourne to establish a new accelerator laboratory and test facility for the development of compact, high power, high frequency electron accelerator systems and associated X-ray light sources for research and medical applications. The refurbished test facility including radiation bunker was completed in FY2023, along with power supplies, wave guides, and core systems of the initial compact accelerating structure.

Current Research Information System and Portal (CRISP) project

Corporate Plan 2022-2023 planned progress:

Planning

Implementation

The CRISP project will provide our organisation with best practice, integrated software tools, and analytics to more effectively manage information and data related to all aspects of our research activities. Outcomes from the project will include improved reporting and analytics, and improved support for compliance. Following the scoping study undertaken in FY21, ANSTO will now implement the Research Infrastructure Management Strategy (RIMS) and gather requirements for the functionality upgrade of the ANSTO Research Portal, the gateway to submission of research proposals by all users of ANSTO's research infrastructure, and a Laboratory Information Management system.

Analysis of performance

The Research Infrastructure Management Strategy (RIMS) is currently being implemented using end user testing for further feedback. The Laboratory Information Management system and ANSTO Research Portal projects are both at the stage where the scope is close to being finalised.

Case studies

To evaluate the diverse impacts of our research activities, ANSTO utilises an in-depth case study approach. The case studies outlined below capture some of our most important research activities over 2022–2023.

CASE STUDY 1

Pioneering research has confirmed that the current level of rainfall recharging groundwater in Southwestern WA is at its lowest for at least the last 800 years

OUTCOME

In a world-first study, Australian environmental scientists have used cave stalagmites as a record of groundwater replenishment over time, that showed the current level of rainfall recharging groundwater in Southwestern WA is at its lowest for at least the last 800 years.

IMPACT

The evidence indicated that there has been a decline in rainfall recharge to groundwater in Southwestern WA over the last 20 years due to reduced rainfall. Southwestern WA is dependent on groundwater to meet approximately 75% of its water demand. The research highlights the vulnerability of this resources, and the necessity of ANSTO's research to support key Science and Research Priorities, such as Soil and Water and Environmental Change.

RESEARCH

This scientific development was achieved by using stalagmites and ceiling dripwater from caves that are located between the land surface and the groundwater table. Water that filters through the cave from the surface towards the groundwater can form cave stalagmites. These stalagmites can be used to obtain records of past groundwater replenishment (technically known as recharge) using the oxygen isotopic composition ($\delta^{18}O$). ANSTO provided world-leading capability to provide sensitive radiocarbon dating at the Centre for Accelerator Science as well as chemical signatures at the Australian Synchrotron. The stalagmites collected in this study indicated that rainfall recharge to groundwater has declined in response to the rainfall reduction.

COLLABORATORS

CSIRO, University of New South Wales, Australian National University, University of Adelaide.



CASE STUDY 2

La Trobe University scientists and international researchers have discovered how a bacterial toxin that causes human illnesses can enter and kill a wide range of living cells

OUTCOME

An international research team discovered how a bacterial toxin, known as Ssp, from the bacterial pathogen *Serratia marcescens*, can enter and kill a wide range of living cells, including human cells. This is the first new toxin class structure determined in over ten years, creating new pathways for antimicrobial treatments, and reducing the need for antibiotics.

IMPACT

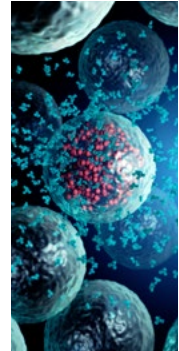
Serratia marcescens causes many human infections including respiratory diseases, as well as bloodstream and urinary tract infections. The pathogen is known to also cause infections in livestock, insects, and plants. By elucidating the structure of the toxin, scientists can develop new antimicrobial treatments.

RESEARCH

The structure determination of the toxin was challenging and was only made possible by the Microfocus crystallography beamline at the Australian Synchrotron. With the solved structure the researchers were able to understand the design of the toxin, which was quite unlike any others previously known to science.

COLLABORATORS

La Trobe University, French National Research Institute for Agriculture, Food and Environment.



CASE STUDY 3

Combining irradiation and lithography to engineer advanced conducting materials

OUTCOME

A large collaboration of researchers used nuclear techniques only possible at ANSTO's Centre for Accelerator Science and Australian Centre for Neutron Scattering and other methods to develop and characterise a process to engineer nanoscale arrays of conducting channels for advanced scalable electronic circuitry.

The investigators created patterns of topological surface edge states on antimony telluride (Sb_2Te_3) that made the surface edges conductive while the bulk layer beneath remained an insulator.

IMPACT

Topological insulators could potentially hold the key to designing and building the trillions of transistors needed for energy-efficient quantum electronics using a nuclear technique.

RESEARCH

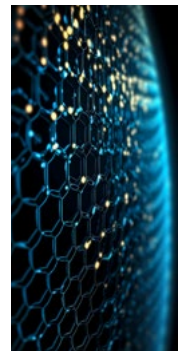
Ion beam implantation has been commonly used to modify the properties of materials by customised doping, for example, the doping of silicon. Until recently, this approach has not been demonstrated in 2D materials and topological insulators, which are widely considered a promising platform for types of quantum electronics.

In this research, lateral patterns were etched on thin flakes of the materials. Ion irradiation, which was carried out with three types of interfaces under varying temperatures, changed the atomic structure and the electronic properties. X-ray diffraction and cross-sectional transmission electron microscopy confirmed the phase transition and further experimentation with X-ray reflectometry and neutron reflectometry was used to gain insights into optimum ion beam dose to achieve the conversion.

Neutron reflectometry on the new Spatz instrument at the Australian Centre for Neutron Scattering verified the thickness and morphology of the thin films and confirmed that the material remained the same chemical compound after the irradiation. Researchers were later able to demonstrate the approach also worked on large wafer sized area cm^2 sized films using a versatile low-energy ion implanter at ANSTO's Centre for Accelerator Science.

COLLABORATORS

University of Wollongong, Monash University, RMIT, University New South Wales, University of Shanghai for Science and Technology, Technical University of Munich.



CASE STUDY 4

ANSTO part of the team recognised with high commendation for innovative defence research

OUTCOME

ANSTO is part of a team that received a High Commendation at the AVALON 2023 National Innovation Award for a collaborative project demonstrating sovereign industrial capability gains and delivering sustainment cost reductions for Defence.

DMTC Limited and its industry and research partners are pairing advances in the use of existing additive manufacturing technologies, such as laser additive deposition, with novel technology developments to successfully repair worn or degraded airframe components.

IMPACT

The numerical modelling framework will help in understanding of the process–microstructure–property relationship and advance the rapid optimisation of the additive manufacturing process for industrial applications.

RESEARCH

When it comes to the manufacturing and repairing of engineering components, a broader adoption of additive manufacturing processes is hindered by an insufficient understanding of the relationship between process, microstructure, and properties, which governs an in-service performance. Understanding the ongoing thermo-physical, thermo-metallurgical, and thermo-mechanical processes taking place during additive manufacturing can address some of the long-standing challenges. This insight can reduce a component's failure due to residual stresses, extensive distortion and/or microstructural defects. A multi-scale physics-based modelling framework can elucidate the complex interdependencies between additive manufacturing process parameters and resulting residual stresses, distortion, and microstructure. This framework governs an in-service performance of additively-manufactured or additively-repaired engineering components.

COLLABORATORS

DMTC Limited, Swinburne University of Technology, RMIT University, Defence Science and Technology Group, Rosebank Engineering.



CASE STUDY 5

ANSTO supports innovative industry process to minimise plastic waste and maximise feed stock for 3D printing

OUTCOME

ANSTO collaborated with additive manufacturing company 3rd Axis on the design, materials, and process development of a key ceramic component for an innovative process to convert plastic waste from personal protective equipment (PPE), such as face masks and gowns, into filament used as feedstock for 3D printing.

IMPACT

It is estimated that 1.6 million tonnes of plastic waste a day has been generated globally since the start of the COVID-19 pandemic outbreak, and 3.4 billion single-use facemasks are discarded daily because of COVID-19 safety measures.

In addition to recycling PPE, the technology being developed by 3rd Axis opens the possibility of recycling other plastics and materials.

RESEARCH

The NSW Government through the Office of the Chief Scientist Small Business Innovation and Research Grant has provided funding for both the feasibility study and proof of concept phase of the project. ANSTO is the primary research partner in a collaborative Public Private Partnership approach between the NSW Government and Industry Partner 3RD Axis Pty Ltd.

ANSTO used its materials and process engineering expertise to complete the initial materials characterisation to validate the material separation process of a selected range of PPE products. The technology had to provide clean, separate core element materials from the PPE products that could be used as feedstock for the ceramic screw plastic extruder provisionally patented by 3RD Axis Pty Ltd and under development as a part of the SBIR program. The unique design of the ceramic extruder will reduce power consumption in some cases by up to 80% and increase life expectancy over traditional steel extruders by more than double.

COLLABORATORS

3rd Axis.



CASE STUDY 6

Nuclear technique supports industry-led action plan to phase out packaging with PFAS chemicals

OUTCOME

Testing at ANSTO's Centre for Accelerator Science is enabling an action plan, published by the Australian Packaging Covenant Organisation (APCO), to phase out per- and polyfluoroalkyl substances (PFAS) in fibre-based food contact packaging in Australia by December 2023.

IMPACT

This testing will assist business and regulators to set a limit in terms of what is acceptable total fluorine concentration in parts per million.

The ANSTO service is now available to research and industry users across Australia and overseas with rapid turnaround response times.

RESEARCH

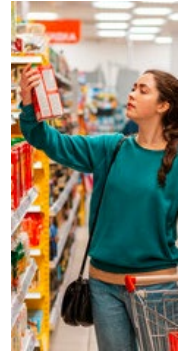
The non-destructive, highly accurate and precise technique, known as particle-induced gamma-ray emission (PIGE), undertaken on the STAR accelerator at ANSTO's Centre for Accelerator Science can detect trace amounts of fluorine concentration down to 50 parts per million (ppm).

The results indicate which of those samples have elevated fluorine which suggests the presence of PFAS and should be targeted for further testing.

The majority of the samples analysed were cellulose-based packaging, such as boxes for pizza, burgers, and chips, but also a new stream of packaging made from sugar cane pulp called Bagasse.

COLLABORATORS

Australian Packaging Covenant Organisation, Planet Ark, Envirolab.



CASE STUDY 7

Research on nuclear fuel burnup supports reduction of waste and fuel costs

OUTCOME

ANSTO has supported research to develop a validated model to predict thermal properties such as heat capacity and thermal expansion can be used in updating fuel performance codes, used to ensure the safety of the fuel during reactor operation, and contributing to an increase in fuel burnup.

IMPACT

Managers of international nuclear power reactors could use this validated model to predict thermal properties such as heat capacity and thermal expansion in updating fuel performance codes to ensure the safety of the fuel during reactor operation, increase fuel burnup and increase proliferation resistance in alignment with the current Science and Research Priorities for Energy.

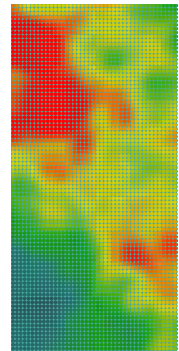
RESEARCH

The research used mathematical modelling and experimental characterisation undertaken at ANSTO to predict the thermal conductivity, heat capacity and thermal expansion in the pellet clad bond layer at a range of temperatures. After completing the modelling, samples of the material (U,Zr)O₂, which makes up the pellet-clad bond layer, using ANSTO's specialist laboratories for the handling of radioactive materials, were synthesised. The models were validated using high-temperature x-ray diffraction techniques and inelastic neutron scattering on the Pelican instrument only available at ANSTO's Australian Centre for Neutron Scattering.

Simulations predicted that between 300-500 K, the (U,Zr)O₂ had lower thermal conductivity than the UO₂ fuel. However, at higher temperatures, there were no significant differences between the bond layer and the fuel.

COLLABORATORS

University of New South Wales.



CASE STUDY 8

Pioneering work on seafood provenance continues with progress on a global approach

OUTCOME

In a continuation of pioneering work on food provenance, ANSTO researchers have identified universal chemical markers and used geological isotope mapping of ocean areas to successfully geolocate a diverse range of seafood back to the region of origin.

IMPACT

These techniques have the potential to change the way the provenance of seafood is verified on a more unified, global, and equitable scale. A universal approach could help combat food fraud.

RESEARCH

ANSTO's method, which is based on the use of stable oxygen isotopes as universal markers, was tested on a range of seafood from diverse geographical locations.

The team used natural chemical markers imprinted within the shells and bones of marine animals that permanently retain lifetime chemical fingerprints and do not decay.

Because these markers reflect the animal's aquatic environment, they can be used to locate geographic origin.

This study employed a universal chemical marker that is expressed similarly among different marine animals within the same geographical region.

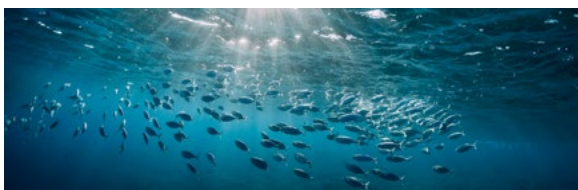
These universal chemical markers are precisely controlled by ocean composition and temperature rather than an animal's biology.

Harnessing the predictable spatial variation of marine habitats, the researchers were able to construct a global ocean map, called an isoscape, that predicts the oxygen isotope imprint in shells and bones across species.


The universal framework was rigorously tested with a machine learning model approach developed at ANSTO, which confirmed that the global isoscape could be used to correctly identify the origins of a wide range of marine animals living in different latitudes with up to 90 per cent accuracy.

COLLABORATORS

University of South Australia.









Form strategic partnerships and collaborations to leverage more effective research outcomes for Australia and the world

Performance criterion	Measure	Result (2022–2023)
Publications undertaken with national and international collaborators	≥95%	ACHIEVED 97% 

Analysis of performance

Translational research outcomes are central to our purpose and showcase the value we create for Australia. From 2022-2023, ANSTO authors delivered publications with authors from over 60 countries. This high level of collaboration highlights ANSTO's exceptional levels of engagement around the world.

Operate world-class research infrastructure and leverage capabilities to deliver outcomes for Australia

Performance criterion	Measure	Result (2022–2023)
OPAL	290 days	ACHIEVED 303.6 
Australian Synchrotron	95% utilisation	ACHIEVED 98% 
Australian Centre for Neutron Scattering (ACNS)	85% utilisation	NOT ACHIEVED 84% 
Centre for Accelerator Science (CAS)	65% utilisation	ACHIEVED 65% 
National Deuteration Facility (NDF)	90% utilisation	NOT ACHIEVED 82% 
User Satisfaction (NPS)	90% NPS	ACHIEVED 91% 

Analysis of performance

The OPAL multi-purpose nuclear reactor continues to be the heart of ANSTO's landmark infrastructure, with results over the past year demonstrating an outstanding facility reliability of 98.7%. The utilisation goal of the Australian Synchrotron and the Centre for Accelerator Science was achieved. It is also positive to see the user satisfaction goal achieved, with figures similar to scores from previous years, demonstrating a consistency of user satisfaction. However, there remains room for improvement in the coming years, with the utilisation goal of the Australian Centre for Neutron Scattering and the National Deuteration Facility not achieved, due to issues such as additional maintenance requirements and calibrations, relocation of laboratory equipment, and funding timeframes.

Key activities for 2022-2023

How we deliver on our strategy and purpose.

OPAL multi-purpose reactor upgrades

Corporate Plan 2022-2023 planned progress:

Replacement of CNS	Planning
Nuclear Medicine Project – planning and design	Preparation Implementation
Ongoing maintenance of our Nuclear Medicine Production Facility	Monitoring Improving
Five-year research and development strategy for successful innovation in health	Implementation

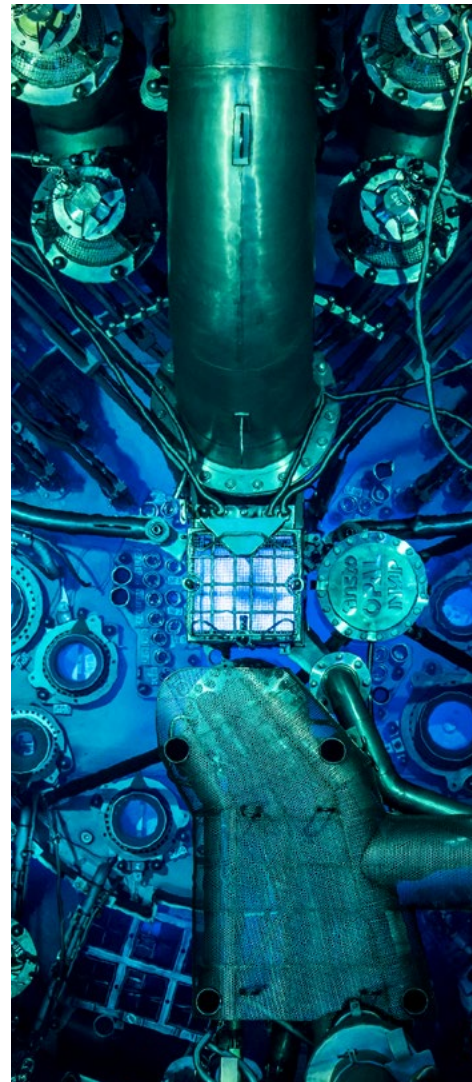
The OPAL multi-purpose reactor has been operating since 2007. OPAL is a 20-Megawatt multi-purpose research reactor used for radioisotope production, irradiation services, and scientific neutron beam research. OPAL uses low-enriched uranium fuel in a compact core, cooled by light (normal demineralised) water and moderated by heavy water, which works to maintain the nuclear reaction in the core by 'reflecting' neutrons back towards the core.

It is equipped with a special Cold Neutron Source (CNS) operating at minus 250 degrees celsius, which provides further research capabilities. The CNS has a limited operating life. Preparations for the replacement of the CNS during the scheduled 2024 shutdown are progressing as planned and will preserve and enhance our ability to continue to provide effective scientific infrastructure utilisation for science, research, and industry partners. Key components have been fabricated and have arrived on the ANSTO site. A technical team responsible for the managing of the physical CNS replacement has been established and detailed theory and practical training has commenced.

ANSTO is focused on ensuring the ongoing and safe operation of the OPAL nuclear reactor to optimally position ANSTO to supply radioisotopes reliably, undertake effective silicon irradiations, and deliver neutrons for research and industry applications.

For the ongoing maintenance of the Nuclear Medicine Production Facility, we continue to strive to deliver safe, quality, and reliable nuclear medicines to improve the health outcomes for all Australians through the effective application of radioisotopes and radioisotope-enabled technologies, including radiopharmaceuticals.

The 2023-24 Federal Budget provides funding for ongoing maintenance of the current production facility in line with a 10-year Asset Management Plan. This Plan includes the recruitment of additional engineers as well as an alternating approach to annual shutdowns, with shorter shutdowns being followed by an extended period in the following year. In 2023, a shorter shutdown was implemented, with a longer shutdown planned for 2024. The longer shutdown in 2024 will impact the supply and cross-functional teams are preparing now to have mitigations and supply solutions finalised well before the shutdown.



Project BR—GHT

Corporate Plan 2022-2023 planned progress:

MCT, MEX1&2, BioSAXS		Completion
ADS 1&2, MX3	Planning	Implementation
Nanoprobe	Planning	Implementation

To date \$95 million has been secured for the project BRIGHT program from more than 30 universities, research institutes and government agencies in Australia and New Zealand. This project is enabling ANSTO to construct eight additional beamlines at the Australian Synchrotron over the coming years. The creation of these new beamlines will nearly double the Australian Synchrotron’s research capacity, making it the ‘go to’ facility for the nation’s scientific imaging capabilities for addressing national and global challenges. This level of support highlights the importance of the facility to the Australian and New Zealand innovation and science ecosystem.

The *Micro-Computed Tomography* (MCT) beamline started User Operations in September 2022, the *Medium Energy X-ray Absorption Spectroscopy-1* (MEX1) in November 2022, and the *Medium Energy X-ray Absorption Spectroscopy-2* (MEX2) in April 2023. The commencement of User Operations for BioSAXS is now expected in October 2023 due to minor delays in construction and commissioning.

Collectively MCT, MEX1, and MEX2 have undertaken more than 50 User experiments in FY2023 since commencing operations. Fields of research encompassed by these experiments include vulcanology, palaeontology, biomedical studies, environmental science and climate change, advanced manufacturing and aerospace, and development of new X-ray imaging methods, agriculture, mineral processing, catalysts, energy materials and batteries, and electronic materials including organic electronics.

The *Advanced Diffraction & Scattering-1* (ADS1) satellite building construction was completed in April 2023, and the ADS1 and ADS2 radiation enclosures have both been installed and tested. Services are currently being installed for both ADS1 and ADS2; while endstation systems are currently being installed and commissioned in the ADS1 experimental enclosure. ADS1 and ADS2 are expected to commence User Operations in late 2024.

The MX3 beamline had taken delivery of all its key systems – in-vacuum undulator, radiation enclosures and user cabin, beamline optics and safety systems, sample storage dewar, sample transfer robot and sample mounting goniometer, and its Eiger2-16M X-ray detector. MX3 is on-track to take the first user experiments on in May 2024.

The X-ray Fluorescence Nanoprobe (NANO) beamline has placed contracts for most of its major systems, including the in-vacuum cryo-undulator, and the beamline X-ray optics. Designs are well advanced for the NANO endstation systems, including the high-precision sample robot. The radiation enclosures for the NANO X-ray optics have been installed and tested, and construction has commenced on the NANO satellite building. The NANO beamline is expected to commence User Operations in the second half of 2025.



ANSTO's Australian Synchrotron in Clayton, Victoria.

Australian Centre for Neutron Scattering upgrades

Corporate Plan 2022-2023 planned progress:

Research Infrastructure Investment Plan

Implementation

Koala upgrades

Implementation

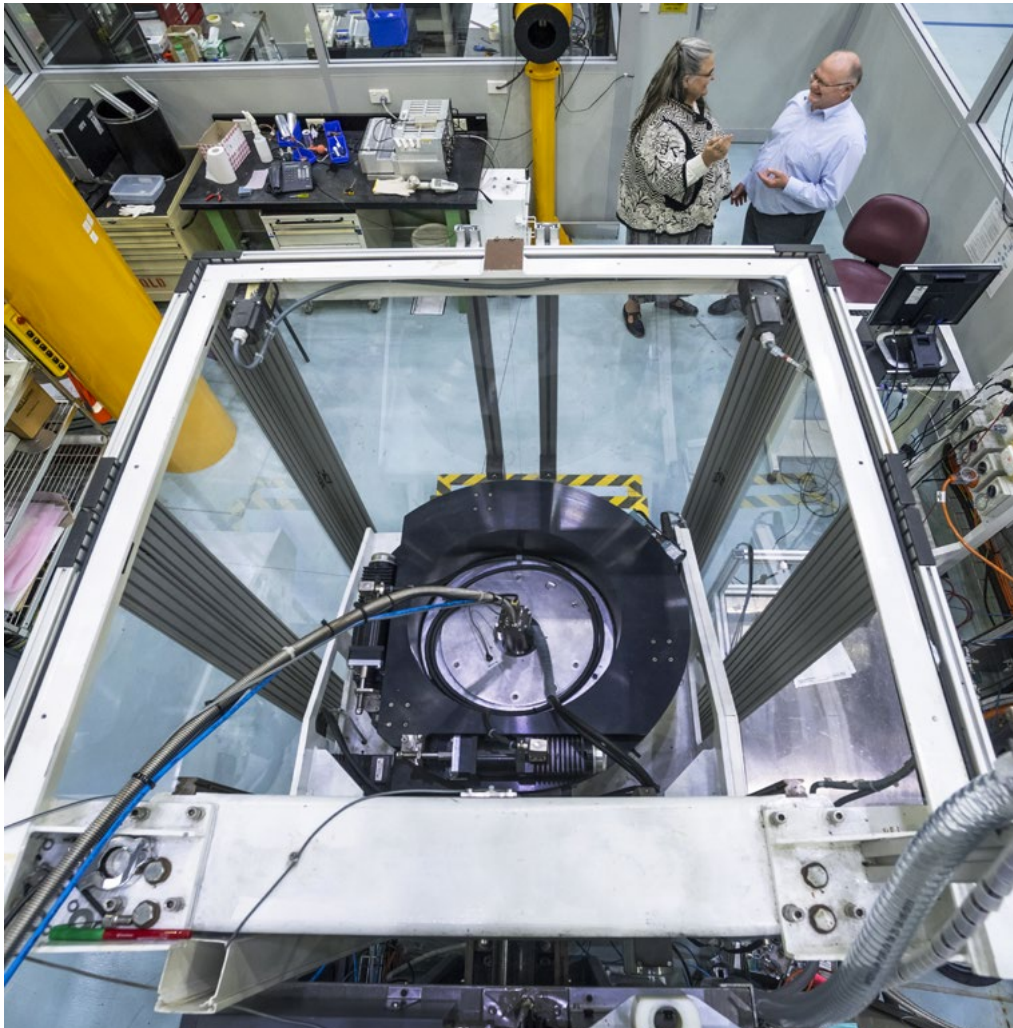
Completion

ACNS expansion scoping studies

Preparation

The Australian Centre for Neutron Scattering (ACNS) is the home of neutron science in Australia. Neutrons are subatomic particles with no electrical charge that penetrate materials more effectively than X-rays, making them especially useful in industrial materials analysis used in medicine, mining, transportation, building, engineering, food processing and scientific research.

ANSTO is upgrading critical instrument systems and expanding equipment at the ACNS. These investments will ensure ANSTO's state-of-the-art neutron scattering research infrastructure remains world-class and can operate reliably for decades to come. The majority of projects (24 of 30) have now been completed. The remaining projects are set to be delivered before the end of calendar year 2023. Other updates include the completion of the Koala Laue Diffractometer upgrades – one of the Neutron scattering instruments at the centre - with the first users set for July 2023, and calculations and studies on a potential 2nd cold source have been undertaken.



The Koala - Laue Diffractometer instrument at ANSTO's Australian Centre for Neutron Scattering.

Centre for Accelerator Science upgrades

Corporate Plan 2022-2023 planned progress:

Research infrastructure investment plan for critical systems, facilities, and equipment	Implementation
Automation of sample processing and end station mounting	Implementation
Space radiation testing	Preparation Completion
CAS expansion scoping studies	Preparation

ANSTO's Centre for Accelerator Science is a user facility open to all, with instruments and facilities for ultra-sensitive analysis using accelerator mass spectrometry (AMS) and ion beam analysis (IBA) techniques, for uses in fields from environment and climate studies, to space technology testing and quantum materials fabrication.

ANSTO is upgrading critical accelerator systems and equipment, initiating the consolidation of sample preparation facilities, and recruiting additional support for the industry and commercial user program, with funding secured through the 2020 Research Infrastructure Investment Plan. These investments will ensure the longevity and efficient operation of world-class accelerator science capabilities and instrumentation delivered by CAS and provide sovereign capability for ion beam precision irradiation to meet the national need for facilities supporting space, defence, and advanced manufacturing with funding from the Australian Space Agency's Space Infrastructure Fund.

Co-funded by NCRIS and ANSTO, there were some major capital projects initiated in FY2023, including the upgrade of critical accelerator systems on the STAR and ANTARES accelerators. A new automated system for processing dissolved inorganic carbon from groundwater samples was completed, commissioned, and data acquired validating the efficacy of the new system for quality assurance, compared to conventional manual processing. All milestones for the establishment of space radiation testing facilities within CAS have been completed and reported to the National Space Qualification Network for their project close out report to the Australian Space Agency.

Funded by NCRIS, a scoping study was initiated to explore stakeholder-driven expansion of experimental ion beam radiobiology capabilities at CAS and to explore engagement strategies for growing the radiobiology user base within Australia. Successes are already being realised with the first external users securing access to CAS' ion beam irradiation capability for radiobiology studies through the merit-access scheme.



Dr Ferlazzo placing a biological sample holder into a vacuum beam irradiation chamber.

National Deuteration Facility capability expansion

Corporate Plan 2022-2023 planned progress:

Increase production capacity	Preparation	Implementation
Provide stable isotope internal standards		Implementation
Provide solutions to industry		Implementation
Build Australia's human capital	Monitoring	Improving

The National Deuteration Facility (NDF) offers molecular deuteration using both in vivo biodeuteration and chemical deuteration techniques. Deuteration is a way to investigate the relationship between molecular structure and function of molecules of both biological and synthetic origin. Our work is critical in providing onshore support to drug discovery programs in Australia, reducing the inherent risks of dependency on outsourcing to overseas countries.

ANSTO is expanding existing capabilities to transition NDF from primary support of characterisation techniques to enabling research utilising deuterated molecules as functional materials in industry and biotechnology programs. The supply of deuterated molecules increased by 49% and the completed proposals increased by 38% through up-scaling synthesis and stockpiling high-in-demand deuterated molecules. Additionally, this allowed more time for staff for developing new capabilities, with 20 new molecules developed (an increase of 185%).

ANSTO started providing stable isotope internal standards for blood diagnostics tests for a biotechnology company and more requests have come through for the next year. We upgraded the NDF analytical capability to be able to keep providing these types of standards at the required high quality.

ANSTO engaged with five industries (both local and international), including pharmaceutical companies in China and Germany who accessed the NDF bespoke deuterated lipids for m-RNA technology, demonstrating our expansion on the global stage. We also fulfilled our target to build Australia's human capital in deuteration by training five new students, including internships from overseas.

Build new knowledge, drive innovation, and support training and development for the safe management of radioactive waste

Key activities for 2022-2023

How we deliver on our strategy and purpose.

Development and implement world-leading innovative radioactive waste treatment and management technologies

Corporate Plan 2022-2023 planned progress:

Implementation

Innovative and sustainable waste conditioning and management technologies will bring benefits to domestic and international holders of radioactive waste. ANSTO is constructing a world-first Synroc® Waste Treatment Plant adjacent to the ANSTO Nuclear Medicine facility to ensure alkaline liquid waste by-products from the manufacture of Molybdenum-99 (Mo-99) are treated in a safe, economical, and sustainable way. The plant integrates the design of both the waste form and process technology to immobilise radioactive waste, minimise volume, and provide an extremely durable and safe solution for final disposal. This development supports ANSTO's core capability and legislated mandate to temporarily store and manage radioactive waste on behalf of Australia.

Cold commissioning of the ANSTO Synroc® Mo-99 Waste Treatment Plant will continue throughout 2023-2024.

Implement ILW storage solutions

Corporate Plan 2022-2023 planned progress:

Construction of new storage facility

Preparation

Construction of new tank farm

Implementation

While producing radiopharmaceuticals for both Australian and international communities, ANSTO generates different kinds of radioactive waste, which is safely managed at ANSTO's Lucas Heights campus. ANSTO currently stores over 1,200 cubic metres of intermediate-level solid waste, also known as remote-handled solid waste (RHSW), from legacy activities.

ANSTO is preparing for the construction of a new building to continue to safely manage intermediate level solid wastes generated from its operations. During the reporting period, a decision was made to increase storage capacity and consolidate existing intermediate level liquid waste holdings into the proposed facility, subject to securing relevant approvals.

These storage solutions will ensure that ANSTO can continue to manage these wastes safely and responsibly, which in turn will support the continued production of radiopharmaceuticals over the coming decades.

Ensure the reliable and sustainable supply of commercial products and services for the benefit of Australia and the world

Performance criterion	Measure	Result (2022-2023)
≥95% NTD Silicon DIFOT	≥95%	ACHIEVED 96% DIFOT

Silicon irradiation, also known as neutron transmutation doping (NTD), is conducted in the OPAL multi-purpose nuclear reactor. Customers deliver silicon ingots to ANSTO which are then irradiated in the OPAL multi-purpose nuclear reactor and returned to customers for use.

Through a combination of efficient OPAL utilisation and materials flow throughout the process, as well as optimising scheduling and high-quality irradiation, we have met our target of above 95% NTD Silicon DIFOT.



Ensure ANSTO operates sustainably

Key activities for 2022-2023

How we deliver on our strategy and purpose.

Campus Renewal Plan 2035

Corporate Plan 2022-2023 planned progress:

Implementation

Monitoring

Improving

The Campus Renewal Plan, for the future of the Lucas Heights campus will improve our long-term operational sustainability, enhance our environmental footprint, and drive efficiencies.

The current status of the plan is as follows;

Implementation of Site Development Accommodation

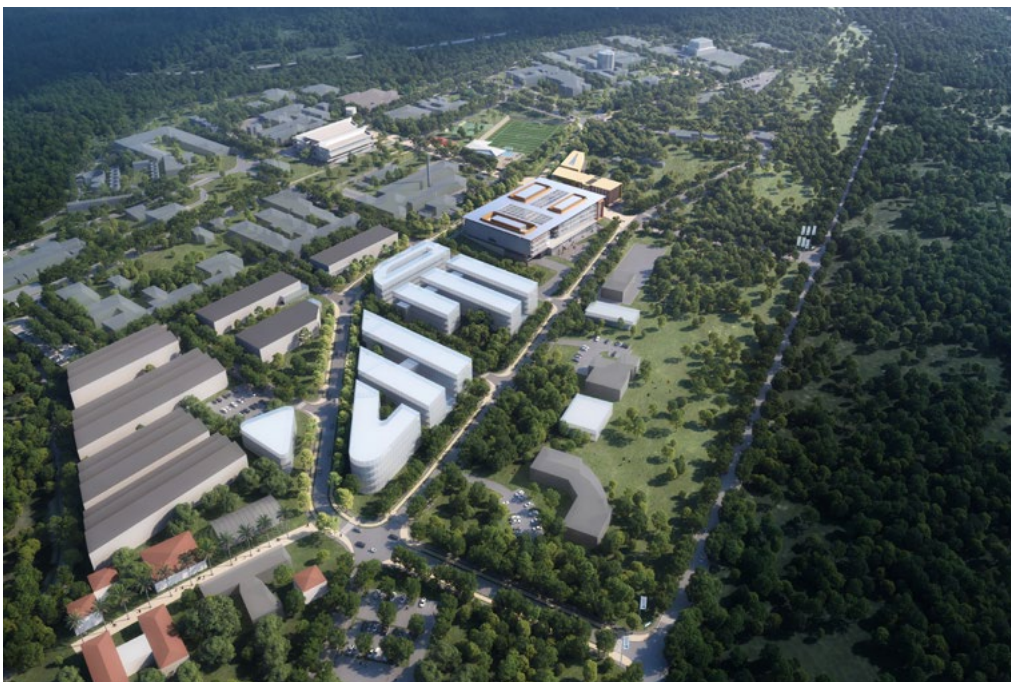
- Building established to support the project delivery teams for key projects across the site. Construction was completed in 2023 and occupation commenced shortly after.

Detailed Design Completed for enabling Projects including Calibration Centre and Campus Utility Building

- Calibration Centre: The Detailed design of the new facility to support the calibration of radiation detection equipment was completed during the reporting period.
- Campus Utility Building: Detailed design for the new facility to house ANSTO's critical utility infrastructure, including back up High Voltage Power and Compressed Air system, was completed during the reporting period.

Concept Design for Administration Building

- Administration Building: Continued maturity of the concept design for a new building to house of ANSTO's enabling functions in one place, improving collaboration.



Developing an environmental sustainability strategy

Corporate Plan 2022-2023 planned progress:

Implementation

In March 2022, ANSTO introduced its Environmental Sustainability Strategy, which is currently being reviewed to align with recent Australian Government policy announcements, emerging environmental issues, and organisational priorities. ANSTO is also working to implement a 15-year environmental sustainability roadmap that will result in the reduction of ANSTO's carbon emissions footprint. Once finalised, the roadmap will include long-term environmental sustainability plans, detail the actions we will take as an organisation to contribute to ecologically sustainable development, and the key performance indicators that will enable us to track and measure our environmental performance.

Automation projects

Corporate Plan 2022-2023 planned progress:

Preparation

Automation projects are aiming to improve operational sustainability, efficiency, and safety in the OPAL multi-purpose nuclear reactor, nuclear medicine facilities, radioactive waste management facilities, and the minerals operational area.

These projects include automating nuclear medicine production processes, installing a radioactive contamination robot with inspection capabilities, and using automation to improve the overall process efficiencies associated with our broader products and services, such as silicon irradiation.

The key automation project in the Nuclear Medicine Portfolio is the B23 Quality Control Automation Project. The B23 Quality Control Automation project to improve Mo-99 Quality Control testing has progressed to Hot Commissioning. Hot Commissioning has been practically completed, commissioning report and risk assessment updates are being prepared for submission to ARPANSA, Performance Qualification is underway.

Another key automation project is the silicon loading station upgrade for OPAL. This is an upgrade to go from a manual design to an automated or semi-automated system. The introduction of a new Silicon loading station will provide a major benefit to ANSTO's Silicon Irradiation production.

In terms of technical feasibility, there is a world market demand to increase production and improve capabilities to handle various ingot sizes by the Silicon loading station. The major driver for this project to be successful is to resolve the safety issues and poor ergonomics. The project goals are to increase the production and quality, without jeopardising the current Silicon irradiation production.



STRATEGIC OBJECTIVE 2:

Improve the health of Australia by supporting access to current and future nuclear technologies for diagnostic, therapeutic, and innovative treatments for current and emerging diseases

Ensure the reliable and sustainable supply of nuclear medicines, products and services

Performance criterion	Measure	Result (2022–2023)
ANM (Mo-99) DIFOT	≥95%	NOT ACHIEVED 94.1% ✘
ANSTO Nuclear Medicine Production Facility DIFOT	≥95%	NOT ACHIEVED 92.0% ✘

DIFOT (Delivery in Full and On Time) measures our ability to reliably deliver our products to our customers. Mo-99 DIFOT was above target throughout FY2023, with the exception of three instances of delay; in December there were low yield results, a rejected batch and unplanned shutdown in January, and Beatrice package (MPB) compliance in February. All issues have been resolved and performance has returned to previously high levels, with a process yield of 80% (YTD) and 100% DIFOT sustained for April, May, and June.

For the Nuclear Medicine Production Facility, performance was impacted by supplier quality issues, once where Gentech Generators missed orders due to a saline vial issue, and once where variable and constrained supply from the back-up supplier for Lu-177 impacted customer supply during planned outages. For I-131, product size range was limited in June to mitigate observed stability testing failures, largely impacting export customers.

Key activities for 2022-2023

How we deliver on our strategy and purpose.

Nuclear Medicine Project – Planning and design

Corporate Plan 2022-2023 planned progress:

Preparation Implementation

ANSTO’s Nuclear Medicine Production Facility is currently 60 years old. In the 2023-24 Budget the Commonwealth Government announced funding to construct a new nuclear medicine manufacturing facility and to support the continued production of nuclear medicine in the existing facility pending completion of the replacement project. This decision secures Australia’s end-to-end modern, sovereign nuclear medicine manufacturing capability for the long term.

When complete a new nuclear medicine manufacturing facility, will provide a purpose-built manufacturing facility, containing modern equipment and the latest technology for production to the highest standards of safety, quality, and reliability. This infrastructure will support the delivery of nuclear medicine services and offer investment in future industry development, including highly skilled jobs such as nuclear medicine researchers, developers, and practitioners. It will also support pharmaceutical research and development and contribute to research translation and medical industry collaboration to improve health care in Australia.

Ongoing maintenance of our Nuclear Medicine Production Facility

Corporate Plan 2022-2023 planned progress:

Monitoring Improving

ANSTO is responsible for the manufacture, production, and distribution of radiopharmaceuticals, radiochemicals, cold kits, and accessories for use in healthcare and research globally. In order to provide a safe, secure, and sustainable supply of nuclear medicines from the current facility significant maintenance and capital improvements are being carried out.

ANSTO has a thorough Asset Management Plan that will be implemented over the remaining lifetime of the Nuclear Medicine Production Facility. This includes a capital improvement plan that initially focuses on the remediation of the facility over the next five years to enable it to continue to run safely and reliably.

The 2023-24 Federal Budget provides funding for ongoing maintenance of the current production facility in line with a 10-year Asset Management Plan.

This Plan includes the recruitment of additional engineers as well as an alternating approach to annual shutdowns, with shorter shutdowns being followed by an extended period in the following year. In 2023, a shorter shutdown was implemented (September), with a longer shutdown planned for 2024 (18th March to 5th July 2024). The longer shutdown in 2024 will impact the supply, so cross-functional teams are preparing to have mitigations and supply solutions finalised well before the shutdown in Q1 FY24.

Five-year research and development strategy for successful innovation in health

Corporate Plan 2022-2023 planned progress:

Implementation

Using our sovereign capabilities in radioisotope and radiopharmaceutical development for the benefit and growth of nuclear medicine treatment and translational medical research, leads to improvements in health outcomes for all Australians.

The current Health R&D strategy prioritises the development and application of radioisotopes and radioisotope-enabled technologies including radiopharmaceuticals for improved patient outcomes.

In FY2023 significant milestones were reached, including the development of an emerging radioisotope, terbium-161, that was established through the first successful radioactive separation of terbium-161. A medical device incorporating a beta-emitter for surgical placement on cancer has been developed and delivered to MarginClear. Proof-of-concept in vivo validation of Neutron Capture Enhanced Particle Therapy (NCEPT) demonstrating significant reduction in tumour growth has been completed.

Additionally, Australians now have more options available for skin cancer radiotherapy through the delivery of 100 patient doses of a rhenium-188 product, manufactured for OncoBeta.

Use knowledge incubation, research translation, and collaboration within the Innovation Precinct to produce real-world benefits

Performance criterion	Measure	Result (2022-2023)
New jobs supported each year within the Innovation Precinct	≥360	ACHIEVED The <i>nandin</i> Innovation Centre is currently supporting over 400 jobs through 35 members

nandin is ANSTO's Innovation Centre where science and technology entrepreneurs, start-ups and graduates come together to challenge, design, innovate and commercialise, creating new jobs in the high-growth industries of tomorrow.

Numbers provided by *nandin* members through self-reporting for the annual impact survey. 'Jobs supported', as opposed to 'jobs created', is measured by how many employees the member businesses hire, which is a more valid and reliable measure to assess the impact of the Innovation Precinct on industry. Not all of the jobs are located at Lucas Heights due to Hybrid working arrangements, and some *nandin* members operating from multiple locations.



STRATEGIC OBJECTIVE 3:

Australia’s source of nuclear expertise, advice and services to governments, academia, industry, and community

Deliver expert advice to local, state, and federal governments, and other stakeholders to support the national interest

Performance criterion	Measure	Result (2022–2023)
Australian Government stakeholder satisfaction – federal, state and local government	75%	ACHIEVED ✓ 85.72% either very satisfied or satisfied
Case studies to highlight and assess the impact of our engagement with government-related stakeholders	≥ Four case studies per annum	ACHIEVED ✓

As a Corporate Commonwealth entity, ANSTO has direct accountabilities and responsibilities to the Australian Government, particularly to the Minister for Industry and Science, and the Australian Parliament, which are mandated in legislation. ANSTO plays a vital role in providing expert advice to the Australian Government on all nuclear science and technology-related matters.

For example, we have provided advice to Government regarding the nuclear industry capabilities that Australia possesses and will need to augment to support the acquisition of nuclear-powered submarines. ANSTO also continues to provide extensive technical advice on the establishment of a National Radioactive Waste Management Facility.

ANSTO will continue to provide extensive technical expertise and advice to Government to ensure Australia remains at the cutting edge of nuclear science capabilities.

Case studies

CASE STUDY 1

Ongoing Support to the Australian Radioactive Waste Agency (ARWA)

ANSTO regularly engages across government departments and agencies to ensure a broad understanding of where our capabilities can support national priorities, such as nuclear medicine production and supply, supporting research and development solutions, and management of nuclear waste. Our engagement includes regular communication and managing or participating in numerous committees and forums.

As a trusted source of nuclear expertise, advice, and services, ANSTO has, and continues to, provide extensive technical expertise and advice to ARWA and the Department of Industry, Science and Resources (DISR) in support of a National Radioactive Waste Management Facility (NRWMF). ANSTO has been closely engaged with the planning for the establishment of a NRWMF through support for the Australian Radioactive Waste Agency (ARWA). Since the establishment of ARWA in 2020, our broad-ranging support has included work on concept and schematic design, operational framework, preliminary safety and security assessments, waste acceptance criteria, inventory, and regulatory engagement strategy.

ANSTO acknowledges the Australian Government’s announcement on 10 August 2023 of the decision to not appeal the recent Federal Court’s judgment on the National Radioactive Waste Management Facility, nor to pursue Napandee or other previously shortlisted sites as a potential location for the facility. ANSTO also notes the Australian Government remains committed to its goal of safely storing and disposing of radioactive waste in a permanent, purpose-built facility.

ANSTO will continue to support Government as it works with communities to identify how to collectively benefit from nuclear science, research, and medicines and at the same time responsibly manage the resulting waste. In particular, it will support the Department of Industry, Science and Resources as well as the ARWA in the development of alternative proposals for the storage and disposal of the Commonwealth’s civilian low-level and intermediate-level radioactive waste.

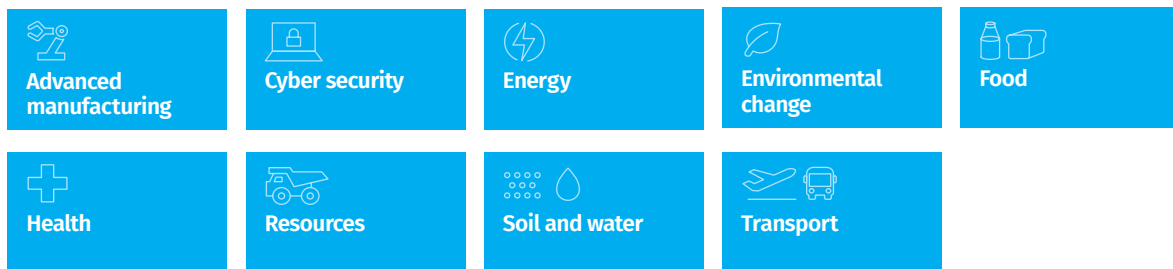
CASE STUDY 2

National Science and Research Priorities

ANSTO is committed to actively supporting the Government's policy priorities for science and research. In September 2022, the Australian Government announced plans to refresh Australia's National Science and Research Priorities and the National Science Statement. The priorities and accompanying statement aim to help develop a national policy framework that embeds science into Government decision-making and better align efforts in investment in science to deliver social, economic, and environmental benefits for all Australians.

ANSTO contributed to the consultation process, providing input on Australia's biggest challenges and opportunities today and into the future, and the role of science in addressing these issues. We warmly welcomed Dr Cathy Foley AO PSM, Australia's Chief Scientist, to the Australian Synchrotron in April 2023, as part of the Forum of Australian Chief Scientists, closely followed by a visit by Dr Foley to our Lucas Heights campus, as part of her consultation on the refreshed priorities. These were also important opportunities to outline ANSTO's strategic priorities.

ANSTO is committed to actively supporting the Government's policy priorities for science and research, by continuing to work alongside government departments to respond effectively to the Government's emerging policy priorities.



CASE STUDY 3

ANSTO Funding Package

The 2023-24 Federal Budget was announced in May 2023, with ANSTO receiving funding, including:

- \$44.5 million over 3 years from 2023-24 which includes support to manage the planned upcoming long maintenance shutdown of our nuclear reactor OPAL in 2024, as well as the importation of nuclear medicine needed during this time to support Australian patients who depend on nuclear medicine products. You can read more about the OPAL 2024 shutdown [here](#).
- \$39.9 million over 3 years from 2023-24 to formally wind up ANSTO Nuclear Medicine Pty Ltd by 1 July 2024 and transfer its operations, assets, and liabilities to ANSTO, enabling streamlining of governance and expertise.
- Funding over 10 years to commence construction of a new nuclear medicine manufacturing facility, and to maintain the current ageing facility.
- Funding over two years from 2023-24 for ANSTO to develop a business case for a new facility supporting Australia's sovereign nuclear security science capability.
- \$16.3m over two years for ANSTO to support the Department of Defence deliver the Nuclear-Powered Submarine Program.

This was a warmly welcomed outcome for ANSTO, which reflects strong support from Government and our portfolio Department. These outcomes were also a result of extensive work over many months from across our organisation and engagement with relevant stakeholders. ANSTO hosted several productive visits to Lucas Heights by Central Agencies, including the Department of Finance, Treasury, Department of the Prime Minister and Cabinet, and the Department of Industry, Science and Resources.

CASE STUDY 4

15 years of OPAL Operations

A highlight of our engagement with government-related stakeholders took place in October 2022, with an event hosted by ANSTO and the Embassy of Argentina to commemorate the 15th anniversary of the opening of the OPAL multi-purpose reactor.

ANSTO Board Chair, The Hon Dr Annabelle Bennett AC SC FAA, ANSTO CEO, Mr Shaun Jenkinson, Board members, and ANSTO Group Executives welcomed Argentina's Deputy Minister for Foreign Affairs, International Trade and Worship, Ambassador Pablo Tettamanti, and other guests from the Embassy of Argentina in Australia, Argentina's Foreign Ministry, the Consulate General of the Argentine Republic in Sydney, federal Members of Parliament, and colleagues from INVAP and the Department of Foreign Affairs and Trade.

The event showcased ANSTO's capabilities and strong engagement with stakeholders, including OPAL's remarkable achievements in scientific and technical cooperation between Australia and Argentina.



Participate in global and regional nuclear discussions and forums to ensure that Australia remains a leader in the application of nuclear science and technology

Performance criterion	Measure	Result (2022–2023)
Facilitation of Australian participation and leadership in IAEA and RCA programs	RCA: Participation in 80% of active projects, leading ≥ 1 project	ACHIEVED 100% Lead in 4 projects and participation in at least 80% of active projects
	IAEA CRP: Participate in ≥ 10 projects relevant to nuclear applications	ACHIEVED 100% Exceeded-participation in 11 projects
	≥ Two case studies per annum Case studies to highlight and assess the impact of our engagement with international stakeholders	ACHIEVED

Analysis of performance

ANSTO, as Australia’s national nuclear research organisation and the centre of Australian nuclear expertise, has obligations to liaise between Australia and the world in matters of nuclear science and technology. As a regional leader in nuclear science and technology, we oversee Australia’s participation in IAEA Coordinated Research Projects (CRPs) and continue the commitment to regional partnerships in sharing the peaceful uses of nuclear science and technology.

This year, we commenced the role of Chair of the Regional Cooperative Agreement for Research, Development, and Training Related to Nuclear Science and Technology for Asia and the Pacific (RCA) for one year. We maintained the shift to hybrid events that allow for greater participation in international technical cooperation partnerships.

In addition to the RCA program, having the ANSTO CEO on the OECD Nuclear Energy Agency’s (NEA) High-level Group on Stakeholder Engagement, Trust, Transparency and Social Sciences, Australia is engaging at the senior policy-level internationally. This opportunity promotes a deeper understanding of the relations between the nuclear sector and society, and develops appropriate mechanisms to foster communication, public engagement, and trust building between the public and actors in the nuclear sector, particularly governmental entities. With differences in NEA member countries’ approaches, supporting efforts for policy-level initiatives help reflect the diversity of approaches, develop effective mechanisms for advancing the prerequisite of public involvement, trust, and a social license to operate.

Key activities for 2021–2022

How we deliver on our strategy and purpose.

Chairing the Regional Cooperative Agreement for Research, Development and Training Related to Nuclear Science and Technology for Asia and the Pacific (RCA)

Australia, through ANSTO, has served as the Chair of the RCA from May 2023 to May 2024. The chair position rotates through each of the 22 RCA government parties annually and offers Australia a rare opportunity to provide strategic direction to the activities of the RCA. A strong RCA is vital to Australia, as it is the principal means by which Australia demonstrates its obligations under international law to cooperate on the peaceful uses of nuclear science and technology and supports Australia’s claims to its de facto permanent seat on the IAEA Board of Governors.

ANSTO successfully Hosted and Chaired the 45th RCA National Representatives Meeting in May 2023. National Representatives from 21 of the 22 Government Parties participated in inclusive and lively discussions to modernise and progress the implementation of technical cooperation projects after the long pause of the pandemic period. ANSTO will Chair the RCA for the next 12 months, until May 2024.

Case studies

CASE STUDY 1

Hosting and Chairing the RCA NRM 2023

In May 2023, ANSTO Chaired and Hosted the 45th National Representatives Meeting (NRM) for the Regional Cooperative Agreement for Research, Development, and Training Related to Nuclear Science and Technology for Asia and the Pacific (RCA). The RCA is a Treaty level agreement under the auspices of the International Atomic Energy Agency. After a three-year hiatus of in-person meetings and disruptions to the delivery of technical cooperation projects due to the global pandemic, National Representatives from 21 countries were keen to exchange views, share experiences, and progress the mandate of the Treaty. Representatives expressed a desire to shift technical cooperation program reporting from transactional exchanges toward understanding the social and economic impacts of regional partnerships. Representatives also agreed to conduct a rapid review of the proliferation of Working Groups and Committees in order to streamline RCA procedures and avoid potential duplication of work. The NRM set a positive tone for the commencement of Australia's year as Chair during which ANSTO will have the opportunity to display Australian leadership within the IAEA in Technical Cooperation, and to direct RCA efforts to delivering programmes aligned with the Treaty mandate.



CASE STUDY 2

FNCA Food Provenance Project

In 2022, the ANSTO-led Climate Change project conducted under the auspices of the Forum for Nuclear Cooperation in Asia (FNCA) came to a close. In its place, the project on Combatting Food Fraud Using Nuclear Technology commenced under the leadership of Dr Debashish Mazumder of ANSTO. The project focuses on the adoption of affordable nuclear techniques by participating countries to develop a fingerprint database for premium food products within each country using nuclear analyses methods. The data will be combined in a regional database to combat food fraud and maintain the integrity of food supply chains, an issue which is becoming increasingly problematic and complex for several countries in the Asia and Pacific regions.

The establishment of a regional database and provenance tool to mitigate fraudulent activities in the supply chain will benefit agribusiness, improve consumer confidence, and mitigate environmental threats.

Asia plays a major role in the current global food chain and is fundamental to economic growth. As such, traceability has become increasingly important and is central to improving food safety and environmental security as well as mitigating devastating public health and economic impacts. This project aims to collaborate with a range of stakeholders in the FNCA community to meet these complex traceability challenges and establish a searchable online database and provenance tool with clearly articulated long term benefits for participating countries long after the completion of this project.



Grow a more informed generation of Australians who understand the benefits of nuclear science and technology

Performance criterion	Measure	Result (2022-2023)
Share with the general public research outcomes enabled by ANSTO	≥36 science stories published on the ANSTO website per annum	ACHIEVED ✓ 78 articles
Offer a range of resources for teachers and students to support the national science curriculum outcomes for years 3 to 12	Deliver ≥six national programs per annum	ACHIEVED ✓ 6
Increase accessibility of STEM teacher training programs	Delivery teacher professional development days in all states and territories	ACHIEVED ✓ 966 teacher professional development days
Conduct educational tours and science experiences at ANSTO's Sydney and Melbourne campuses	≥15,000 visitors to ANSTO's campuses per annum	ACHIEVED ✓ 16,016 visitors to Lucas Heights 2,500 – 3,000 visitors to the Australian Synchrotron

Educating and engaging with the wider community enables ANSTO to grow a more informed generation of Australians who understand the benefits of nuclear science and technology. We build confidence, trust, and a social license for ANSTO to enable Australia to respond to nuclear opportunities for our future.

For published science stories, the 70th Anniversary of ANSTO was a major focus this year, and supporting articles highlighted ANSTO's nuclear capabilities.

In addition, our six national programs for the year support the national science curriculum outcomes and offer resources for students and teachers. The national programs this year consisted of; the National Science Week Hackathon, the ANSTO Videoconferencing Program, Shorebirds Sustainability Competition, Incredible Inserts Competition, Online STEAM Club, and the Accredited Teacher Professional Development Program.

For visitors to ANSTO's campuses, even though COVID impacted this number in July and August 2022 with a high level of school cancellations due to a lack of available teachers, the total number of visitors was 16,016 over 690 tours. This figure doesn't include the Australian Synchrotron (approx. 2.5 to 3K visitors on tours and over 3,000 people attending the 2022 Open Day).

We supported students nationally with 11,134 primary, secondary, and tertiary students that participated in tours or nuclear science-related education programs.

It was not only educational guests we hosted this year. There were 32 VIP visits and 189 special guest visits, along with 18 special guest tours with 161 visitors for the NPS Taskforce or related businesses.



STRATEGIC OBJECTIVE 4:

Lead the development of a nuclear capable workforce aligned with government policy objectives

Provide an inclusive environment that empowers our people and supports a culture of collaboration and engagement

Performance criterion	Measure	Result (2022–2023)
Leadership teams — representation	Male 40% Female 40% Discretionary 20%	NOT ACHIEVED Male 65% Female 35% ✘
ANSTO-wide — representation	Male 40% Female 40% Discretionary 20%	NOT ACHIEVED Male 67.77% Female 32.16% Indeterminate 0.08% ✘

ANSTO strives to improve gender diversity and are looking at ways to attract and retain female employees. Data from exit surveys will assist in developing retention strategies with a strong focus on career development opportunities, secondments and refreshed investment in female mentoring to develop, promote and retain women in our workforce.

The establishment of policies and guidelines have ensured gender-balanced recruitment panels and a strong focus on diversity across the organisation. Our diversity and inclusion data shows that our managers understand the merit that diversity can bring to the organisation.

The male 40% | female 40% performance measure was established in 2018.



Develop a workforce plan for the next generation of specialised nuclear professionals

Performance criterion	Measure	Result (2022-2023)
Postgraduates supervised	150	ACHIEVED 155 ✓

Our people are amongst our nation’s most talented researchers, scientists, engineers, and nuclear experts. To secure Australia’s growing nuclear science and technology needs we work with other organisations in government, industry, and the education sector to develop the next generation of talent for Australia’s nuclear and accelerator expertise.

ANSTO is committed to developing skills and knowledge necessary to bring the full benefit of nuclear technology to Australia. Our formal supervision is through our collaboration with the Australian Institute of Nuclear Science and Engineering (AINSE), or directly with universities. AINSE links Australian universities and ANSTO’s state-of-the-art facilities by facilitating and supporting high-quality research, education, and training in nuclear science and engineering.

In addition, ANSTO’s Graduate Institute connects scholars to Australian research and industry sectors with an emphasis on industry translation and developing entrepreneurial skills, to develop and nurture the next generation of Australian nuclear scientists and engineers.

ANSTO continues to offer, with support from the NSW Government, FutureNow Scholarships to graduates and early career researchers working on industry-focused research projects that are aligned with ANSTO’s strategic objectives. Scholarship recipients are provided access to the expertise and technology needed to facilitate cutting edge discoveries in advanced manufacturing, health, environment, and the nuclear fuel cycle.

Key activities for 2022-2023

How we deliver on our strategy and purpose.

People Hub platform

Corporate Plan 2022-2023 planned progress:

Implementation

ANSTO has implemented an all-inclusive cloud-based human resources (HR) online platform to be able to make clear, informed strategic decisions about the future workforce of ANSTO.

With the implementation of People Hub, several Human Resources processes have been streamlined resulting in a seamless employee experience.

ANSTO is now able to cascade organisational objectives using the Performance and Goals module, effectively flag critical roles and succession plan for these roles using the Talent and Succession module and hire top talent against core capabilities in the Recruitment Management module. The People Hub Platform enables clear, informed strategic decisions about the workforce of ANSTO.



Organisation capability development

Corporate Plan 2022-2023 planned progress:

Preparation

Implementation

ANSTO has completed the development of the Engineering Capability Framework. We are now analysing strategic ways to utilise this framework to identify gaps in capabilities which complement our strategic workforce planning procedures. The success of this project will provide further insights into the expansion of a capability framework across the organisation.

ANSTO graduate program

ANSTO's 2023 Graduate cohort, commenced in February with a weeklong Induction session, introducing them to core concepts and structures of ANSTO, our values, research themes, services, and facilities, in addition to practical activities. ANSTO welcomed two additional graduates, on secondment from the Department of Prime Minister and Cabinet, for the duration of the program taking our cohort number to 12.

ANSTO cadetship program

ANSTO's Cadetship Program, established in 2023, aims to provide an entry level employment pathway to immerse students in practical paid work whilst completing undergraduate studies. This new program will invest in students, providing ongoing development, diverse learning, professional growth, and mentoring. There are 7 second year engineering undergraduate students that have begun the cadetship at ANSTO.

Emerging engineers program

The emerging engineers program has our current cohort working alongside some of Australia's brightest minds as they begin their careers in engineering with a focus across a range of engineering design, delivery, and project areas. The program is at the forefront of delivering major engineering outcomes for ANSTO assets and processes in Reactor Operations, Nuclear Medicine, Waste Management, Civil and Infrastructure, and Decommissioning activities.

Year In industry Internship Program

17 students participated in the ANSTO Year In Industry Internship Program for penultimate year students studying toward relevant scientific and/or engineering degrees. The one-year program provides industry-based learning for students to apply theory and skills to the workplace and use this experience to enhance the value of their remaining study.

LEAD program

ANSTO strives to build highly capable leaders of the future through the ANSTO LEAD Program. 23 employees have successfully graduated from the ANSTO LEAD Program that has equipped participants with a range of essential capabilities that are critical to effective leadership. These leadership capabilities are essential to leading diverse teams and organisations in constantly changing environments. By developing these skills, LEAD participants will be better equipped to navigate the challenges and uncertainties that come with leadership roles and help drive the success of our organisation.

Future capability planning

Corporate Plan 2022-2023 planned progress:

Preparation

Implementation

ANSTO continues to prepare the workforce of the future through various programs of work. An Asset Management and Engineering Review is being undertaken, with the aim to identify an optimal asset maintenance and engineering model to ensure the future workforce requirements are understood.

Nuclear, Science and Technology is in the process of preparing the workforce of the future by implementing recommendations from the Science and Research Workforce Review with the establishment of three new director roles which will enable ANSTO to focus its facilities and capabilities for nationally strategic purposes.

Ensure a highly reliable, safe, and secure environment

Performance criterion	Measure	Result (2022–2023)
Improvement in safety culture	Increased opportunities for improvement (OFI) to actual incidents recorded*	ACHIEVED ✓ 7:10
Improvement in site-wide safety*	Zero Class 1 incidents Year-on-year decrease in Class 2 & 3 incidents	NOT ACHIEVED ✗ 0 Class 1 or 2 injuries 8 Class 3 injuries

* **Class 1** — Damage that permanently alters a person’s life;
Class 2 — Damage that temporarily alters a person’s life;
Class 3 — Inconveniences in a person’s life or 1–5 days/shifts off work.

ANSTO acknowledges that any incident reported is an opportunity to learn, prevent a reoccurrence of an incident and potentially eliminate the increased impact of the incident.

The definition of OFI was reviewed to ensure it measured all incidents that did not impact our people. In October 2022, the Executive Work, Health, Safety, and Environment Committee approved a change to the definition of OFI to include operational incidents.

Of the Class 3 injuries, four were directly linked to ANSTO staff performing work activities, one was due to an injury sustained during an approved sporting activity, two were due to walking at the Lucas Heights campus and one was associated with work being conducted by a contractor.

Key activities for 2022–2023

How we deliver on our strategy and purpose.

Cybersecurity uplift program

Corporate Plan 2022-2023 planned progress:



ANSTO continued to uplift our cyber security risk management maturity through investments in the remediation of legacy systems and continued rollout and strengthening of cyber security controls and capabilities across the entire technology landscape. A range of internal and externally supported audits and assessments have been engaged to inform ANSTO’s continuing cyber security risk management strategy, including engagement of the Australian Cyber Security Centre’s Cyber Maturity Measurement Program. Throughout 2022-2023 ANSTO did not have any cyber security incidents that impacted core operations.



Health monitoring program

Corporate Plan 2022-2023 planned progress:

Completed

The Human Health Monitoring program improves organisational visibility of occupational health and medical surveillance results. The program integrates personal occupational radiation dosimetry with the occupational health software system, allowing for data-driven early intervention in terms of high consequence health hazards.

In FY 2022-2023 Human Health Monitoring has accepted and implemented electronic occupational health record systems. A primary motivation was to make our program paperless, saving volumes of file storage, enhance security and privacy of occupational health records and allow for automation of activities, such as reporting.

Human Health monitoring uses Environmental Health and Safety (EHS) software Cority for management of Occupational Hygiene and Medical Surveillance records which has supplied interactive/de-identified dashboards on Leading Occupational Health Metrics in Power BI (ANSTO Analytics) allowing for prioritisation of critical control measures.

In collaboration with ANSTO IT Services a new Electronic Personal Dosimetry (EPDs) System was successfully implemented in June 2023 across campus following robust acceptance testing by High Reliability.

We will apply lessons learned from implementation of these two new systems to decommission the ANSTO External Dosimetry Database (AEDD) in 2023-2024 and replace it with Historion, an industry-recognised system for dosimetry record keeping.

Psychological safety culture program

Corporate Plan 2022-2023 planned progress:

Completed

This program focuses on psychosocial safety monitoring utilising data collection, diversity and inclusion surveys, employee satisfaction surveys, safety empowerment, and reporting measures. This data is used to implement early intervention programs, such as local focus groups, to proactively improve the wellbeing of our people.

In FY2023 Stage 1, development of the framework for the safety culture program, was completed. Stage 2, identifying hazards, was piloted in ANSTO Engineering. Information was collected through surveys, focus groups and interviews facilitated by an Organisational Psychologist.

The findings have been summarised in a report that is currently under review by the team assessed so that they can develop an action plan to address identified areas of improvement.



Section 5:

Our organisation and people

Our people

Our people are our most valuable resource. With a steadfast dedication to advancing a more sustainable world through scientific and technological means, they consistently bring forth ANSTO's beneficial outcomes.

The experts within our ranks—scientists, engineers, and researchers—are globally recognised in their respective domains. They hold positions of trust in academia, industry, and government circles alike. Encompassing the full breadth of scientific and technological endeavours, ANSTO's personnel delve into research translation and commercialisation. The indispensable individuals in our support services, assuming diverse roles, such as technical assistants, education officers, communications specialists, human resources experts, government and international liaison specialists, business development experts, accountants, information technology specialists, maintenance workers, and administrative staff, play a pivotal role in facilitating the continuous execution of our organisation's crucial scientific, engineering, and technology-driven pursuits.

ANSTO continues to make transformative, systematic, and sustained changes to its workforce planning by aligning itself with the Women in STEM Decadal Plan. This plan aims to attract more women, intersex, and non-binary-identifying individuals to STEM disciplines, providing an environment in which all staff can thrive and progress. ANSTO strives to be a leader in diversity and inclusion and holds an Athena SWAN Bronze Institutional Award from Science in Australia Gender Equality (SAGE), which recognises the Organisation's commitment to advancing the careers of women, with the goal of achieving gender equity by 2030. ANSTO continues to work to fulfill the targets of its SAGE Action Plan over the coming years, working toward attaining a higher accreditation.

During the reporting period, ANSTO implemented a limited voluntary redundancy program, as part of the organisation's financial sustainability agenda, in which eligible staff were able to express an interest. Over the last two years, improvements to ANSTO's financial position have been made through reductions in expenditure and improvements in revenue. To further support ANSTO's future financial sustainability, the decision was made, through relevant consultation, to implement the voluntary redundancy program.

Staff numbers

As at 30 June 2023, we employed the equivalent of 1278.9 full-time staff across New South Wales, Victoria, and overseas, where full-time equivalent figures refer to our salaried staff (permanent and term contract).

Division	FTE (as at 30 June 2023)
ANSTO Maintenance and Engineering	149.3
Chief Operating Officer Group	121.5
Commercial Products and Services	88.1
Information Technology	57.7
Nuclear Operations and Nuclear Medicine	329.8
Nuclear Safety, Security and Stewardship	116.9
Nuclear Science and Technology	382.7
Office of the CEO	10.0
Major Capital Programs	22.8
Total	1,278.9

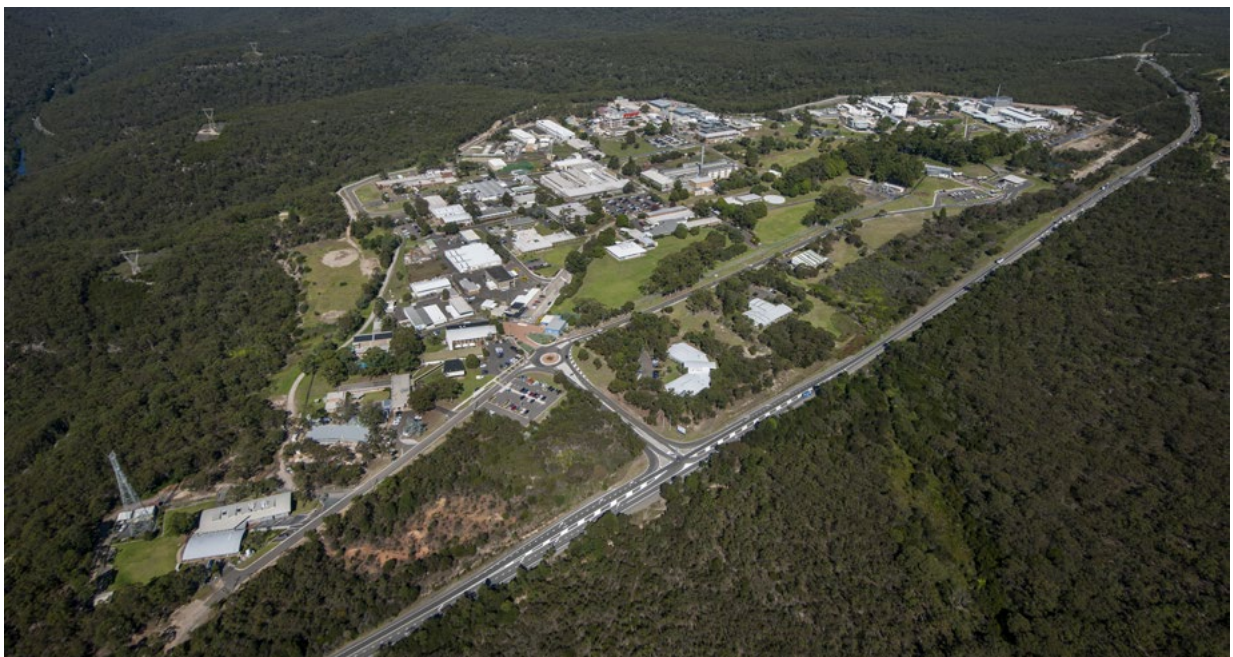
For more information on our staff numbers, refer to Appendices and Index – PGPA Rule section 17BE(ka) – Management of Human Resources.

Our campuses

ANSTO Australian Synchrotron | Clayton VIC










ANSTO Sydney Campus | Lucas Heights NSW



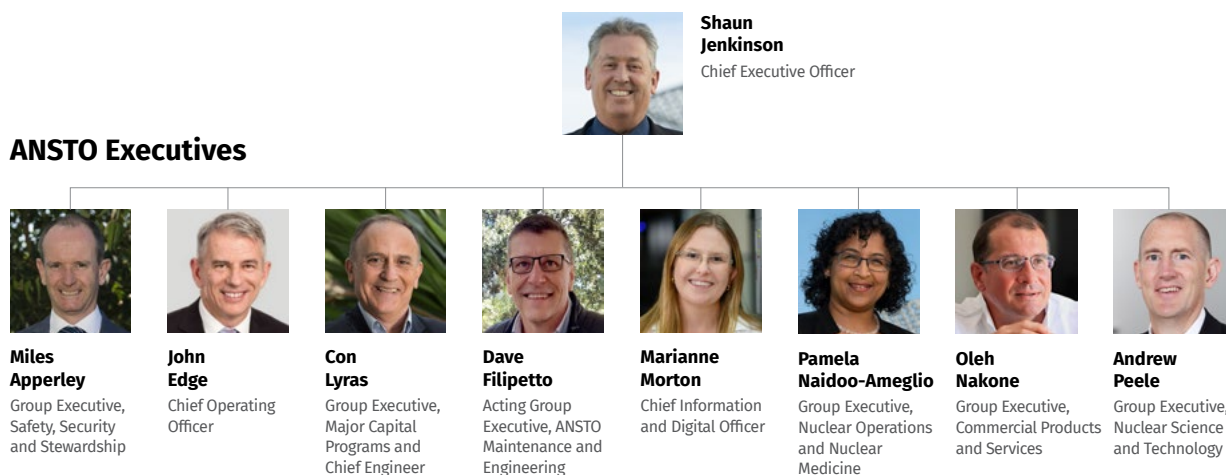
Our organisational structure

as at 30 June 2023

ANSTO Board of Directors

 <p>The Hon Dr Annabelle Bennett AC SC FAA Board Chair</p>	<p>APPOINTED 21 March 2019</p> <p>TERM CONCLUDES 20 March 2024</p>	 <p>Penelope Dobson Deputy Chair</p> <p>APPOINTED 24 April 2014</p> <p>APPOINTED DEPUTY CHAIR 14 March 2018</p> <p>APPOINTED ACTING CHAIR 1 September 2018 – 20 March 2019</p> <p>REAPPOINTED 24 April 2019</p> <p>TERM CONCLUDES 23 April 2024</p>
 <p>Shaun Jenkinson Chief Executive Officer</p>	<p>APPOINTED (ACTING) 10 August 2020</p> <p>APPOINTED 31 March 2021</p> <p>TERM CONCLUDES 31 March 2024</p>	 <p>Emeritus Professor Stephen Buckman AM Board Member</p> <p>APPOINTED 23 July 2015</p> <p>REAPPOINTED 23 July 2020</p> <p>TERM CONCLUDES 22 July 2023</p>
 <p>Professor Brigid Heywood Board Member</p>	<p>APPOINTED 28 June 2016</p> <p>REAPPOINTED (ACTING) 28 June 2021</p> <p>REAPPOINTED 28 September 2021</p> <p>TERM CONCLUDES 27 September 2025</p>	 <p>Greg Storr Board Member</p> <p>APPOINTED 16 September 2021</p> <p>TERM CONCLUDES 15 September 2024</p>
 <p>Andrea Sutton Board Member</p>	<p>APPOINTED 30 April 2020</p> <p>TERM CONCLUDES 29 April 2025</p>	

Organisational chart



ANSTO Subsidiaries

ANSTO's subsidiaries and companies operate in the context of the Corporate Plan to enhance our capabilities, deliver our purpose, and implement our strategy, as well as to provide transitional arrangements as we reorganise our activities.

ANSTO subsidiaries	Jurisdiction of operation	Achieving our purpose
PETTECH Solutions Pty Ltd	New South Wales	<p>PETTECH Solutions Pty Ltd (PETTECH) is a wholly-owned ANSTO subsidiary that owns a cyclotron facility. On 2 January 2019, the business of this company was sold to Cyclotek NSW Pty Ltd. PETTECH Solutions Pty Ltd remains the owner of the major facility assets (building, cyclotrons, and hot cells) and is entitled to a share of profits from the Cyclotek NSW business in connection with this arrangement.</p> <p>Deliver on Australia's priorities for the benefit of people, industry, and the environment through nuclear excellence in research and the use of national infrastructure. (Strategic objective 1)</p> <p>Improve the health of Australians by supporting access to current and future nuclear technologies for diagnostic, therapeutic, and innovative treatments for current and emerging diseases. (Strategic objective 2)</p>
ANSTO Nuclear Medicine Pty Ltd	New South Wales	<p>ANSTO Nuclear Medicine Pty Ltd (ANM) is a Public Non-Financial Corporation of which ANSTO and the Minister for Industry, Science and Technology (on behalf of the Commonwealth) are shareholders. ANSTO is the operator of the ANM Mo-99 Production Facility, which produces one of the world's most important nuclear medicines. Through ANM, ANSTO is able to supply Mo-99 to the Australian and global markets.</p> <p>In Budget 2023-24, the Government announced its decision to formally wind up ANM by 1 July 2024 and transfer its operations, assets, and liabilities to ANSTO.</p> <p>Improve the health of Australians by supporting access to current and future nuclear technologies for diagnostic, therapeutic, and innovative treatments for current and emerging diseases. (Strategic objective 2)</p>
Other companies*	Jurisdiction of operation	Achieving our purpose
Applied Molecular Therapies Pty Ltd (Not trading)	Victoria	<p>Contract development and manufacturer of radiopharmaceutical products.</p> <p>Improve the health of Australians by supporting access to current and future nuclear technologies for diagnostic, therapeutic, and innovative treatments for current and emerging diseases. (Strategic objective 2)</p>

* Where ANSTO possesses a material interest

Management and accountability

During the 2022–2023 financial year, the Board worked closely with management on continuing to improve ANSTO’s corporate governance, accountability, and risk management practices. This is to ensure that ANSTO is able to deliver essential research, nuclear medicines, other products, and services, as well as expert advice, safely and sustainably for the benefit of all Australians.

Minister and governing legislation

ANSTO is a corporate Commonwealth entity within the Industry, Science, and Resources portfolio. From 1 July 2022 and as at 30 June 2023, the Minister with responsibility for ANSTO was the Hon Ed Husic MP, Minister for Industry and Science.



**Hon
Ed
Husic MP**
Minister for Industry
and Science

Statement of Expectations

In December 2022, Minister Husic, provided the ANSTO Board with a Statement of Expectations in which he stated he looks forward to working with ANSTO in applying science to advance our national interests, advancing the Government’s policy priorities, especially on delivering a future made in Australia through the National Reconstruction Fund, and promoting STEM with a focus on advancing indigenous engagement in science. In addition, Minister Husic set clear expectations for ANSTO on driving organisational performance, including around legislative requirements, organisational governance and capability, agency staff and health, and working with the Minister’s department and office. In May 2023, the ANSTO Board responded to the Statement of Expectations with a Statement of Intent, which sets out how the ANSTO Board seeks to meet the Minister’s expectations. These statements can be found here:

www.ansto.gov.au/about/how-we-work/governance

Ministerial directions and notifications

Under the ANSTO Act and the PGPA Act, ANSTO’s responsible Minister and the Finance Minister may provide the ANSTO Board with Directions with respect to the performance of the functions or the exercise of the powers of the Board or the organisation. No such Ministerial Directions were received in 2022–2023.

ANSTO Board

The ANSTO Board is comprised of at least five and up to eight part-time, non-executive members drawn from the broader community and ANSTO's full-time CEO. Detailed information about the ANSTO Board, including appointment and cessation dates, is contained in the Appendices and Index — PGPA Rule section 17BE(j), (i)–(v) — Accountable Authority.

As at 30 June 2023, there were six part-time non-executive members in addition to the CEO. All non-executive members are appointed by the Governor-General. Under the ANSTO Act, the CEO is appointed by the ANSTO Board. As a significant appointment, Cabinet endorsement is also required for the CEO position.

Board access to information

Board members have access to all information required to fulfil their role. Although information is primarily provided through Board papers and presentations at Board meetings, the Board is also provided with opportunities to gather information through other means. Board members have direct access to the CEO, other members of the Executive, and as required or requested, other managers and subject matter experts. They also receive regular ANSTO/CEO updates, as well as media reports and all Ministerial briefings and submissions.

Site tours are arranged, when practicable, to coincide with Board meetings to offer further opportunities for information gathering and to support engagement between the Board and the wider ANSTO staff. Board members also participate in individual site visits and meet both formally and informally with different divisions and groups of staff. Site tours during the reporting period included the Australian Synchrotron, the Australian Centre for Neutron Scattering, the Centre for Accelerator Science, Health Products, and Waste Operations. During the year, there was also an open session for staff

Board meetings

The Board holds six formally scheduled meetings and a strategy session each year, with additional meetings held as required. A combination of meeting formats is used including remote, hybrid, and in person. Of the formally scheduled meetings, two were held at the Lucas Heights Campus, one was held at the Clayton Campus, one was held in Canberra, one was a hybrid meeting with members either attending in person at Lucas Heights or remotely, and one was held remotely. The Board ensured that its remote and hybrid meetings continued to be effective and interactive through the use of video technology.

At the invitation of the Chair, members of the Executive and subject matter experts attend Board meetings as required to report on matters relevant to their individual areas of responsibility and expertise. The Secretary of the Department of Industry, Science and Resources, or a delegate, also attends regularly scheduled Board meetings at the invitation of the Chair, as an observer.

Board members have a broad range of skills, knowledge, and experience that seek to cover ANSTO's diverse range of responsibilities. This is necessary in order for the Board to provide the guidance and stewardship needed to ensure ANSTO's sustainability and to determine and monitor the achievement of its strategic direction. The Board's Remuneration and Nomination Committee reviews the Board skills matrix at least annually; the skills matrix is used as the basis for making recommendations to Government concerning the appointment/reappointment of Board members. The remuneration and allowances payable to members of the Board, including the CEO, are determined by the Australian Government Remuneration Tribunal.

at the Clayton Campus to meet with the Board. There were also opportunities for staff engagement at the Lucas Heights Campus, including an afternoon tea to celebrate World Pride.

Newly appointed Board members are inducted into the organisation's operations and activities, as well as their duties and responsibilities as a member of the Board of a corporate Commonwealth entity.

To improve oversight and to increase the flow of information from ANSTO Nuclear Medicine Pty Ltd (ANM) to ANSTO, the ANSTO Board Chair and the ANSTO Risk and Audit Committee Chair, along with the CEO, Chief Operating Officer, and Chief Financial Officer, met with the ANM Chair and the ANM Risk and Audit Committee Chair during 2022-2023 to discuss opportunities, risks, finances, and other material matters.

Board members are able to seek independent professional advice in accordance with their duties, responsibilities, and obligations as members of the Board.

ANSTO has a Company Secretary who assists with the running of the Board and advises on governance matters. The Company Secretary attends all Board meetings, except those meetings or parts of meetings where that attendance is precluded by the ANSTO Act, and is accountable directly to the Board, through the Chair, on all matters to do with the proper functioning of the Board.

Nine Board meetings were held during the 2022-2023 financial year. The details of the number of Board meetings attended by each member during the 2022-2023 financial year are outlined in the Appendices and Index — PGPA Rule section 17BE(j), (i)–(v) — Accountable Authority.

Board committees

The Board is assisted by two standing committees which meet regularly:

Risk and Audit Committee —

provides independent oversight, advice, and assurance to the Board on the appropriateness of ANSTO's systems of risk oversight and management, financial reporting processes, performance reporting arrangements, systems of internal control, and systems to ensure compliance with relevant laws and policies; and

Remuneration and Nomination Committee —

assists the Board in fulfilling its responsibilities with regard to overall remuneration policy and strategy; performance and remuneration of the CEO; the approach to performance and remuneration of the Executive Team; the context and composition of the Board and Committees; and succession planning and nominations for the CEO.

The role, purpose, and responsibilities of each of the committees are set out in the relevant committee Charter. All Charters are reviewed annually. A review of the Charters, as part of the Board Charter review, was conducted during the 2022–2023 financial year. The Board approved the amended Charters at its meeting in December 2022. Amendments were made to the various Board and committee charters to ensure alignment with the Board Delegations of Authority Policy, to better reflect the operation of the Board and the committees, to provide greater clarity on the responsibilities of the committees and to Committee membership requirements to provide flexibility to ensure all necessary qualifications, knowledge, skills, and experience are covered.

All committee Charters are available here:

www.ansto.gov.au/about/how-we-work/governance

Other committees and working groups are established on an ad hoc basis as required by the Board.

Risk and Audit Committee

All committee members, including the Risk and Audit Committee Chair, are appointed by the Board. During the 2022–2023 financial year, the Risk and Audit Committee consisted of at least three non-executive Board members and two external representatives who had the required qualifications, knowledge, skills, or experience to assist the Risk and Audit Committee in performing its functions, including an understanding of systems of risk oversight and management (including nuclear), finance and internal control. In accordance with the revised Risk and Audit Committee Charter, during the 2022–2023 financial year, there was:

- one committee member with accounting or related financial management experience and/or qualifications, commensurate with the scope of ANSTO activities, which includes a comprehensive understanding of accounting and auditing standards; and
- one member with an understanding and experience of nuclear and radiation contexts and the associated risks and controls.

The Chair of the Board, the CEO, and the Chief Financial Officer cannot be members of the Risk and Audit Committee and attend meetings of that Committee ex officio.

Membership of the Risk and Audit Committee is reviewed periodically against a skills matrix to ensure that there is a suitable mix of qualifications, knowledge, skills, and experience on the committee. On 1 July 2022, Ms. Andrea Sutton was appointed Chair and Mr Greg Storr was appointed a member of the Risk and Audit

Committee. There were no other changes to the composition of the Risk and Audit Committee during 2022–2023.

There is an induction program for new Risk and Audit Committee members which includes site visits to both the Lucas Heights and Clayton campuses and meeting with different Executives, members of Management, and subject matter experts.

Engagement activities for committee members are arranged, when practicable, to coincide with committee meetings to offer further opportunities for information gathering. During the reporting period, the Risk and Audit Committee toured the Australian Synchrotron, Nuclear Medicine, and Waste Operations. The Committee also met with staff from various areas of the organisation to discuss operational and project risks.

The Chair of the Board and other Board members may attend Risk and Audit Committee meetings as observers. Members of the ANSTO management team (including the Chief Operating Officer, Chief Financial Officer, Chief Risk and Assurance Officer and the General Counsel) attend meetings of the Risk and Audit Committee as advisors and observers, by invitation of the Risk and Audit Committee Chair. The Company Secretary is the secretary to the Risk and Audit Committee and attends all Risk and Audit Committee meetings.

Representatives from the Australian National Audit Office (ANAO) and their contracted service provider (currently Ernst & Young) also attend Risk and Audit Committee meetings, by invitation of the Risk and Audit Committee Chair.

The Risk and Audit Committee (RAC) holds six formally scheduled meetings each year, with additional meetings held as required. A combination of meeting formats is used including remote, hybrid and in person. Of the formally scheduled meetings, three were held at the Lucas Heights Campus, one was a hybrid meeting with members either attending in person at Lucas Heights or remotely, one was a hybrid meeting with members either attending in person at Clayton or remotely, and one was held remotely.

The RAC met on eight occasions during the 2022–2023 financial year. Details of the number of RAC meetings attended by each member during the year are provided in Appendices and Index – PGPA Rule section 17BE(taa) – Audit Committee.

Remuneration and Nominations Committee

The Remuneration and Nominations Committee consists of the Board Chair, the CEO, and one or more non-executive Board members appointed by the Board. The Board Chair is the Chair of the Committee. The Chief Operating Officer, who has responsibility for people-related matters, attends committee meetings dealing with remuneration by invitation. Other relevant

persons also attend Committee meetings by invitation of the Chair. The Company Secretary is the secretary to the committee and attends all meetings, except those meetings or parts of meetings where that attendance is precluded by the ANSTO Act. The Remuneration and Nomination Committee met on five occasions during the 2022–2023 financial year.

Member	Eligible to attend	Attended
The Hon Dr Annabelle Bennett, AC SC (Chair)	5	5
Mr Shaun Jenkinson	5	5
Emeritus Professor Stephen Buckman, AM	5	5
Ms Penelope J Dobson	5	5

Board performance

In order to ensure its ongoing effectiveness and performance, the Board, along with its committees and its individual members, are evaluated regularly. During 2022–2023, an internal review of the Board and its Committees was conducted which involved the use of questionnaires. Questionnaires were completed by all Board and Committee members and were discussed at the September

2022 Board meeting. There is also time set aside at each Board and Risk and Audit Committee meeting for reflections on the meeting and both the Board and its Committees frequently discuss their operation, including the structuring of agendas and development of Board and Committee papers, and performance during meetings.

Disclosure of interests and related entity transactions

Board members declare material interests in accordance with the ANSTO and PGPA Acts as appropriate.

ANSTO follows the Commonwealth Procurement Rules and has a system of delegated powers and authorisations for all procurement transactions so as to ensure that transactions are appropriately considered. The ANSTO Board, as its accountable authority, approves the operational and capital budgets of ANSTO under a policy of the Board. Where there are operating expenses of \$5 million or more, these transactions are approved

by the Board. The Board also approves expenditure on capital projects of \$5 million or more. For transactions under \$5 million, the CEO will approve the transactions, or delegations are provided to management. However, the CEO has the discretion to bring any of those matters to the Board for consideration. This process applies regardless of the counterparty. During the reporting period, ANSTO and its subsidiaries undertook 144 transactions with Government entities or companies for goods and services above \$10,000, which came to a total combined value of \$37 million.

ANSTO executive management

The CEO is accountable for managing the affairs of the organisation in accordance with the strategy, plans, and policies approved by the Board, as well as any Board Directions. The CEO is supported by an Executive team. As a team and through their individual roles, the Executive leads, directs, coordinates, and controls ANSTO's operations and performance. The high-level structural changes that occurred across ANSTO during the reporting period include:

- on 1 July 2022, Dr Miles Apperley, previously Head of Research Infrastructure, took on the new role of Group Executive for Nuclear Safety, Security, and Stewardship. This new Group incorporated High Reliability (Safety), Nuclear Security, and Nuclear Safeguards, Nuclear Stewardship, and the Nuclear-Powered Submarines Working Group; and
- on 30 May 2023, Mr. Con Lyras, previously Chief Engineer and Group Executive ANSTO Maintenance and Engineering (AME), took on the new role of Chief Engineer and Group Executive Major Capital Projects to focus on supporting ANSTO's growth for the future and Mr. Dave Filipetto was appointed acting Group Executive ANSTO Maintenance and Engineering during the recruitment process for the Group Executive AME. This acting role will be in place for a period of up to 6 months whilst the accountability split between the two roles is established.

The Executive is supported by some key input committees and expert forums, including the Capital Committee, which makes decisions regarding the prioritisation and allocation of capital funding to projects to ensure their efficient delivery, and the Work, Health, Safety and Environment Committee, which is responsible for providing oversight and direction of ANSTO's safety and environment strategies, initiatives, incident management processes, targets, and reporting.

The Executive further receives support in the areas of people matters, risk oversight, and security and safeguards oversight.

ANSTO recognises the important role of managers in the sharing of information. ANSTO's Managers' Forums are designed to ensure that managers who drive strategy, as well as planning and leading teams, are equipped with the right information at the right time so they are in a position to take responsibility for core strategic and operational projects. The Forums provide managers with information on ANSTO's strategy and an opportunity to ask questions of the CEO and other Executives, as well as the opportunity to converse with peers on troubleshooting and problem solving. There were four Managers' Forums held during 2022–2023.

Integrated Business Planning Framework

ANSTO's Integrated Business Planning (IBP) process ensures ANSTO delivers on its purpose and strategy. It is a formal data-driven process led by senior management, which, on a monthly basis, evaluates and aggregates bottom-up data, time-phased projections for new products, services and capabilities, demand, supply, strategic projects, and the resulting financial plans. It is a decision-making process that realigns the tactical plans for all

organisational functions in support of ANSTO's goals and targets. A primary objective of IBP is to monitor performance against the organisational strategy and the plans that underpin the strategy. The process ensures integration of activities and prioritisation of resources against an approved operating plan, to which Executives and Managers hold themselves accountable.

Internal control

The ANSTO Board, through delegation to the Risk and Audit Committee, oversees ANSTO's system of internal control. This system has been designed to provide 'reasonable assurance'

that ANSTO's objectives will be achieved, and encompasses the control environment, risk assessment, control activities, information and communication, and monitoring activities.

Risk management framework

Management is accountable to the ANSTO Board for designing, implementing, and continuously improving the ANSTO Enterprise Risk Management (ERM) framework. The ERM framework is aligned with best practice and has been designed to support the achievement of business goals and objectives, support decision making, and standardise risk management processes. ANSTO recognises that risk management is essential to preserve and create value. There is a need to engage with risk and exploit opportunity while also managing uncertainty on an ongoing basis. The ANSTO Board has set clear expectations for the management of risk at ANSTO.

The ANSTO Board determines the nature and extent of the risk it is willing to accept in achieving the organisation's strategic objectives, consistent with ANSTO's risk appetite, as well as the effective, efficient, ethical, and economical use and management of public resources. The ANSTO Board takes a particular interest in those risks that may affect the safety of ANSTO staff and its operations and/or negatively affect the sustainability and reputation of the organisation.

The Risk and Audit Committee receives regular reports and briefings on ANSTO's risk profile and significant risks associated with operations and major capital programs.

Fraud control

ANSTO has specific obligations under section 10 of the PGPA Rule to take all reasonable measures to prevent, detect and deal with fraud.

The ANSTO Fraud Control Plan reflects the 'better practice' principles and practices articulated within the Commonwealth Fraud Control Framework.

In addition, ANSTO operates a public interest disclosure scheme in accordance with the Public Interest Disclosure Act 2013 (Cth). Complementary to this scheme, ANSTO has a confidential, independent, and externally hosted reporting service (FairCall), which provides another avenue for staff and contractors to report any concerns about unacceptable, unethical, or illegal activities in the workplace.

Ethics

Business ethics play a key role in the proper governance of an organisation. The Code of Conduct is aligned to ANSTO's values and provides ANSTO employees with a framework for ethical decision making. It articulates the standards of behaviour,

values and actions expected of all individuals who work for ANSTO. ANSTO's values and ethical standards are reinforced through various means, including training and awareness, staff engagement surveys, and the ANSTO Enterprise Agreement.

Business resilience

Operational continuity is a key area of focus for the Board, the CEO, and Executives. ANSTO's leadership is keenly aware that a range of ANSTO's products and services, notably radiopharmaceuticals, are important to the economic and social wellbeing and health of the Australian community.

ANSTO has in place a range of capabilities for responding to various disruption-related risk and disruptive incidents. The Business Resilience Framework provides an overall approach to the management of incidents and provides for the activation of an Incident Management Team and the Executive Crisis Management Team, if required. ANSTO has adopted the

Australian Inter-Service Incident Management System for internal control and for coordination with external agencies.

ANSTO acknowledges that globally, the nature and types of incidents causing business disruptions are continually evolving due to various external factors, including technology developments and climate change. As a result, ANSTO is in the process of updating its Business Resilience Framework and related processes to reflect the changes to internationally recognised good practices that have been adapted to ensure they reflect current and emerging business challenges.

Operational governance – compliance and regulatory affairs

ANSTO operates within a highly regulated environment. In recognition of this environment, ANSTO has established policies, procedures, and systems to comply with relevant laws and regulations. The continuing development and improvement of

ANSTO's compliance framework remains a key focus. Pursuant to section 19(1)(e) of the PGPA Act, ANSTO had no instances of significant non-compliance with finance law in 2022–2023.

Internal Audit

The ANSTO Internal Audit function provides the ANSTO Board and CEO with independent and objective assurance and advisory services. The scope of Internal Audit's activities encompasses all financial and non-financial functions, systems, programs, projects, activities, and processes across ANSTO and its subsidiaries.

The Chief Risk and Assurance Officer prepares risk-based strategic and annual work plans in consultation with the Risk and Audit Committee, Executive management, and the ANAO. The annual Internal Audit Plan is reviewed by the Risk and Audit Committee and approved by the ANSTO Board.

The outcomes of internal audit reviews are presented to the Risk and Audit Committee. Follow-up reviews are conducted to ensure that internal audit recommendations are properly implemented.

In order to ensure the independence of the Internal Audit function, the Chief Risk and Assurance Officer, who is responsible for Internal Audit, reports directly to the Risk and Audit Committee and has unrestricted access to the Risk and Audit Committee Chair and members, as well as to the Chair of the Board.

For administrative purposes, the Chief Risk and Assurance Officer reports to the Chief Executive Officer.

The role, purpose, scope, and authority of the Internal Audit function is set out in the Internal Audit Charter. This Charter is reviewed by the Risk and Audit Committee and approved by the ANSTO Board.

External Audit

The Commonwealth Auditor-General, through the ANAO, is the external auditor for ANSTO and its Australian-based subsidiaries. For the 2022–2023 financial year, the ANAO contracted Ernst & Young to assist with the external audits of ANSTO and its

Australian-based subsidiaries. Ernst & Young did not provide any non-audit services to ANSTO during the period 1 July 2022 to 30 June 2023.

Judicial and Administrative Tribunal decisions

There were no judicial decisions or decisions of administrative tribunals that had a significant impact on the operations of ANSTO during the financial year.

Reports issued by the Commonwealth Auditor-General

Other than reports issued in relation to the audit of the financial statements of ANSTO and its Australian-based subsidiaries, there were no reports about ANSTO made by the Auditor-General during the financial year.

Office of the Australian Information Commissioner decisions

There were no decisions made or issued by the Australian Information Commissioner in the last financial year in relation to ANSTO.

Indemnities

ANSTO's insurance coverage with Comcover includes professional indemnity as well as directors' and officers' liability. Certain sections of the PGPA Act contain prohibitions against ANSTO giving indemnities and paying insurance premiums relating to liabilities arising from conduct involving a lack of good faith by officers, amongst other conduct.

There have been no exceptions to these provisions and no claims were made against ANSTO in respect of such directors' and

Parliamentary committees

There were no reports issued by the Public Works Committee in the last financial year in relation to ANSTO.

Reports by the Commonwealth Ombudsman

There were no reports on the operations of ANSTO by the Commonwealth Ombudsman during the financial year.

officers' or professional liability that required a claim on ANSTO's insurer, Comcover. It should be noted that ANSTO subsidiaries are fully covered under ANSTO's overarching Comcover policies. Workers' compensation coverage is dependent on whether employees of a subsidiary are Commonwealth Government employees or employed under state labour legislation.

Nuclear liability

ANSTO is provided with insurance coverage for ionising radiation liability from Comcover for up to \$50 million. The Comcover policy includes liability arising out of ANSTO's responsibility for:

- managing, storing, and conditioning ionising radiation emitting material and waste;
- transporting nuclear waste and materials for disposal both within Australia and overseas; and
- transporting radioactive materials including radioisotopes.

Privacy

ANSTO is committed to protecting personal information in accordance with the Privacy Act 1988 (Cth) and the Australian Privacy Principles. The privacy function sits within the Chief Operating Officer Group. A Privacy Officer and Privacy Champion has been appointed as required by the Privacy (Australian Government Agencies — Governance) Australian Privacy Principle Code 2017.

The aim of this function is to enhance existing privacy capabilities within ANSTO, build greater transparency in information handling practices, ensure legislative compliance, and foster a culture of respect for privacy and the value of personal information. To achieve this aim, ANSTO has a documented Privacy Management Plan that identifies specific, measurable privacy goals and targets and sets out how ANSTO will meet its compliance obligations under the Australian Privacy Principles.

Freedom of Information

The *Freedom of Information Act 1982* (FOI Act) provides the public with a general right of access to documents held by Australian Government agencies, by requiring agencies, such as ANSTO, to publish the information and provide a right of access to the documents. This general right is limited by exceptions to protect essential public interests, including the privacy of individuals and the business affairs of those who give information to the agency. In the reporting year to 30 June 2023, ANSTO received seventeen (17) requests for information under section 15 of the FOI Act.

ANSTO is required to publish information to the public as part of the Information Publication Scheme (IPS). This requirement is in Part II of the FOI Act and has replaced the former requirement to publish a section 8 statement in an annual report. The IPS is designed to promote open and transparent communication of government information. ANSTO's website contains a plan showing what information ANSTO publishes in accordance with the IPS Scheme. See www.ansto.gov.au/access-to-information

For any liability that is not covered by Comcover, ANSTO has been provided with a Deed of Indemnity by the Commonwealth under which the Commonwealth provides an indemnity to cover any loss or liability incurred by ANSTO and ANSTO Nuclear Medicine Pty Ltd, their respective employees and contractors, which arise from a claim for injury to a person or damage to property caused by ionising radiation. The current Deed expires in April 2026.

ANSTO also conducts privacy impact assessments for projects that involve significant personal information transfer or collection, undertakes regular reviews, and updates its privacy practices, procedures, and systems to ensure their currency and adequacy for the purposes of compliance with the Australian Privacy Principles. ANSTO is actively enhancing internal privacy capabilities by providing appropriate privacy education and training to staff who have access to personal information.

ANSTO has a range of publications, reports, and information available for the public, including our Annual Reports, Corporate Plan, information on safety, research reports, educational books and leaflets, and DVDs. ANSTO also provides access to a searchable database of all of ANSTO's science publications, as well as an online archive for older publications. View the database at: <https://www.ansto.gov.au/research/publications>

Direct enquiries in relation to FOI process to the (request to be directed to the FOI Coordinator): Mail: FOI Coordinator, ANSTO, Locked Bag 2001, Kirrawee DC NSW 2232 Email: foi@ansto.gov.au Telephone: +61 2 9717 3111 These contact details can be found on ANSTO's website.

Section 6:

Financial statements



INDEPENDENT AUDITOR'S REPORT

To the Minister for Industry and Science

Opinion

In my opinion, the financial statements of the Australian Nuclear Science and Technology Organisation and its subsidiaries (together the Consolidated Entity) for the year ended 30 June 2023:

- (a) comply with Australian Accounting Standards – Simplified Disclosures and the *Public Governance, Performance and Accountability (Financial Reporting) Rule 2015*; and
- (b) present fairly the financial position of the Consolidated Entity as at 30 June 2023 and its financial performance and cash flows for the year then ended.

The financial statements of the Consolidated Entity, which I have audited, comprise the following as at 30 June 2023 and for the year then ended:

- Statement by the Accountable Authority, Chief Executive and Chief Financial Officer;
- Consolidated Statement of Comprehensive Income;
- Consolidated Statement of Financial Position;
- Consolidated Statement of Changes in Equity;
- Consolidated Cash Flow Statement; and
- Notes to the financial statements comprising a summary of significant accounting policies and other explanatory information.

Basis for opinion

I conducted my audit in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. My responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of my report. I am independent of the Consolidated Entity in accordance with the relevant ethical requirements for financial statement audits conducted by the Auditor-General and his delegates. These include the relevant independence requirements of the Accounting Professional and Ethical Standards Board's APES 110 *Code of Ethics for Professional Accountants (including Independence Standards)* (the Code) to the extent that they are not in conflict with the *Auditor-General Act 1997*. I have also fulfilled my other responsibilities in accordance with the Code. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Accountable Authority's responsibility for the financial statements

As the Accountable Authority of the Consolidated Entity, the directors are responsible under the *Public Governance, Performance and Accountability Act 2013* (the Act) for the preparation and fair presentation of annual financial statements that comply with Australian Accounting Standards – Simplified Disclosures and the rules made under the Act. The directors are also responsible for such internal control as the directors determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the directors are responsible for assessing the ability of the Consolidated Entity to continue as a going concern, taking into account whether the Consolidated Entity's operations will cease as a result of an administrative restructure or for any other reason. The directors are also responsible for disclosing, as applicable, matters related to going concern and using the going concern basis of accounting, unless the assessment indicates that it is not appropriate.

GPO Box 707, Canberra ACT 2601
38 Sydney Avenue, Forrest ACT 2603
Phone (02) 6203 7300

Auditor's responsibilities for the audit of the financial statements

My objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Australian National Audit Office Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with the Australian National Audit Office Auditing Standards, I exercise professional judgement and maintain professional scepticism throughout the audit. I also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Consolidated Entity's internal control;
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Accountable Authority;
- conclude on the appropriateness of the Accountable Authority's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Consolidated Entity's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Consolidated Entity to cease to continue as a going concern;
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation; and
- obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Consolidated Entity to express an opinion on the financial report. I am responsible for the direction, supervision and performance of the Consolidated Entity audit. I remain solely responsible for my audit opinion.

I communicate with the Accountable Authority regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

Australian National Audit Office



Bradley Medina
Executive Director
Delegate of the Auditor-General

Canberra
13 September 2023



Statement by Accountable Authority, Chief Executive and Chief Financial Officer

In our opinion, the attached financial statements for the year ended 30 June 2023 comply with subsection 42(2) of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act), and are based on properly maintained financial records as per subsection 41(2) of the PGPA Act.

In our opinion, at the date of this statement, there are reasonable grounds to believe that the Australian Nuclear Science and Technology Organisation will be able to pay its debts as and when they fall due.

Signed in accordance with a resolution of the Board of Directors.

Annabelle Bennett
Accountable Authority -
Chair

12 September 2023

Shaun Jenkinson
Chief Executive Officer

12 September 2023

Emily Hodgson
Chief Financial Officer

12 September 2023

AUSTRALIAN NUCLEAR SCIENCE AND TECHNOLOGY ORGANISATION

New Illawarra Road, Lucas Heights (Locked Bag 2001, Kirrawee DC 2232) T +61 2 9717 3111 F +61 2 9717 9210
www.ansto.gov.au

Consolidated Statement of Comprehensive Income

For the year ended 30 June 2023

	Note	Budget 2023 \$'000	Actual 2023 \$'000	Actual 2022 \$'000
Net cost of services				
Expenses				
Employee benefits	1.1A	170,821	157,664	158,183
Supplier	1.1B	139,525	145,771	133,406
Depreciation and amortisation	2.2A	91,131	92,387	94,292
Impairment losses	2.2A	-	24,783	5,765
Write-down of fixed assets		-	-	487
Nuclear waste management expenses	2.3C	-	15,330	29,456
Grant		3,267	3,274	2,143
Finance costs	1.1C	20,981	24,685	15,713
Foreign currency exchange losses		-	753	490
Total expenses		425,725	464,647	439,935
Own-source revenue				
Revenue from contracts with customers	1.2A	90,815	114,760	97,581
Interest	5.2	930	9,790	721
Rental income		7,195	-	-
Royalties		4,069	-	-
Grant income		18,687	30,460	39,255
Total own-source revenue		121,696	155,010	137,557
Other income				
Decommissioning provision gains	2.3C	-	55,770	195,121
Nuclear waste management provision gains	2.3C	-	27,300	17,190
Foreign currency exchange gains		-	4,501	7,648
Gains from asset sales		-	-	130
Gains arising from lease modification		-	-	98
Total other income		-	87,571	220,187
Total own-source income		121,696	242,581	357,744
Net cost of services		(304,029)	(222,066)	(82,191)
Revenue from Government	3.1	289,027	289,027	279,506
Surplus/(deficit) before income tax		(15,002)	66,961	197,315
Income tax (expense)/benefit	1.1D	-	(283)	341
Surplus/(deficit) after income tax		(15,002)	66,678	197,656
Other comprehensive income/(expense)				
Items that will not be subsequently reclassified to net cost of services				
Changes in asset revaluation reserve	2.4A	-	168,965	(22,487)
Total comprehensive surplus/(deficit)		(15,002)	235,643	175,169

The above statement should be read in conjunction with the accompanying notes.
The budget variance commentary is contained in the Other Information section (note 6.4).

Consolidated Statement of Financial Position

As at 30 June 2023

	Note	Budget 2023 \$'000	Actual 2023 \$'000	Actual 2022 \$'000
Assets				
Financial assets				
Cash and cash equivalents	2.1A	41,208	53,543	41,624
Trade and other receivables	2.1B	31,265	29,115	24,738
Investments	2.1C	156,128	190,703	185,703
Total financial assets		228,601	273,361	252,065
Non-financial assets				
Property, plant and equipment	2.2A	1,295,600	1,427,530	1,204,904
Intangible assets	2.2A/B	72,065	57,801	76,546
Inventories	2.2C	41,910	54,543	43,424
Deferred tax asset	1.1D	1,466	229	424
Prepayments		21,329	15,555	21,377
Total non-financial assets		1,432,370	1,555,658	1,346,675
Total assets		1,660,971	1,829,019	1,598,740
Liabilities				
Payables				
Suppliers		24,918	27,008	13,055
Employees	4.1	-	6,138	4,604
Other payables	2.3A	24,832	10,070	11,660
Total payables		49,750	43,216	29,319
Interest bearing liabilities				
Lease liabilities	2.3D	396	264	385
Total interest bearing liabilities		396	264	385
Revenue in advance	2.3B	1,737	16,013	20,227
Provisions				
Employees	4.2	58,533	59,144	58,533
Decommissioning	2.3C	494,384	502,913	547,735
Nuclear waste management	2.3C	130,246	130,192	139,730
Intellectual property payment	2.3C	20,228	20,462	27,383
Total provisions		703,391	712,711	773,381
Total liabilities		755,274	772,204	823,312
Net assets		905,697	1,056,815	775,428
Equity				
Contributed equity		1,017,265	1,017,265	971,521
Reserves	2.4A	490,235	659,203	490,238
Accumulated deficit		(601,803)	(619,653)	(686,331)
Total equity		905,697	1,056,815	775,428

The above statement should be read in conjunction with the accompanying notes.
The budget variance commentary is contained in the Other Information section (note 6.4).

Consolidated Statement of Changes in Equity

For the year ended 30 June 2023

	Accumulated deficit		Asset revaluation reserve		Other reserves		Contributed equity		Total	
	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Balance at 30 June 2021	(884,603)		503,341		10,000		921,334		550,072	
Surplus for the year	197,656		-		-		-		197,656	
Other comprehensive income										
Revaluation decrement	-		(22,487)		-		-		(22,487)	
Total comprehensive surplus/(deficit) for the year	197,656		(22,487)		-		-		175,169	
Transactions with owners										
Transfers	616		-		(616)		-		-	
Government equity injection	-		-		-		50,187		50,187	
Balance at 30 June 2022	(686,331)	(586,801)	480,854	480,852	9,384	9,383	971,521	971,521	775,428	874,955
Surplus/(deficit) for the year	66,678	(15,002)	-	-	-	-	-	-	66,678	(15,002)
Other comprehensive income										
Revaluation increment	-		168,965		-		-		168,965	-
Total comprehensive surplus/(deficit) for the year	66,678	(15,002)	168,965		-		-		235,643	(15,002)
Transactions with owners										
Government equity injection	-		-		-		45,744		45,744	45,744
Balance at 30 June 2023	(619,653)	(601,803)	649,819	480,852	9,384	9,383	1,017,265	1,017,265	1,056,815	905,697

The above statement should be read in conjunction with the accompanying notes.

Consolidated Statement of Cash Flows

For the year ended 30 June 2023

	Note	Budget 2023 \$'000	Actual 2023 \$'000	Actual 2022 \$'000
Cash flows from operating activities				
Contracts with customers		96,099	130,514	103,985
Grants received		14,270	24,221	28,099
Interest received		930	7,598	478
Receipts from Government		299,424	289,027	279,506
Payments to employees		(170,821)	(155,699)	(154,395)
Payments to suppliers		(139,546)	(160,917)	(158,259)
Payments for decommissioning	2.3C	-	(9,096)	(3,477)
Payments for nuclear waste management	2.3C	-	(2,176)	(13,812)
Other		(7,348)	-	-
Net cash from operating activities		93,008	123,472	82,125
Cash flows from investing activities				
Proceeds from sale of property, plant, equipment and intangibles		-	-	173
Proceeds from maturing financial instruments		436,343	490,000	296,360
Purchase of financial instruments		(406,767)	(495,000)	(290,000)
Other		108	-	-
Purchase of property, plant, equipment and intangibles	2.2A	(168,178)	(152,173)	(131,362)
Net cash used in investing activities		(138,494)	(157,173)	(124,829)
Cash flows from financing activities				
Government equity injection		45,744	45,744	50,187
Principal and interest payments on lease liabilities	2.3D	(126)	(124)	(147)
Net cash from financing activities		45,618	45,620	50,040
Net increase in cash and cash equivalents				
Cash and cash equivalents at the beginning of the reporting year		41,076	41,624	34,288
Cash and cash equivalents at the end of the reporting year	2.1A	41,208	53,543	41,624

The above statement should be read in conjunction with the accompanying notes.

Overview

Objectives of Australian Nuclear Science and Technology Organisation

Australian Nuclear Science and Technology Organisation (ANSTO) is a not-for-profit Australian Government Corporate Commonwealth entity incorporated and domiciled in Australia.

Registered office

New Illawarra Road
Lucas Heights
NSW 2234
Australia

ANSTO's strategic objectives, as set out in its current Corporate Plan, are:

- Putting our people first: Provide a safe, sustainable and inclusive environment that empowers our people and supports a culture of collaboration and engagement;
- World leading research and technology outcomes: Undertake research with strategic partners that is translational and serves users;
- Strategic management of landmark and national infrastructure: Provide platforms and development pathways to enable world-class research that creates economic impact and benefits;
- Nuclear and related expertise and advice: Provide expert advice, education and services to support Australian policy and strengthen Australia's nuclear science knowledge base;
- Nuclear medicines for Australia and the world: Support better healthcare for all Australian and international customers with nuclear medicine products; and
- Places and spaces for business and partnerships: Innovation Precinct, partnerships and services, delivering impactful and sustainable outcomes.

In the 2022-23 Portfolio Budget Statements ANSTO has one outcome as reflected below:

Outcome 1: Improved knowledge, innovative capacity and healthcare through nuclear-based facilities, research, training, products, services and advice to Government, industry, the education sector and the Australian population.

ANSTO's activities contributing towards the outcome are classified as departmental. Departmental activities involve the use of assets, liabilities, income and expenses controlled or incurred by ANSTO in its own right. The continued existence of ANSTO in its present form and with its present programs is dependent on Government policy and continuing funding by Parliament for the entity's administration and programs.

Reference to ANSTO means ANSTO and its controlled entities except in Notes 1.1D and 6.2.

Basis of preparation of the financial statements

The financial statements required by section 42 of the *Public Governance, Performance and Accountability Act 2013*.

The financial statements have been prepared:

- a) having regard to the provisions of the *Australian Nuclear Science and Technology Organisation (ANSTO) Act 1987* (as amended); and
- b) in accordance with:
 - i. *Public Governance, Performance and Accountability (Financial Reporting) Rule 2015* (FRR); and
 - ii. Australian Accounting Standards and Interpretations – including simplified disclosures for Tier 2 Entities under AASB 1060 issued by the Australian Accounting Standards Board (AASB) that apply for the reporting period.

Overview (continued)

Basis of preparation of the financial statements

The financial statements have been prepared on an accrual basis and in accordance with the historical cost convention, except for certain assets and liabilities at fair value. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position. Where necessary the comparative information for the preceding financial year has been reclassified to achieve consistency in disclosure with current financial year amounts.

The financial statements are presented in Australian dollars and values are rounded to the nearest thousand dollars unless otherwise specified.

The financial statements were authorised for issue by the Board of Directors on 12 September 2023.

Foreign currency

Transactions denominated in a foreign currency are converted to Australian currency at the rate of exchange prevailing at the date of the transaction. At reporting date, amounts receivable and payable in foreign currency are translated to Australian currency at the exchange rate prevailing at that date and any exchange differences are brought to account in the Statement of Comprehensive Income. ANSTO does not enter into speculative forward exchange contracts.

Principles of consolidation

The consolidated financial statements incorporate the financial statements of ANSTO and the entities it controls. Control is achieved when ANSTO has all of the following:

- power over the investee;
- is exposed, or has rights, to variable returns from its involvement with the investee; and
- the ability to use its power to affect its returns.

Consolidation of a subsidiary begins when ANSTO obtains control over the subsidiary and ceases when they lose control of the subsidiary. All intragroup assets and liabilities, equity, income, expenses and cash flows relating to transactions between members of the Group are eliminated in full on consolidation. Profit or loss and each component of other comprehensive income are attributed to the owners of the entity and to the non-controlling interests. Total comprehensive income of subsidiaries is attributed to the owners of the entity and to the non-controlling interests even if this results in the non-controlling interests having a deficit balance. Changes in the Group's ownership interests in subsidiaries that do not result in the Group losing control over the subsidiaries are accounted for as equity transactions. The carrying amounts of the Group's interests and the non-controlling interests are adjusted to reflect the changes in their relative interests in the subsidiaries. Any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received is recognised directly in equity and attributed to ANSTO.

Overview (continued)

Significant accounting judgements and estimates

In the process of applying the accounting policies listed in this note, management has made a number of judgements and applied estimates and assumptions to future events. Information regarding judgements and estimates which are material to the financial statements are found in the following notes:

- Notes 2.2A and 5.3: Property, plant and equipment fair value measurement and useful lives;
- Note 2.3C: Decommissioning and waste provisions phasing of work and discounted cash flow assumptions; and
- Note 2.2B: Recoverable amount of the intangible asset relating to intellectual property and fair value of the associated liability.

Apart from these assumptions and estimates no other accounting assumptions or estimates have been identified that have a significant risk of causing a material adjustment to carrying amounts of assets and liabilities within the next accounting period.

Adoption of new Australian Accounting Standard requirements

In the current year, ANSTO adopted all new and revised Australian Accounting Standards issued by the Australian Accounting Standards Board that are mandatorily effective for accounting periods that ended on 30 June 2023.

No accounting standard has been adopted earlier than the application date as stated in the standard.

ANSTO has initially applied AASB 2020-3 Amendments to Australian Accounting Standards – Annual Improvements 2018–2020 and Other Amendments and AASB 2021-7 a, b and c Amendments to Australian Accounting Standards – Effective Date of Amendments to AASB 10 and AASB 128 and Editorial Corrections (AASB 2021-7). There has been no material effect on ANSTO's financial statements.

1. Financial Performance

This section details the financial performance of ANSTO.

1.1 Expenses

1.1A Employee benefits

	2023	2022
	\$'000	\$'000
Wages and salaries	111,963	115,142
Superannuation - defined contribution plans	15,990	16,109
Superannuation - defined benefit plans	8,605	8,674
Leave and other entitlements	17,309	17,370
Separation and redundancies	3,797	888
Total employee benefits	157,664	158,183

Accounting policy

Liabilities for 'short-term employee benefits' (as defined in AASB 119 *Employee Benefits*) and termination benefits expected within twelve months of the end of reporting period are measured at their nominal amounts.

Other long-term employee benefits are measured as the total net present value of the defined benefit obligation at the end of the reporting period.

Leave

Annual and long service leave, including applicable on-costs that are not expected to be wholly settled before 12 months after the end of the reporting period when the employees render the related service, are measured at the present value of estimated future payments to be made in respect of services provided by employees up to the reporting date. The provision for employee entitlements encompasses annual leave and long service leave that ANSTO has a present obligation to pay resulting from employee services provided up to the reporting date. The provision for annual leave and long service leave includes estimated on-costs. As these on-costs only become payable if the employee takes annual and long service leave while in-service, the probability that employees will take annual and long service leave while in-service has been taken into account in estimating the liability for on-costs.

The leave liabilities are calculated on the basis of employees' remuneration at the estimated salary rates that will be applied when leave is taken, including employer superannuation contribution rates to the extent that the leave is likely to be taken during service rather than paid out on termination.

The Enterprise Agreement provides under the heading General Leave for an employee entitlement which combines sick leave, carer's leave and leave for 'other' prescribed purposes. No provision has been made for general leave as all such leave is 'non-vesting'.

The estimate of the present value of the liability takes into account attrition rates and pay increases through promotion and inflation.

Separation and redundancy

Provision is made for separation and redundancy benefit payments. ANSTO recognises a provision for termination when it has developed a detailed formal plan for the termination and has informed those employees affected that it will carry out the termination.

Superannuation

ANSTO's staff are members of the Commonwealth Superannuation Scheme (CSS) and the Public Sector Superannuation Scheme (PSS) or the PSS accumulation plan (PSSap), or other superannuation funds held outside of the Australian Government that provide retirement, death and disability benefits to employees. The CSS and PSS are defined benefit schemes for the Australian Government. The PSSap is a defined contribution scheme.

1. Financial Performance (continued)

1.1A Employee (continued)

The liability for defined benefits is recognised in the financial statements of the Australian Government and is settled by the Australian Government in due course. This liability is reported in the Department of Finance's administered schedules and notes.

ANSTO makes employer contributions to the employees' superannuation scheme at rates determined by an actuary to be sufficient to meet the current cost to the Government. ANSTO accounts for contributions as if they are contributions to defined contribution scheme.

The liability for superannuation recognised as at 30 June represents outstanding contributions for the final week of the year.

1.1B Supplier

	2023	2022
	\$'000	\$'000
Goods supplied from external entities	58,342	61,209
Services rendered from related entities	10,529	17,230
Services rendered from external entities	75,249	54,152
Workers' compensation premiums - related entities	1,651	815
Total supplier expenses	145,771	133,406

1.1C Finance costs

	Note	2023	2022
		\$'000	\$'000
Bank charges		16	16
Other interest		-	20
Interest expense on lease liabilities	2.3D	3	34
Unwinding of discount on provisions	2.3C	24,666	15,643
Total finance costs		24,685	15,713

1. Financial Performance (continued)

1.1D Income tax

	2023	2022
	\$'000	\$'000
Prima facie income tax expense on results of taxable subsidiaries	(2,491)	(10,595)
Adjustment of deferred tax for prior years	-	547
Deferred tax expense not recognised	2,208	10,389
Total income tax (expense)/benefit	(283)	341

Taxation

ANSTO is exempt from income tax. Unrecognised deferred tax assets in relation to unrecouped tax losses, including timing differences, in ANSTO Nuclear Medicine Pty Ltd (ANM) is \$67,927,937 (2022: \$72,654,535). The total deferred tax assets recognised as at 30 June 2023 in relation to controlled entities are \$228,546 (2022: \$424,281), from PETTECH Solutions Pty Ltd at \$228,546 (2022: \$424,281), ANM at \$nil (2022: \$nil).

Subsidiaries

ANSTO's subsidiaries are subject to normal taxation.

No deferred tax asset has been recognised at 30 June 2023 (2022: \$nil) in relation to ANM as there is no evidence of recoverability before the company is wound up.

The PETTECH Solutions Pty Ltd director believes it is probable that sufficient profits will be generated to utilise the tax losses available.

Accounting policy

In respect of the subsidiaries, current tax assets and liabilities for the current and prior periods are measured at the amount expected to be recovered from or paid to the taxation authorities based on the current period's taxable income. The tax rates and tax laws used to compute the amount are those that are enacted or substantively enacted by reporting date.

Deferred income tax is provided on all temporary differences at reporting date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes.

ANSTO is exempt from all forms of Australian taxation except fringe benefits tax (FBT) and the goods and services tax (GST). ANSTO is not exempt from any foreign taxation laws relative to its overseas operations.

Revenues, expenses, assets and liabilities are recognised net of GST except:

- where the amount of GST incurred is not recoverable from the Australian Taxation Office; and
- for receivables and payables.

1. Financial Performance (continued)

1.1D Income tax (continued)

Deferred income tax liabilities are recognised for all taxable temporary differences except:

- when the deferred income tax liability arises from the initial recognition of goodwill or of an asset or liability in a transaction that is not a business combination and that, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss; or
- when the taxable temporary difference is associated with investments in subsidiaries, associates or interests in joint ventures, and the timing of the reversal of the temporary difference can be controlled and it is probable that the temporary difference will not reverse in the foreseeable future.

Deferred income tax assets are recognised for all deductible temporary differences, carry forward of unused tax credits and unused tax losses, to the extent that it is probable that taxable profit will be available in the foreseeable future against which the deductible temporary differences and the carry forward of unused tax credits and unused tax losses can be utilised, except:

- when the deferred income tax asset relating to the deductible temporary difference arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss; or
- when the deductible temporary difference is associated with investments in subsidiaries, associates or interests in joint ventures, in which case a deferred tax asset is only recognised to the extent that it is probable that the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilised.

Unrecognised deferred income tax assets are reassessed at each reporting date and are recognised to the extent that it has become probable that future taxable profit will allow the deferred tax asset to be recovered.

Deferred income tax assets and liabilities are measured at the tax rates that are expected to apply to the year when the asset is realised or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at reporting date. Deferred tax assets and deferred tax liabilities are offset only if a legally enforceable right exists to set off current tax assets against current tax liabilities and the deferred tax assets and liabilities relate to the same taxable entity and the same taxation authority.

1.1E Auditor's remuneration

During the period the following fees were paid or payable for services provided by the auditor of ANSTO and its subsidiaries, the Australian National Audit Office:

	2023	2022
	\$'000	\$'000
Audit of the financial statements	265	280
Total auditor's remuneration	265	280

No other services were provided by the Australian National Audit Office during the reporting period.

1. Financial Performance (continued)

1.2 Revenue

1.2A Revenue from contracts with customers

	2023	2022
	\$'000	\$'000
Sales of goods		
Radioisotope sales	72,032	56,839
Total sales of goods	72,032	56,839
Rendering of services		
Service & contract research	21,802	18,564
Silicon irradiation	13,314	11,887
CSIRO site support	1,265	1,265
Training courses	692	468
Land management	5,655	8,558
Total rendering of services	42,728	40,742
Total revenue from contracts with customers	114,760	97,581

Accounting policy

Revenue from contracts with customers

ANSTO recognises revenue for the transfer of promised goods and services to customers in an amount that reflects the consideration expected for the exchange of those goods and services.

The following is a description of the principal activities, and their respective revenue recognition treatment, from which ANSTO generates its revenue:

- Revenue from radioisotope sales is recognised at a point in time once control of the products is transferred to the customer. This generally occurs when products are dispatched for domestic customers and from when the products have departed from Australian soil for international customers;
- Revenue for service & contract research is recognised upon completion of the service milestone as per the contract or when the research has been provided if there are no specific milestones other than delivery on the agreed scope;
- Silicon irradiation revenue is recognised once the customer's product has undergone the irradiation process and control of the ingot returns to the customer;
- Revenue from land management includes operating lease revenue recognised on a straight- line basis or another systematic basis; and
- Revenue from training courses is recognised in the period the training course held when the performance obligations have been satisfied.

Receivables for goods and services are recognised at the contractual amounts due less any impairment allowance. Collectability of debts is assessed at invoicing. At this time an assessment is made of the expected credit loss based on life-time expected credit losses. Lifetime expected credit losses represent the expected credit losses that are expected to result from default events over the expected life of the financial asset. This takes into account historical experience, the credit risk for each customer as well as other indicators.

1. Financial Performance (continued)

1.2A Contracts with customers (continued)

Accounting policy (continued)

Grant revenue

Operating grants

Assets arising from operating grants that do not satisfy the criteria to be accounted for under AASB 15 *Revenue from Contracts with Customers* are recognised at fair value when ANSTO obtains control of the asset. Income is recognised at this amount less any related amounts required to be recognised in accordance with applicable Australian Accounting Standards.

Capital grants

A transfer of a financial asset, including cash, to enable ANSTO to acquire or construct a recognisable non-financial asset to identified specifications to be controlled by the organisation is referred to as a capital grant. These grants are initially recognised as a liability and subsequently recognised as income as, or when, the company satisfies its obligation to acquire or construct the specified asset to which the capital grant relates. For the acquisition of specified assets, income is recognised when the asset is acquired and controlled by ANSTO. For the construction of specified assets, income is recognised as the construction progresses on the basis of costs incurred relative to expected costs.

Resources received free of charge

Resources received free of charge are recognised as revenue when and only when a fair value can be reliably determined and the services would have been purchased if they had not been donated. Use of those resources is recognised as an expense.

Resources received free of charge are recorded as either revenue or gains depending on their nature i.e. whether they have been generated in the course of the ordinary activities of ANSTO. Contributions of assets at no cost or for nominal consideration are recognised as gains at their fair value when the asset qualifies for recognition.

2. Financial Position

This section details the financial position of ANSTO.

2.1 Financial assets

2.1A Cash and cash equivalents

Accounting policy

Cash is recognised at its nominal amount. Cash and cash equivalents include:

- Cash on hand; and
- Demand deposits in bank accounts with an original maturity of 3 months or less that are readily convertible to known amounts of cash and subject to insignificant risk of changes in value.

2.1B Trade and other receivables

	2023	2022
	\$'000	\$'000
Goods and services		
Related entities	893	1,411
External entities	19,228	17,720
Trade receivables	20,121	19,131
Less impairment loss allowance	-	-
Net receivables for goods and services	20,121	19,131
Other receivables		
Accrued interest	2,558	366
GST receivable from the Australian Tax Office	2,443	1,945
Accrued revenue	3,384	2,604
Other	609	692
Total other receivables	8,994	5,607
Total net trade and other receivables	29,115	24,738

Trade and other receivables are expected to be received within 12 months.

Net receivables are aged as follows:

	2023	2022
	\$'000	\$'000
Overdue but not impaired:		
Less than 31 days	24,275	19,598
31 to 60 days	829	464
61 to 90 days	520	1,140
More than 90 days	3,491	3,536
Total net trade and other receivables	29,115	24,738

Accounting policy

Receivables for goods and services are recognised at the nominal amounts due less any impairment loss allowance. Contractual payment terms are 30 days from billing. Collectability of debts is reviewed at reporting date. Allowance is made when collectability of the debt is no longer probable.

2. Financial Position (continued)

2.1C Investments

	2023	2022
	\$'000	\$'000
Term deposits	190,000	185,000
Other	703	703
Total investments	190,703	185,703

2. Financial Position (continued)

2.2 Non-financial assets

2.2A Property, plant and equipment and intangible assets

	Land	Buildings	Plant and Equipment	Intellectual property	Software	Other intangibles	Buildings Right of Use	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Gross value as at 30 June 2022	201,500	234,442	1,084,871	51,210	102,603	18,318	798	1,693,742
Additions	-	23,980	116,536	-	8,205	3,452	-	152,173
Transfers and reclassifications	-	537	(4,117)	-	2,355	1,225	-	-
Assets written-off	-	-	-	-	(51,047)	(1,053)	-	(52,100)
Transfer of depreciation on revaluation	-	(42,834)	(188,327)	-	-	-	(586)	(231,747)
Revaluations and Impairments recognised in other comprehensive income	-	19,936	147,542	-	-	-	-	167,478
Gross value as at 30 June 2023	201,500	236,061	1,156,505	51,210	62,116	21,942	212	1,729,546
Accumulated depreciation, amortisation and impairment losses 1 July 2022	-	103,085	213,170	26,427	64,361	4,797	452	412,292
Depreciation and amortisation	-	12,020	71,034	-	6,905	2,294	134	92,387
Impairment loss	-	-	-	24,783	-	-	-	24,783
Assets written-off	-	-	-	-	(51,047)	(1,053)	-	(52,100)
Transfer of depreciation on revaluation	-	(42,834)	(188,327)	-	-	-	(586)	(231,747)
Revaluations and Impairments recognised in other comprehensive income	-	-	(1,400)	-	-	-	-	(1,400)
Accumulated depreciation, amortisation and impairment losses 30 June 2023	-	72,271	94,477	51,210	20,219	6,038	-	244,215
Net book value as at 30 June 2023	201,500	163,790	1,062,028	-	41,897	15,904	212	1,485,331
Property, plant and equipment	201,500	163,790	1,062,028	-	-	-	212	1,427,530
Intangibles	-	-	-	-	41,897	15,904	-	57,801

No property, plant and equipment and intangible assets are expected to be disposed of within the next 12 months.

2. Financial Position (continued)

2.2A Property, plant and equipment and intangible assets (continued)

Accounting policy

Asset recognition threshold

Items of buildings, infrastructure, plant and equipment and major facilities are recorded at cost of acquisition and depreciated as outlined below. Items of plant and equipment with a cost of less than \$5,000 (2022: \$5,000) are expensed in the year of acquisition (other than where they form part a group of similar items which are significant in total).

The initial cost of an asset includes an estimate of the cost of dismantling and removing the item and restoring the site on which it is located at the end of its useful life. This is particularly relevant to 'make good' or decommissioning provisions on buildings, infrastructure, plant and equipment and major facilities, taken up by ANSTO where there exists an obligation to restore the property to its original condition. These costs are included in the value of the asset it relates to with a corresponding provision for the 'make good' or decommissioning taken up.

The cost of assets constructed by the entity includes the cost of materials, direct labour and an appropriate proportion of fixed and variable overheads.

Lease right-of-use (ROU) assets

Leased ROU assets are capitalised at the commencement date of the lease and comprise of the initial lease liability amount, initial direct costs incurred when entering into the lease less any lease incentives received. These assets are accounted for by Commonwealth lessees as separate asset classes to corresponding assets owned outright.

Following initial application, an impairment review is undertaken for any right of use lease asset that shows indicators of impairment and an impairment loss is recognised against any right of use lease asset that is impaired.

Revaluations of non-financial assets

Following initial recognition at cost, buildings, infrastructure, plant and equipment and major facilities (excluding right-of-use (ROU) assets) are carried at fair value less accumulated depreciation and accumulated impairment losses. Valuations are conducted with sufficient frequency to ensure that the carrying amounts of assets do not differ materially from the assets' fair values as at reporting date. The regularity of independent valuations depends upon the volatility of movements in market values for the relevant assets. Independent valuers are generally used to conduct these scheduled revaluations. Revaluation increases or decreases arise from differences between an asset's carrying value and fair value.

Given the level of inflation growth since the last valuation in 2021, ANSTO has engaged PP&E Valuations Pty Ltd, in relation to the assets at ANSTO's Victorian campus, and CBRE Valuations Pty Limited for the assets at ANSTO's NSW campus, to provide a desktop valuation on property, plant and equipment, effective 30 June 2023. Refer to Note 5.3 for the fair value assessment.

Revaluation adjustments are made on a class basis. Any revaluation increment is credited to equity under the heading of asset revaluation reserve except to the extent that it reverses a previous revaluation decrement of the same asset class that was previously recognised through profit and loss. Revaluation decrements for a class of assets are recognised directly through profit and loss except to the extent that they reverse a previous revaluation increment for that asset class.

Any accumulated depreciation as at the revaluation date is eliminated against the gross carrying amount of the asset and the asset restated to the revalued amount except for assets relating to decommissioning that are not subjected to revaluation.

2. Financial Position (continued)

2.2A Property, plant and equipment and intangible assets (continued)

Any revaluation increase to the decommissioning cost included in the initial cost of the asset will be reflected as an increase to the provision for decommissioning and a decrease to the asset revaluation reserve to the extent that there is a sufficient balance in the asset revaluation reserve for this asset class, any residual decrease will be recognised in profit or loss. Any revaluation decrease will be reflected as a decrease to the provision for decommissioning and an increase to the asset revaluation reserve and, to the extent of the decrease reversing a previous revaluation decrease of the related asset class that was previously recognised in profit and loss, the decrease is credited to profit and loss as a reversal. If the decrease in the provision exceeds the Depreciated Replacement Cost of the asset, the excess is taken to profit and loss.

Depreciation

Items of buildings, infrastructure, plant and equipment and major facilities, but excluding freehold land and ROU assets, are depreciated over their estimated useful lives to ANSTO using the straight-line method. The depreciation rates for ROU assets are based on the commencement date to the earlier of the end of the useful life of the ROU asset or the end of the lease term.

The depreciation rates (useful lives), residual values and methods are reviewed during each reporting date and necessary adjustments are recognised in the current, or current and future reporting periods, as appropriate. ROU assets are amortised based on the life of the lease.

Depreciation and amortisation rates applying to each class of depreciable asset (excluding ROU assets) are based on the following useful lives:

	2023	2022
Buildings on freehold land	5 to 45 years	5 to 45 years
Plant and equipment	2 to 45 years	2 to 45 years
Infrastructure	20 years	20 years
Landmark, national and major research facilities	5 to 45 years	5 to 45 years

Impairment

All assets were assessed for indications of impairment at 30 June 2023. Where indications of impairment exist, the asset's recoverable amount is estimated and an impairment adjustment made if the asset's recoverable amount is less than its carrying amount.

The recoverable amount of an asset is the higher of its fair value less costs to sell and its value in use. Value in use is the present value of the future cash flows expected to be derived from the asset. Where the future economic benefit of an asset is not primarily dependent on the asset's ability to generate future cash flows, and the asset would be replaced if the entity were deprived of the asset, its value in use is taken to be its depreciated replacement cost.

Any resulting impairment losses, for property, plant and equipment assets, are recorded as a decrease in the Asset Revaluation Surplus relating to these classes of assets. This is because these asset classes are measured at fair value and have an Asset Revaluation Surplus attached to them. Where the impairment loss is greater than the balance of the Asset Revaluation Surplus for the relevant class of asset, the difference is expensed in the Statement of comprehensive income.

Derecognition

An item of property, plant and equipment is derecognised upon disposal or when no further future economic benefits are expected from its use or disposal.

2. Financial Position (continued)

2.2B Intangibles

The useful lives of intangible assets are assessed as either finite or indefinite.

Intangible assets with finite lives are amortised over the useful economic life and assessed for impairment whenever there is an indication that the intangible asset may be impaired. Intangible assets with indefinite useful lives are not amortised, but are tested for impairment annually, either individually or at the cash-generating unit level.

Software

Items of software are recorded at cost and amortised as outlined below. Items with a cost of less than \$5,000 (2022: \$5,000) are expensed in the year of acquisition. Software and licences are reported at cost. There is no material internal software development, though there are significant internal capitalised costs involved in the implementation of purchased software.

Intellectual property

ANSTO and NTP Radioisotopes (SOC) Limited (NTP) signed the Intellectual Property (IP) Licence Agreement on 15 May 2012 for the provision of NTP's IP to ANSTO, assisting ANSTO with the build of the Mo-99 manufacturing plant and the utilisation of the IP in its operations at Lucas Heights.

Under the terms of the IP Agreement NTP granted to ANSTO an exclusive, irrevocable, perpetual licence to use, exploit, reproduce and modify the current IP and the future IP.

ANSTO originally recognised the IP right conveyed, at fair value, as an intangible asset with an indefinite life and a financial liability for the accumulated future payments required in relation to the asset. In 2022-23 the IP intangible asset has been fully impaired based on the assessment of cash flows generated over the next 10 years.

Amortisation

Intangibles are amortised over their estimated useful lives to ANSTO using the straight-line method.

Amortisation rates applying to intangibles are as follows:

	2023	2022
Purchased software	2 to 10 years	2 to 10 years
Licences	3 years	3 years
Intellectual property	Indefinite life	Indefinite life

Impairment

All intangible assets were assessed for impairment at 30 June 2023. Where indications of impairment exist, the asset's recoverable amount is estimated and an impairment adjustment made if the asset's recoverable amount is less than its carrying amount.

Patents

Due to the uncertain commercial value of patents and because benefits extending beyond one accounting period cannot be assured, the costs associated with the development and registration of patents are expensed in the year in which they are incurred, unless recoverability is assured beyond any reasonable doubt. At 30 June 2023 there were 171 patents (2022: 165) registered to ANSTO and no associated costs are recognised as an asset (2022: \$nil).

2. Financial Position (continued)

2.2C Inventories

	2023	2022
	\$'000	\$'000
Raw materials and stores – not held for resale		
Stores - at cost	38,699	28,188
Cobalt-60 sources - at net realisable value	44	51
Reactor fuel and heavy water - at average purchase price	11,063	11,028
	49,806	39,267
Work in progress - at cost	3,959	3,415
Finished goods - at cost	778	742
Total inventories	54,543	43,424
Inventories expected to be realised within		
No more than 12 months	44,446	33,327
More than 12 months	10,097	10,097
Total inventories	54,543	43,424

During 2023, opening inventories of \$38.1M (2022: \$32.7M) were recognised as an expense.

Accounting policy

Inventories held for sale are valued at the lower of cost and net realisable value. Costs incurred in bringing each item of inventory to its present location and condition, are assigned as follows:

- Raw material and stores (with the exception of reactor fuel) - purchase cost on a first-in first-out basis;
- Reactor fuel - average purchase price; and
- Finished goods and work-in-progress - cost of direct materials and labour plus attributable costs that can be allocated on a reasonable basis.

2.2D Commitments

	2023	2022
	\$'000	\$'000
Infrastructure, plant and equipment	75,654	98,489
Fuel element purchase	22,382	12,992
Mo-99 plate purchase	15,205	15,281
Total commitments	113,241	126,762
One year or less	68,871	72,064
From one to five years	44,370	54,698
Total commitments	113,241	126,762

Accounting policy

Commitments are expenditure contracted for at the reporting date, but not recognised as liabilities.

2. Financial Position (continued)

2.3 Liabilities

2.3A Other payables

	2023	2022
	\$'000	\$'000
Accrued expenses	9,319	10,647
Other	751	1,013
Total other payables	10,070	11,660
Other payables expected to be settled within		
No more than 12 months	10,070	11,660
Total other payables	10,070	11,660

Accounting policy

Other payables are recognised at amortised cost. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).

2.3B Revenue in advance

	2023	2022
	\$'000	\$'000
Grant monies received in advance	10,779	17,017
Revenue received in advance - goods and services	5,234	3,210
Total revenue in advance	16,013	20,227
Revenue in advance expected to be settled within		
No more than 12 months	10,209	18,875
More than 12 months	5,804	1,352
Total revenue in advance	16,013	20,227

Accounting policy

Revenue in advance is recognised if a payment is received before ANSTO performs the related services, the customer has yet to obtain control of the goods or the grant performance obligations, if any, have yet to be met.

2. Financial Position (continued)

2.3C Provisions (other than employees)

		2023	2022
		\$'000	\$'000
Decommissioning	(a)	502,913	547,735
Nuclear waste management	(b)	130,192	139,730
Intellectual property payment	(c)	20,462	27,383
Total provisions		653,567	714,848
Provisions expected to be settled within			
No more than 12 months		12,507	22,459
More than 12 months		641,060	692,389
Total provisions		653,567	714,848

Accounting policy

The initial measurement of the provision for decommissioning and nuclear waste management is the present value of expected expenditures to settle the obligation.

Any adjustment to the provision for decommissioning and nuclear waste management attributable to the timing of expenditure, consumer price index (CPI) and discount rate at 30 June each year will be reflected as an adjustment to the provision and recognised in profit or loss in the reporting year in which the estimates change. The accounting policy relating to adjustments to the provision for decommissioning arising on revaluation of the decommissioning cost included in the underlying asset is disclosed in Note 2.2A.

2. Financial Position (continued)

2.3C Provisions (other than employees) (continued)

	Decommissioning	Nuclear waste management	Intellectual property payment	Other claims
	\$'000	\$'000	\$'000	\$'000
Carrying amount 30 June 2021	731,817	140,157	37,105	259
Nuclear waste management expenses	-	29,456	-	-
Amounts used	(3,477)	(13,812)	(2,565)	(259)
Change in accounting estimate	(195,121)	(17,190)	-	-
Foreign currency movement	-	-	(7,165)	-
Unwinding discount	14,516	1,119	8	-
Carrying amount 30 June 2022	547,735	139,730	27,383	-
Nuclear waste management expenses	-	15,330	-	-
Amounts used	(9,096)	(2,176)	(6,935)	-
Change in accounting estimate	(55,770)	(27,300)	-	-
Unwinding discount	20,044	4,608	14	-
Carrying amount 30 June 2023	502,913	130,192	20,462	-

Provisions movement reconciliation

- (a) This provision includes decommissioning costs relating to property, plant, equipment and infrastructure.

Estimated nominal costs being the estimate of future cash flows required to fund the decommissioning of current facilities and infrastructure (2023: \$756.1 million; 2022 \$742.1 million):

- An external company, Project Time & Cost LLC (PT&C), was engaged in 2018-19 to provide rough-order-of-magnitude costs for decommissioning facilities at ANSTO's Lucas Heights campus effective 30 June 2019 based upon characteristics that are similar to other facilities for which there is a known decommissioning liability. The parametric estimate provided by PT&C has an expected accuracy range between +50% (\$1,075.1M) and -30% (\$501.7M), this can also be defined as the bandwidth of estimating uncertainty associated with parametric estimating, and is based on a Class 4 cost estimate; ANSTO has applied the mid-point estimate (\$716.7M).
- ANSTO's internal subject matter experts update the decommissioning and nuclear waste management provision at year end to reflect revised costings and expected timing of future expenditure.

2. Financial Position (continued)

2.3C Provisions (other than employees) (continued)

Phasing of the estimated nominal costs over the expected time period of the decommissioning provision being 55 years (2022: 56 years):

- The cash flows are phased based on when it is expected that the work will be undertaken, which is subject to the use of the asset, the available funding and, where applicable, the licence.
- Decommissioning costs are funded by government and received on a pro-rata basis with the longest funding over 55 years for the decommissioning of infrastructure.

Inflating the nominal costs by expected CPI over time (2023: 2.5%, 2022: 2.5%):

- Payments to fund decommissioning are made in the future and need to account for expected increases in the underlying cost of the final outflow due to inflationary pressures. The inflation rate assumption applied by ANSTO is set with reference to the Standard Parameters made available by the Department of Finance.

Discounting for the effect of the time value of money (2023: ranging from 3.95% to 4.34%, 2022: ranging from 2.73% to 3.71%):

- Projected nominal costs are discounted to a present value using risk free rates to reflect the time value of money and are set with reference to the Standard Parameters made available by the Department of Finance.

Given the high degree of judgement required to estimate future cash flows and the phasing of these cash flows, there is inherent uncertainty in establishing the liability, therefore it is likely that the final outcome will differ from the original liability established.

The sensitivity of the decommissioning provision, based on the nominal cost of \$756.1 million as at 30 June 2023 (2022: \$742.1 million), to changes in the primary drivers are indicated in the table below. Each change has been calculated in isolation and without regard to other driver changes that may occur simultaneously.

Driver	Change	Decommissioning provision increase/(decrease)	
		2023 \$'000	2022 \$'000
CPI	(1.0)%	(92,698)	(103,563)
	(0.5)%	(49,662)	(55,671)
	0.5%	57,514	64,960
	1.0%	124,352	141,035
Discount rate	(1.0)%	123,265	223,514
	(0.5)%	56,755	94,454
	0.5%	(48,664)	(70,990)
	1.0%	(90,592)	(125,736)
Delaying planned expenditure	1 year	(8,735)	(7,109)
	3 years	(25,906)	(21,520)
	5 years	(42,711)	(35,760)

2. Financial Position (continued)

2.3C Provisions (other than employees) (continued)

- (b) The nuclear waste management provision consists of future costs relating to the management of accumulated waste arising from nuclear operations.

Estimated nominal costs being the estimate of future cash flows required to fund the waste management activities (2023: \$139.9 million; 2022 \$146.7 million):

- The legacy nuclear waste relates to the future costs of managing legacy nuclear waste from research and the production of nuclear medicine. The provision also includes the future costs of managing nuclear waste that has arisen from current operations. Also included are the estimated costs of managing the spent fuel from the OPAL multipurpose reactor. The costs of the legacy waste, current waste and spent fuel are based primarily on ANSTO experience and expertise of managing these items over a number of years.

Phasing of the estimated nominal costs over the expected time period of the nuclear waste management activities being 16 years (2022: 15 years):

- The cash flows are phased based on when it is expected that the work will be undertaken.

Inflating the nominal costs by expected CPI over time (2023: 2.5%, 2022: 2.5%):

- Payments to fund nuclear waste management are made in the future and need to account for expected increases in the underlying cost of the final outflow due to inflationary pressures. The inflation rate assumption applied by ANSTO is set with reference to the Standard Parameters made available by the Department of Finance.

Discounting for the effect of the time value of money (2023: ranging from 3.95% to 4.13%, 2022: ranging from 2.73% to 3.85%):

- Projected nominal costs are discounted to a present value using risk free rates to reflect the time value of money and are set with reference to the Standard Parameters made available by the Department of Finance.

Given the high degree of judgement required to estimate future cash flows and the phasing of these cash flows, there is inherent uncertainty in establishing the liability, therefore it is likely that the final outcome will differ from the original liability established. Changes in the provision year on year are recognised in profit or loss in the reporting year in which the estimates change.

2. Financial Position (continued)

2.3C Provisions (other than employees) (continued)

The sensitivity of the nuclear waste management provision, based on the nominal cost of \$139.9 million as at 30 June 2023 (2022: \$146.7 million), to changes in the primary drivers are indicated in the table below. Each change has been calculated in isolation and without regard to other driver changes that may occur simultaneously.

Driver	Change	Nuclear waste management provision increase/(decrease)	
		2023 \$'000	2022 \$'000
CPI	(1.0)%	(5,964)	(7,131)
	(0.5)%	(3,024)	(3,615)
	0.5%	3,110	3,718
	1.0%	6,309	7,543
Discount rate	(1.0)%	6,276	7,548
	(0.5)%	3,079	3,703
	0.5%	(2,966)	(3,567)
	1.0%	(5,825)	(7,004)
Delaying planned expenditure	1 year	(1,837)	(1,774)
	3 years	(5,570)	(5,322)
	5 years	(9,493)	(8,961)

- (c) The provision of intellectual property relates to future payments required in relation to the intellectual property asset (Notes 2.2A and 2.2B). The liability is derived from calculating the estimated commission to be paid to NTP based on expected future sales and then discounted back at 6.90% (2022: 7.17%).

2.3D Lease liabilities

ANSTO leases property in Camperdown from the Central Sydney Area Health Service under one operating lease. The current lease was entered into in November 2000 and will terminate in January 2025. The lease enables ANSTO to undertake its principal activities. Lease payments are variable to the extent that they are reviewed every three years in accordance with the market rental valuation clause of the agreement. ANSTO does not have an interest in the residual value of the property but does have a responsibility at the termination of the lease to ensure the property is in good and tenable condition. At 30 June, the future minimum lease payments under non-cancellable operating leases were payable as follows:

	Note	2023 \$'000	2022 \$'000
Opening balance		385	3,646
Lease modifications		-	(3,148)
Lease repayments		(124)	(147)
Interest expense on lease liabilities	1.1C	3	34
Closing balance		264	385
Maturity analysis			
<u>Buildings</u>			
Less than one year		149	146
One to five years		115	239
Total undiscounted lease liabilities		264	385

2. Financial Position (continued)

2.3D Lease liabilities (continued)

Accounting policy

ANSTO recognises right-of-use assets and lease liabilities for most leases. However, ANSTO has elected not to recognise right-of-use assets and lease liabilities for some leases of low value assets based on the value of the underlying asset when new or for short-term leases with a lease term of 12 months or less.

2.4 Reserves

2.4A Reserves

	Note	2023 \$'000	2022 \$'000
Asset revaluation			
Opening balance		480,854	503,341
Revaluation - realisation	2.2A	168,878	(22,278)
Revaluation - deferred tax asset		87	(209)
Asset revaluation reserves	(a)	649,819	480,854
Other reserves			
OPAL depreciation	(b)	9,061	9,061
Intermediate low level waste (ILLW) return			
Opening balance	(c)	-	616
Transfer to accumulated deficit		-	(616)
Closing balance		-	-
Foreign currency reserves	(d)	323	323
Other reserves		9,384	9,384
Total reserves		659,203	490,238

(a) Asset revaluation

This reserve represents the revaluation of property, plant and equipment.

(b) OPAL depreciation reserve

This reserve represents unused funding for OPAL depreciation. This was due to a delay in final commissioning of OPAL. This reserve will be transferred to the accumulated reserves in line with the final depreciation of OPAL.

(c) Intermediate low level waste (ILLW) return

This reserve related to unspent appropriation for ILLW return and has been transferred to the accumulated deficit in 2021-22 as the ILLW return has now been completed.

(d) Foreign currency reserve

This reserve relates to foreign currency translation at reporting date.

3. Funding

This section identifies ANSTO's funding structure.

3.1 Government funding

	2023	2022
	\$'000	\$'000
Revenue from Government	289,027	279,506
Government equity injection	45,744	50,187
Total government funding	334,771	329,693

Revenue from government

Funding received or receivable from the then Department of Industry, Science, Energy and Resources (DISER) (appropriated as a Corporate Commonwealth Entity payment item for payment to ANSTO) is recognised as Revenue from Government when ANSTO gains control of the funding unless it is an equity injection, such amounts are recognised directly in contributed equity in the year received.

4. People and relationships

This section describes a range of employment and post-employment benefits provided to our people and our relationships with key people.

4.1 Employee payables

	2023	2022
	\$'000	\$'000
Accrued salaries and wages	4,490	3,821
Incentives	1,648	783
Total employee payables	6,138	4,604

All employee payables are expected to be settled within 12 months.

4.2 Employee provisions

	2023	2022
	\$'000	\$'000
Annual leave	18,958	19,580
Long service leave	40,186	38,953
Total employee provisions	59,144	58,533
Employee provisions expected to be settled within		
No more than 12 months	53,159	51,911
More than 12 months	5,985	6,622
Total employee provisions	59,144	58,533

Accounting policy is at Note 1.1A.

4. People and relationships (continued)

4.3 Key management personnel remuneration

Key management personnel (KMP) are those persons having authority and responsibility for planning, directing and controlling the activities of ANSTO, directly or indirectly, including any director (whether executive or otherwise) of ANSTO. ANSTO has determined the KMP to be the ANSTO Portfolio Minister, the Board and the Executive Leadership Team. KMP remuneration is reported in the table below:

	2023	2022
	\$'000	\$'000
Short-term employee benefits:		
Salary	3,573	3,195
Performance bonuses	53	84
Other	19	16
Total short-term employee benefits	3,645	3,295
Post-employment benefits:		
Superannuation	368	309
Total post-employment benefits	368	309
Other long-term benefits:		
Long-service leave	135	108
Other	(136)	151
Total other long-term benefits	(1)	259
Termination benefits	-	-
Total key management personnel remuneration	4,012	3,863

The ANSTO Group had 20 individuals in KMP roles during the year, 17 in ANSTO and 3 in its subsidiaries (2022: 21 individuals, 18 ANSTO and 3 subsidiaries).

In ANSTO, these individuals equated to a full time equivalent (FTE) of 16.08 (2022: 18.24). Represented by 8 non-executive board members (prorated) (2022: 9.03) and 8.08 FTE (2022: 7 FTE) members of the ANSTO Executive Leadership Team. In the subsidiaries the FTE is 3 (2022: 2.2) represented by non-executive board members. The above key management personnel remuneration excludes the remuneration and other benefits of the Portfolio Minister. The Portfolio Minister's remuneration and other benefits are set by the Remuneration Tribunal and are not paid by ANSTO.

4.4 Related party transactions

A related party is a person or entity that controls or has significant influence over the reporting entity, or is a member of the Key Management Personnel (KMP) of the reporting entity or its parent entity, and includes their close family members and entities in which the KMP and/ or their close family members individually or jointly have controlling interests. ANSTO is an Australian Government controlled entity. Related parties to this entity are the Key Management Personnel, the Commonwealth cabinet and other Australian Government entities.

Significant transactions with related parties or entities that they are associated with can include:

- the payments and receipt of grants; and
- purchases of goods and services.

Giving consideration to relationships with related parties, their associated entities, and transactions entered into during the reporting period by ANSTO, it has been determined that there are no related party transactions to be separately disclosed.

5. Managing Uncertainties

5.1 Contingent assets and liabilities

At 30 June 2023, ANSTO has accumulated, and will continue to accumulate, nuclear waste that requires characterisation in order to determine the nature and therefore the costs and timing required to manage the waste to final disposal, which is unfunded. When these factors are known with reasonable certainty a liability will be recognised, until this time an unquantifiable contingent liability may exist. The majority of this waste has arisen from the production of nuclear medicine. The underlying assumption is that the ultimate storage of the nuclear waste will be the responsibility of the planned National Radioactive Waste Management Facility. If there is a change in Government policy, ANSTO may need to bear the costs relating to the future management of the waste.

Accounting policy

Contingent assets and contingent liabilities are not recognised in the Statement of Financial Position but are reported in the Notes. They may arise from uncertainty as to the existence of a liability or asset or represent an asset or liability in respect of which the amount cannot be reliably measured. Contingent assets are disclosed when settlement is probable but not virtually certain and contingent liabilities are disclosed when settlement is greater than remote.

5. Managing Uncertainties (continued)

5.2 Financial instruments

		Carrying amount	Amortised Cost	Fair value through profit or loss	Carrying amount	Amortised Cost	Fair value through profit or loss
	Note	2023	2023	2023	2022	2022	2022
Financial assets		\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Cash and cash equivalents		53,543	53,543	-	41,624	41,624	-
Trade receivables	2.1B	20,121	20,121	-	19,131	19,131	-
Accrued interest	2.1B	2,558	2,558	-	366	366	-
Accrued revenue	2.1B	3,384	3,384	-	2,604	2,604	-
Other	2.1B	609	609	-	692	692	-
Term deposits	2.1C	190,000	190,000	-	185,000	185,000	-
Investments - other	2.1C	703	-	703	703	-	703
Total financial assets (recognised)		270,918	270,215	703	250,120	249,417	703
Total financial liabilities							
Suppliers		27,008	27,008	-	13,055	13,055	-
Other payables	2.3A	10,070	10,070	-	11,660	11,660	-
Revenue in advance	2.3B	16,013	16,013	-	20,227	20,227	-
Total financial liabilities (recognised)		53,091	53,091	-	49,546	49,546	-

Interest revenue from financial assets

	2023	2022
	\$'000	\$'000
Loans and receivables		
Cash and cash equivalents	3,915	50
Investments	5,875	671
Net income from financial assets	9,790	721

Accounting policy

Interest revenue is recognised using the effective interest method as set out in AASB 139 *Financial Instruments: Recognition and Measurement*.

5. Managing Uncertainties (continued)

5.2 Financial instruments (continued)

Net expenses from financial liabilities

There were no expenses from financial liabilities for 2023 (2022: \$nil).

Financial assets

The net fair values of cash, deposits on call and non-interest-bearing monetary financial assets are in accord with their carrying amounts. Loans receivable are carried at cost, which is above their net fair value, because it is intended to hold them to maturity.

Financial liabilities

The net fair values for trade creditors and grants received in advance, all of which are short-term in nature, are in accord with their carrying amounts.

Accounting policy

ANSTO classifies its financial assets in the following categories:

- Fair value through profit or loss; and
- Amortised cost.

The classification depends on the nature and purpose of the financial assets and is determined at the time of initial recognition. Financial assets are recognised and derecognised upon trade date.

Effective interest method

The effective interest method is a method of calculating the amortised cost of a financial asset or a financial liability and of allocating interest income over the relevant period. The effective interest rate is the rate that discounts estimated future cash receipts through the expected life of the financial asset, or, where appropriate, a shorter period.

Income is recognised on an effective interest rate basis except for financial assets at fair value through profit or loss.

Financial assets at fair value through profit or loss

Financial assets are classified as financial assets at fair value through profit or loss where the financial assets have been acquired principally for the purpose of selling in the near future. Assets in this category are classified as current assets.

Financial assets at fair value through profit or loss are stated at fair value, with any resultant gain or loss recognised in the profit or loss. The net gain or loss recognised in the profit or loss incorporates any interest earned on the financial assets.

5. Managing Uncertainties (continued)

5.2 Financial instruments (continued)

Financial Assets at Amortised Cost

Financial assets included in this category need to meet two criteria:

1. the financial asset is held in order to collect the contractual cash flows; and
2. the cash flows are solely payments of principal and interest on the principal outstanding amount. Amortised cost is determined using the effective interest method.

Investments

Non-derivative financial assets with fixed or determinable payments and fixed maturity dates that the group has the positive intent and ability to hold to maturity are classified as investments. Investments are recorded at amortised cost using the effective interest method less impairment, with revenue recognised on an effective yield basis.

Loans and receivables

Trade receivables, loans and other receivables that have fixed or determinable payments that are not quoted in an active market. Loans and receivables are measured at amortised cost using the effective interest method less impairment. Interest is recognised by applying the effective interest rate.

Impairment of financial assets

Financial assets are assessed for impairment at each reporting date.

If there is objective evidence that an impairment loss has been incurred for loans and receivables or investments, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the asset's original effective interest rate. The carrying amount is reduced by way of an allowance account. The loss is recognised in the Statement of Comprehensive Income. If there is objective evidence that an impairment loss has been incurred the amount of the impairment loss is the difference between the carrying amount of the asset and the present value of the estimated future cash flows discounted at the current market rate for similar assets. The net fair values of cash, deposits on call and non-interest-bearing monetary financial assets are in accord with their carrying amounts.

Financial liabilities

Financial liabilities are classified as other financial liabilities and are recognised and derecognised upon trade date.

Other financial liabilities

Other financial liabilities, including borrowings, are initially measured at fair value, net of transaction costs. These liabilities are subsequently measured at amortised cost using the effective interest method, with the interest expense recognised on an effective interest basis.

Supplier and other payables are recognised at amortised cost. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).

5. Managing Uncertainties (continued)

5.3 Fair value measurement

The following tables provide an analysis of assets and liabilities that are measured at fair value. The different levels of the fair value hierarchy are defined below.

Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at measurement date.

Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.

Level 3: Unobservable inputs for the asset or liability.

Non-financial assets	Category	Fair value 2023 \$'000	Fair value 2022 \$'000	Valuation technique ¹	Inputs used ¹
Land	3	201,500	201,500	Market approach.	Adjusted market transactions (zoning, access, existing use, size, topography, location).
Buildings	3	163,790	131,357	Depreciated replacement cost approach.	Replacement cost/consumed economic benefit/obsolescence of asset.
Infrastructure, plant and equipment	2	-	8,793	Market approach.	Adjusted market transactions.
	3	1,062,028	862,913	Depreciated replacement cost approach.	Replacement cost/consumed economic benefit/obsolescence of asset.

1. The valuation techniques and inputs used in 2023 and 2022 are consistent except for Infrastructure, plant and equipment where the depreciated replacement cost approach has been used for all items with a fair value at 30 June 2023.

The highest and best use of all non-financial assets is the same as their current use.

5. Managing Uncertainties (continued)

5.3 Fair value measurement (continued)

Recurring and non-recurring Level 3 fair value measurements - valuation processes

ANSTO tests the procedures of the valuation output as an internal management review at least once every 12 months (valuations are conducted with sufficient frequency to ensure that the carrying amounts of assets do not differ materially from the assets' fair values as at reporting date). If a particular asset class experiences significant and volatile changes in fair value (i.e. where indicators suggest that the value of the class has changed materially since the previous reporting period), that class is subject to specific valuation in the reporting period, regardless of the timing of the last specific valuation.

Land, Buildings, Infrastructure, Plant and Equipment

Assets that do not transact with enough frequency or transparency to develop objective opinions of value from observable market evidence have been measured utilising the depreciated replacement cost (DRC) approach. Under the DRC approach, the estimated cost to replace the asset is calculated and then adjusted to take into account its consumed economic benefit/asset obsolescence (accumulated depreciation). Consumed economic benefit/asset obsolescence has been determined based on professional judgment regarding physical, economic and external obsolescence factors relevant to the asset under consideration.

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred and liabilities undertaken. Fixed assets are initially measured at their fair value plus transaction costs where appropriate.

Assets acquired at no cost, or for nominal consideration, are initially recognised as assets and revenues at their fair value at the date of acquisition, unless acquired as a consequence of restructuring of administrative arrangements. In the latter case, assets are initially recognised as contributions by owners at the amounts at which they were recognised in the transferor's accounts immediately prior to the restructuring.

6. Other information

6.1 Deed of indemnity

A Deed of Indemnity between the Commonwealth Government, ANSTO and ANM, under which the government has formally agreed to indemnify ANSTO and ANSTO Officers, and ANM and ANM Officers, from any loss or liability arising from claims caused by ionising radiation, was signed by the then Minister for Industry, Innovation and Science in April 2016. It will remain in place until April 2026.

6.2 Information relating to ANSTO (the parent entity)

	2023	2022
	\$'000	\$'000
Financial assets	269,454	252,358
Non-financial assets	1,548,665	1,338,599
Total assets	1,818,119	1,590,957
Payables	43,511	31,464
Provisions	619,632	674,327
Revenue in advance	16,011	20,227
Lease liabilities	247	385
Total liabilities	679,401	726,403
Net assets	1,138,718	864,554
Contributed equity	1,017,265	971,521
Asset revaluation reserve	648,643	479,494
Other reserves	9,061	9,061
Accumulated deficit	(536,251)	(595,522)
Total equity	1,138,718	864,554
Surplus of the parent entity	59,271	164,372
Other comprehensive income/(expense) of the parent entity	169,149	(22,324)
Total comprehensive surplus of the parent entity	228,420	142,048

	Interest rate	Maturity date	2023	2022
			\$	\$
\$15 million unsecured loan facility from ANSTO to ANM ^{1,2}	CommSec Variable Rate 10.03% (2022: 6.78%)	30.6.25	9,553,215	12,952,476
Total unsecured loan from ANSTO to ANM			9,553,215	12,952,476
Interest on unsecured loan facility			971,832	367,319

¹ The loan was fully impaired at 30 June 2023 and 30 June 2022.

² On 18 August 2021 ANSTO extended the maturity date of the \$15 million unsecured loan facility to 30 June 2025.

6. Other information (continued)

6.2 Information relating to ANSTO (the parent entity) (continued)

There are transactions between ANSTO and its subsidiaries for land leases, purchases and sales of goods and services. The prices charged for transactions between ANSTO and its subsidiaries are on normal commercial terms and conditions no more favourable than those available to other parties with the exception of goods and services provided by ANSTO to ANM. These are on cost recovery rates, with ANM only charged for services to the extent it has the funds available to pay for them.

Investment in subsidiaries

The current carrying value of ANSTO's subsidiaries at 30 June 2023 are set out below. Unless otherwise stated, share capital consists solely of ordinary shares that are held directly by ANSTO, and the proportion of ownership interests held equals the voting rights held by the group. The country of incorporation is also their principal place of business.

Name	Place of incorporation	2023 %	2023 \$	2022 \$
PETTECH Solutions Pty Ltd (a)	Australia	100	2,965,588	2,965,588
ANSTO Inc. (b)	USA	-	-	-
ANSTO Nuclear Medicine Pty Ltd (c)	Australia	99.9	-	-
Total investment in subsidiaries			2,965,588	2,965,588

(a) ANSTO owns 100% of PETTECH Solutions Pty Ltd (PETTECH). PETTECH's primary activity is the ownership of infrastructure for the manufacture of fludeoxyglucose.

During 2019-20 PETTECH recognised a right of use asset of \$0.5 million resulting from a lease with ANSTO. The NBV as at 30 June 2023 was \$0.5 million (2022: \$0.5 million).

(b) ANSTO owned 100% of ANSTO Inc.. ANSTO Inc. was dissolved in May 2022. The final financial statements were audited by Wipfli LLC.

(c) ANSTO owns 100% of the B class and C class shares on issue of ANM. The B class shares, 101 are not entitled to any dividends but do have operational control. The C class shares, 110,300,000 were issued as consideration for the Mo-99 manufacturing facility. There was one A class share issued to the Minister of Industry, Innovation and Science on behalf of the Commonwealth. The A class share is entitled to dividends. ANM's principal activities are to own and operate the new Molybdenum 99 (Mo-99) and Synroc Waste Treatment facilities. ANSTO's investment in ANM was fully impaired in 2021-22 and 2022-23. The decision has been made to transfer ANM's operations, assets and liabilities to ANSTO and wind the company up by 1 July 2024, in accordance with the decision announced in the Federal 2023-24 Budget.

6.3 Significant events after the end of the reporting period

A process has been initiated to allow for an orderly transfer of ANM's operations, assets and liabilities to ANSTO and the subsequent wind-up of ANM by 1 July 2024, as has been the formal direction from the Australian Government. At the date of these financial statements, no formal transfer date has yet to be mutually agreed except such a transfer is to occur prior to 1 July 2024. In relation to the ANM transfer, discussions have commenced with the Australian Tax Office, an independent valuation expert has been appointed and the tender process is underway for the appointment of a liquidator. ANM currently operates at the Lucas Heights campus on land leased from ANSTO. The transfer of ANM's operations, assets and liabilities are scheduled to occur prior to the liquidation.

6. Other information (continued)

6.4 Budgetary reports and explanations of major variances

The following tables provide a comparison between the October 2022–23 Portfolio Budget Statements (PBS) budget and the final financial outcome in the 2022–23 financial statements.

The ANSTO PBS does not include ANM, the \$168.8 million nuclear medicine initiative, as it is a Public Non-Financial Corporation (PNFC) but does contain ANSTO's other controlled entities. PNFC's do not form part of the General Government Sector and are outside of the scope of AASB 1055 *Budgetary Reporting*. ANM is included in the Actual figures in the financial statements as it is controlled by ANSTO.

A budget has not been provided in the PBS for non-cash items such as asset revaluations, foreign exchange, sale/impairment of asset adjustments and the change in parameters used in the calculation of provisions. Unless the explanation of the variance assists users of financial statements understand the movement between the budget and the final financial outcome, it has not been assessed as 'major' and no explanation has been provided.

Explanation of major variances

Event impacting financial statements	Affected consolidated statements and line items
<p>The ANM project is reported differently in the Budget compared to the Actual figures. ANM is a subsidiary of ANSTO, it is consolidated into the financial statements. However, for budget purposes ANM does not form part of the PBS and is reflected as an investment. ANSTO trades with ANM, provides a loan facility and operating lease. The nuclear waste management expense and provision includes a component relating to ANM's production of Mo-99. The decommissioning provision losses and provision also includes a component relating to ANM's production of Mo-99. ANSTO holds the inventory of target plates used by ANM to produce Mo-99. ANSTO agreed to bear the costs of ANM for the period 1 July 2022 to 30 June 2023 that ANM's own source revenue could not cover.</p>	<p>Statement of Comprehensive Income: Supplier expenses Nuclear waste management expenses Nuclear waste management provision gains Decommissioning provision gains Revenue from contracts with customers</p> <p>Statement of Financial Position: Cash and cash equivalents Trade and other receivables Investments - other Inventories Suppliers Provisions – decommissioning Provisions – nuclear waste management Accumulated deficit</p> <p>Statement of Changes in Equity: Accumulated deficit</p> <p>Statement of Cash Flows: Contracts with customers Payments to suppliers</p>

6. Other information (continued)

Event impacting financial statements	Affected consolidated statements and line items
<p>Delays in recruiting employees, due to shortages in the labour market, resulted in employee costs being less than budgeted.</p>	<p>Statement of Comprehensive Income: Employee benefits</p> <p>Statement of Financial Position: Cash and cash equivalents Liabilities – Employees Accumulated deficit</p> <p>Statement of Changes in Equity: Accumulated deficit</p> <p>Statement of Cash Flows: Payments to employees</p>
<p>Capital grants are recognised when the company satisfies its obligation to acquire or construct the specified asset to which the capital grant relates. Delays in project expenditure resulted in a reduction in capital grant income recognised.</p>	<p>Statement of Comprehensive Income: Employee benefits</p> <p>Statement of Financial Position: Cash and cash equivalents Property, plant and equipment Accumulated deficit</p> <p>Statement of Changes in Equity: Accumulated deficit</p> <p>Statement of Cash Flows: Purchase of property, plant, equipment and intangibles</p>
<p>Each year at 30 June, ANSTO undertakes an impairment assessment. Arising from this assessment was the full impairment of the IP intangible asset based on future cash flows generated.</p>	<p>Statement of Comprehensive Income: Impairment losses</p> <p>Statement of Financial Position: Intangible assets Accumulated deficit</p> <p>Statement of Changes in Equity: Accumulated deficit</p>
<p>Each year at 30 June, ANSTO assesses its obligation to decommission facilities and manage waste from its operations. In accordance with the Australian Accounting Standards, the decommissioning and nuclear waste provision is assessed for the timing of payments, anticipated costs and discount and inflation rates. The discount rates used in the provision calculations as at 30 June 2023 varied to those used when the October 2022-23 PBS was completed.</p>	<p>Statement of Comprehensive Income: Finance costs Decommissioning provision gains Nuclear waste management provision gains</p> <p>Statement of Financial Position: Provisions – decommissioning Provisions – nuclear waste management</p> <p>Statement of Changes in Equity: Accumulated deficit</p>

6. Other information (continued)

Event impacting financial statements	Affected consolidated statements and line items
<p>ANSTO manages its cash through the use of term deposits. The term of each deposit is dependent on the cash needs of the business and the prevailing interest rates. Changes in either the cash needs or interest rates impacts the number of times a deposit is 'rolled' in the period.</p>	<p>Statement of Comprehensive Income: Interest</p> <p>Statement of Financial Position: Cash and cash equivalents Investments – term deposits Accumulated deficit</p> <p>Statement of Changes in Equity: Accumulated deficit</p> <p>Statement of Cash Flows: Interest received Proceeds from maturing financial instruments Purchase of financial instruments</p>
<p>Working capital movements arise from the timing of receipt of invoices, and subsequent payment, with customers and suppliers. Amounts due to employees are largely dependent upon the timing of the final payroll run for the year.</p>	<p>Statement of Financial Position: Trade and other receivables Prepayments Payables – Suppliers Payables - Employees Payables – Other payables</p> <p>Statement of Cash Flows: Contracts with customers Payments to employees Payments to suppliers</p>
<p>Given the level of inflation growth since the last valuation in 2021, ANSTO has undertaken an independent valuation of its property plant and equipment, effective 30 June 2023.</p>	<p>Statement of Comprehensive Income: Changes in asset revaluation reserve</p> <p>Statement of Financial Position: Property, plant and equipment Reserves</p> <p>Statement of Changes in Equity: Asset revaluation reserve</p>

Appendices and Index

Glossary

TERM	DESCRIPTION
ACNS	Australian Centre for Neutron Scattering
AINSE	Australian Institute of Nuclear Science and Engineering
ANSTO	Australian Nuclear Science and Technology Organisation
ANSTO Act	Australian Nuclear Science and Technology Organisation Act 1987
ANM	ANSTO Nuclear Medicine
ARPANSA	Australian Radiation and Protection and Nuclear Safety Agency
AUKUS	Australia, United Kingdom, United States
CAS	Centre for Accelerator Science
CEO	Chief Executive Officer
CERN	European Organization for Nuclear Research
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DIFOT	Delivery in full, on time
DSTG	Defence Science and Technology Group
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cth)
ESD	Ecologically sustainable development
FNCA	Forum for Nuclear Cooperation in Asia
FOI	Freedom of Information Act 1982
FTE	Full time equivalent
GIF	Generation IV International Forum
IAEA	International Atomic Energy Agency
ISO	International Organisation for Standardisation
ITER	ITER is the world's largest fusion experiment
ITRAX	X-ray fluorescence scanning instrument
LGBTQIA+	Lesbian, Gay, Bisexual, Transgender, Queer (or questioning), Intersex, and Asexual (or allies).
Mo-99	Molybdenum-99
MX2	Micro Crystallography beamline
NACC	Nuclear Agencies Consultative Committee
NCRIS	National Collaborative Research Infrastructure Strategy

TERM	DESCRIPTION
NTD	Neutron transmutation doped
OFI	Opportunities for improvement
OPAL	Open Pool Australian Light-water
PGPA Act	Public Governance, Performance and Accountability Act 2013 (Cth)
RAC	Risk and Audit Committee
RAM	Regional Agencies Meeting
RAP	Reconciliation Action Plan
RMIT	Royal Melbourne Institute of Technology
STA	Science and Technology Australia
STEM	Science, technology, engineering, and mathematics
UNSW	University of New South Wales
UoM	University of Melbourne
UoW	University of Wollongong

Reporting under the Equal Employment Opportunity Act 1987

ANSTO seeks to create a culture of inclusion, where our diversity of thought and differing perspectives are a source of organisational agility, resilience, and renewal. We provide empowering and effective work-based policies, which support flexibility and the individual needs of our employees, including flexible work practices and family-friendly programs. Our inclusive culture will enable us to retain our talent within a rewarding environment and attract the best talent to work with us in the future.

Gender and STEM

Coaching and mentoring provides an opportunity to build the potential of employees. It fosters professional relationships where employees have the opportunity to collaborate and share insights. ANSTO has an established in-house mentoring program for employees, which provides a forum for mentors to offer constructive advice and to support the career development of the mentees.

The Ignite Youth Network offers a dedicated space for younger adults and early career individuals at ANSTO to come together, share, learn, and network across all walks of life. ANSTO recognises the voices of its future and facilitates knowledge sharing between these groups to leverage diversity across a range of people.

Indigenous engagement

ANSTO's two campuses are located on the traditional lands of the Aboriginal nations of Dharawal, at Lucas Heights, and Kulin, at Clayton. Furthermore, ANSTO's extensive collaboration with universities and industry partners naturally connects us with Aboriginal and Torres Strait Islander nations on a national scale. Therefore, we recognise these peoples as Australia's first scientists, navigators, mathematicians, and engineers. Their knowledge and skills are an integral part of the future growth of Australia and contribute to our understanding of Australia's unique attributes. In recognition of this connection, ANSTO is enhancing activities to connect with local and broader Australian Indigenous communities, primarily under the umbrella of its Reconciliation Action Plan. ANSTO released its 2nd Innovate Reconciliation Action Plan in May 2023. Initiatives captured by the Reconciliation Action Plan, towards which we work, include employment outreach such as scholarships and traineeships, and recognition of cultural heritage activities.

ANSTO's research activities are part of our commitment to build and strengthen relationships. Through university and industry partnerships, ANSTO is committed to developing the skills and knowledge necessary to bring the full benefit of nuclear technology to Australia. ANSTO recognises the importance of Aboriginal custodians and communities being involved in our work and we are continuously looking for ways to combine traditional knowledge and Western science.

LGBTQIA+ support

ANSTO's LGBTQIA+ Ally Network is a group that provides support, networking, and advocacy to gender diverse and same-sex attracted people at ANSTO. This network meets on a regular basis and offers both a safe space and a forum for participants to simply be themselves. Discussions are held about issues affecting gender diversity and same-sex attracted people in the workforce as well as within society in general. The network also provides input into ANSTO policies and procedures on gender diversity and LGBTQIA+ issues. ANSTO aims to provide visibility to gender diversity and LGBTQIA+ issues, as well as support and advocacy for those encountering difficulties in the workplace.



The Sir William Tyree Foundation provided funding for a 4-year Nuclear Safety Development Program at ANSTO that was awarded to two young Indigenous Australians, Waylon King and Caitlyn Etheridge.

Disability

ANSTO is committed to creating a workplace where different abilities are recognised, valued, and celebrated. We care about providing workplace where people with physical disability or neurodivergence, carers of people with a disability, and people experiencing and managing mental health issues are supported to thrive.

ANSTO assists people with disabilities by providing workplace modifications or reasonable adjustments to help them perform their job, including: changing when, where, and how work is performed providing ergonomic or specialist equipment making physical changes to access (accessibility parking permits and spaces).

All new buildings and areas being renovated at ANSTO must comply with the relevant disability legislation. We make ongoing improvements to the accessibility of our campuses. In the event that a workplace design has excluded facilities for people with disabilities, or the work environment is unsafe for people with disabilities to fulfill their duties, ANSTO reviews whether the work environment can be modified. ANSTO's policies and procedures align with the requirements of the Equal Employment Opportunity (Commonwealth Authorities) Act 1987 and the Disability Discrimination Act 1992, intended to ensure employees with disabilities working at ANSTO, as well as applicants for recruitment who have a disability, are not discriminated against. ANSTO also has procedures and support in place to handle complaints and grievances which may be raised by employees and visitors.

Meditation and multi-faith prayer space

ANSTO's Lucas Heights campus has two dedicated spaces that can be used for meditation and prayer, including a meeting room and silent room. This facility is intended to provide staff with a quiet and peaceful place. Rooms for private reflection, meditation, and prayer are also available to our staff working at ANSTO's Clayton campus. These spaces accommodate all religious affiliations and denominations. As such, they are part of ANSTO's ongoing commitment to provide facilities that enable a balance between personal, work, and faith-based commitments.

Equipping and empowering our leaders

Our leadership program, LEAD, is a six-month critical leadership skill-building course, which includes theory, workshops, and approaches to help move our future leaders into roles requiring greater complexity and at scale. The program provides participants with the opportunity to take part in challenging and supportive development experiences, group discussions, personal reflections, and use of real ANSTO examples. The program also draws in the experience of senior managers to expand content in the context of our values and commitment to diversity and inclusion, which are at the core of our organisational success.

Knowledgeable and skilled managers are central to meeting the challenges that lay ahead and to delivering outcomes for ANSTO. ANSTO's Management Development Program (MDP) drives progress towards lifting the skills and capabilities of our managers to ensure a high performing, driven, and trusted management group. This is done by encouraging a culture of continuous individual and organisational investment in learning, sharing of learning resources, and partnering with ANSTO subject matter experts as facilitators. Our people need not only to develop new skills, but to stay open to new ideas and new ways of working. ANSTO engages in continuous investment in the development of our people, thereby building a stronger foundation from which to deliver outcomes.

Supporting staff through adversity

ANSTO has maintained its use of flexible working arrangements across the organisation, where appropriate, with a hybrid model continuing to promote a healthy work-life balance. Flexible work arrangements help staff to live a lifestyle which can balance the priorities of work, family, and community; and the benefits extend not only to individual mental and physical health and wellbeing, but also to relationships with wider family and social networks.

Remuneration Report

The categories of officials, employees of ANSTO, covered by the disclosures are:

- Key Management Personnel (KMP) – members of the Board, the Risk and Audit Committee and the Executive Leadership team disclosure in Table 1.
- Senior executives: employees who are assigned General Manager or equivalent roles and delegations, disclosed in Table 2.
- Other highly paid staff: employees with total remuneration of greater than \$240,000 not disclosed in Table 1 or 2, disclosed in Table 3.
- The remuneration of the Risk and Audit Committee members is separately disclosed in Table 4.

Remuneration policies and practices

The remuneration of the ANSTO Board is in accordance with the Remuneration Tribunal (Remuneration and Allowances for Holders of Part-time Public Office) Determination 2022.

The remuneration parameters of the Chief Executive Officer are determined by the Australian Government Remuneration Tribunal. The ANSTO Remuneration and Nominations Committee assist the Board in fulfilling its responsibilities with regard to overall remuneration policy and strategy, performance and remuneration of the CEO.

Members of the Executive Leadership Team are on individual contracts which are based on market rates at the time of employment. The remuneration reflects qualifications, experience and levels of responsibility for each role. The Remuneration and Nominations Committee oversees the approach to performance and remuneration of the Executive Leadership Team.

Senior Manager and high paid positions are remunerated either in accordance with the ANSTO Enterprise Agreement salary tables or under individual contracts. Each role has a Position Description detailing the roles, responsibilities, reporting lines, delegations, qualifications, skills and knowledge required. The role is subject to the Mercer job evaluation system and is benchmarked to ensure the appropriateness of remuneration. The Enterprise Agreement sets out the remuneration and entitlements of employees. ANSTO has aligned with the Australian Public Sector Commission bonus policy review and ceased all incentive schemes effective 30 June 2020. As a result, with the exception of the CEO, the only remaining incentive payments to be made paid refers to any deferral payments earned prior to 30 June 2020.

Remuneration governance arrangements

The operations of the Remuneration and Nominations Committee for the year are detailed in the Corporate Governance Statement.

Table 1 - KMP

Name	Position Title	Short Term Benefits			Post Employment Benefits	Other Long Term Benefits ²		Termination Benefits	Total Remuneration ¹
		Base Salary \$	Bonus \$	Other Benefits \$	Super Contributions \$	Long Service Leave \$	Other Long Term Benefits \$	\$	\$
The Hon Annabelle Bennett, AC SC	Board Chair	105,447	-	2,662	16,167	-	-	-	124,276
Ms Penny Dobson	Deputy Board Chair	79,092	-	1,849	8,268	-	-	-	89,209
Dr Gordon de Brouwer, PSM	Board Member and RAC Chair to 30 June 2022	178	-	821	266	-	-	-	1,264
Emeritus Professor Stephen Buckman, AM	Board Member	52,728	-	5,718	8,084	-	-	-	66,531
Professor Brigid Heywood	Board and RAC Member	61,123	-	2,392	9,371	-	-	-	72,886
Ms Andrea Sutton	Board Member and RAC Member	69,412	-	2,707	10,625	-	-	-	82,744
Mr Greg Storr	Board Member	61,367	-	445	9,339	-	-	-	71,152
Mr David Antaw	RAC Member	8,165	-	-	1,253	-	-	-	9,418
Mr Stephen Ludlam	RAC Member	8,165	-	2,016	1,253	-	-	-	11,434
Mr Shaun Jenkinson	Chief Executive Officer and Board Member	535,436	52,943	-	27,412	26,132	(15,137)	-	626,786
Mr John Edge	Chief Operating Officer	392,095	-	-	39,654	14,107	(37,882)	-	407,975
Ms Pamela Naidoo-Ameglio	Group Executive, Nuclear Operations and Nuclear Medicine	339,597	-	-	58,160	17,615	(19,260)	-	396,112
Mr Con Lyras	Group Executive, Asset Maintenance and Engineering and Chief Engineer until 30 May 2023 and then as Group Executive Major Capital Projects and Chief Engineer	364,036	-	-	27,412	15,754	(18,638)	-	388,564
Mr Dave Filippetto	Group Executive, Asset Maintenance and Engineering from 31 May 2023.	23,962	-	-	846	2,728	-	-	27,536
Ms Marianne Morton	Chief Information and Digital Officer	359,178	-	-	37,705	15,546	(15,971)	-	396,457
Professor Andrew Peele	Group Executive, Nuclear Science and Technology	351,592	-	-	27,412	11,848	(28,631)	-	362,222
Dr Miles Apperley	Group Executive, Nuclear Safety Security and Stewardship	337,665	-	-	48,550	20,965	-	-	407,179
Mr Oleh Nakone	Group Executive, Customers Products and Services	357,011	-	-	27,412	10,073	-	-	394,497
ANSTO KMP		3,506,249	52,943	18,610	359,189	134,768	(135,518)	-	3,936,240
Subsidiary KMP		66,279	-	-	8,865	-	-	-	75,145
TOTAL Consolidated KMP - Financial Statements Note 4.3		3,572,528	52,943	18,610	368,054	134,768	(135,518)	-	4,011,384

1. Remuneration is reflected on an accruals basis not a cash basis and has not been annualised.

2. Other long term benefits reflect long term incentives.

Table 2 - Senior Executives

Total Remuneration Bands	Number of Senior Executives ²	Short Term Benefits (Average)			Post Employment Benefits	Other Long Term Benefits		Termination Benefits	Total Remuneration ¹
		Base Salary \$ (Average)	Bonus ³ \$ (Average)	Other Benefits \$ (Average)	Super Contributions \$ (Average)	Long Service Leave \$ (Average)	Other Long Term Benefits \$ (Average)	\$ (Average)	\$ (Average)
\$0-\$220,000	14	82,061	-	-	12,618	3,254	-	-	97,933
\$220,001-\$245,000	1	204,428	-	-	29,838	4,547	-	-	238,813
\$245,001-\$270,000	4	214,364	-	-	34,057	6,596	-	-	255,018
\$270,001-\$295,000	1	250,809	-	-	26,307	8,500	-	-	285,616
\$295,001-\$320,000	6	228,042	-	-	37,599	9,654	-	30,243	305,537
\$320,001-\$345,000	4	289,499	-	-	38,600	11,186	-	-	339,285
\$345,001-\$370,000	3	304,807	-	-	43,567	7,834	-	-	356,208
\$370,001-\$395,000	1	330,195	-	-	27,412	13,220	-	-	370,828
\$395,001-\$420,000	2	334,465	-	-	56,601	10,859	-	-	401,924

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1. Remuneration is reflected on an accruals basis not a cash basis.

2. Remuneration has only been included for the period the employee is in a General Manager or equivalent role.

Table 3 - Other Highly Paid Officers

Total Remuneration Bands	Number of Highly Paid Officers	Short Term Benefits			Post Employment Benefits	Other Long Term Benefits		Termination Benefits	Total Remuneration ¹
		Base Salary \$ (Average)	Bonus \$ (Average)	Other Benefits \$ (Average)	Super Contributions \$ (Average)	Long Service Leave \$ (Average)	Other Long Term Benefits \$ (Average)	\$ (Average)	\$ (Average)
\$245,001-\$270,000	9	197,577	-	-	31,056	3,114	-	30,422	262,168
\$270,001-\$295,000	3	202,413	-	-	27,859	5,001	-	48,234	283,506
\$295,001-\$320,000	4	96,491	-	-	18,190	1,181	-	193,182	309,044
\$320,001-\$345,000	1	125,480	-	-	24,156	5,638	-	173,271	328,544
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1. Remuneration is reflected on an accruals basis not a cash basis and has not been annualised.

Table 4 - Risk and Audit Committee

Name	Position Title	Short Term Benefits		Post Employment Benefits	Total Remuneration ¹
		Base Salary \$	Other Benefits \$	Super Contributions \$	\$
Ms Andrea Sutton	Chair	16,770	1,160	2,583	20,513
Professor Brigid Heywood	Member	8,390	1,025	1,292	10,707
Mr Greg Storr	Member	8,390	-	1,292	9,682
Mr David Antaw	Member	8,165	-	1,253	9,418
Mr Steven Ludlam	Member	8,165	2,016	1,253	11,434

1. Remuneration is reflected on an accruals basis not a cash basis and has not been annualised.

Description	Employees (FTE)		% of Total		% of change 2023-2022	Average salary		% of change 2023-2022
	2023	2022	2023	2022		2023	2022	
Female	411.25	414.58	32.16	31.74	-0.08	116,113	112,160	3.52
Male	866.66	891.61	67.76	68.26	-2.80	123,095	118,792	3.62
Non binary and other	1.00	-	0.08	-	-	67,318	-	-
Total	1,278.91	1,306.19	100.0	100.00	-2.09	120,806	116,687	3.53

Workforce diversity – Head count

People with disabilities	4	5	0.31	0.37	-20.00	125,084	109,848	13.87
Aboriginal and Torres Strait Islander	7	4	0.54	0.30	75.00	91,483	96,741	-5.43
Non-English speaking background	179	189	13.73	14.16	-5.29	120,011	118,185	1.55

Reporting under the Modern Slavery Act 2018 (MS Act)

ANSTO understands that ethical conduct and protecting human rights are both critical to upholding our values and delivering our core mandate. We are committed to contributing to the eradication of modern slavery through compliant, responsible, and ethical business practices. ANSTO's Modern Slavery Statement outlines how we assess and address modern slavery risks in our business and supply chain, as well as our plans for continuous improvement in the future. This statement can be accessed here:

www.ansto.gov.au/media/4831/download

ANSTO intends to update this statement for the 2022-2023 reporting period prior to the statutory deadline.

Reporting under s516A of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

Achieving ecologically sustainable development (ESD)

ANSTO's commitment to environmental protection and sustainability principles align with requirements of the EPBC Act and are defined in its Health, Safety, Community and Environmental Policy, Corporate Plan, which can be found here:

www.ansto.gov.au/media/1615/download?inline=

These values are integral to ANSTO's Business Management System — the framework that defines how business is conducted to deliver outcomes to ANSTO's customers and stakeholders in a safe, consistent, and environmentally responsible manner. Objectives and targets for safe, secure, and sustainable operations are implemented through documented operational and business plans at all levels of the organisation.

Environmental protection is mandated when planning and undertaking major capital works, and any activities which fall under the EPBC Act are assessed for referral to the Department of Climate Change, Energy, the Environment, and Water. Proposals for new (or modifications to existing) facilities or activities also undergo a rigorous internal safety, regulatory, and environmental assurance process.

ESD principles are embedded in ANSTO's core values and in decisions relating to procurement and project activities throughout their planning and development phases. ANSTO's Environmental Sustainability Strategy aims to significantly reduce ANSTO's environmental footprint through by embedding environmental and sustainability considerations into all business decision-making processes. The ANSTO Building Code supports the application of the National Construction Code to provide the minimum sustainable design standards with which new and refurbished facilities at ANSTO must conform. This ANSTO Building Code is periodically reviewed to ensure the most appropriate sustainable design outcomes for building and infrastructure works at ANSTO.

Environmental and quality management systems

ANSTO implements appropriate environmental protection and management practices through its environmental management system, which is independently certified to the International Standard ISO14001. ANSTO's environmental management system provides the framework to identify environmental risks and appropriately control them. ANSTO's extensive environmental monitoring program also operates within a quality framework that is certified to the International Standard ISO9001 for quality management systems. Within this framework, ANSTO's environmental protection measures and performance are frequently reviewed. Annually, an accredited third party conducts an ISO14001 audit of ANSTO's environmental management system. The six-day third-party audit conducted in November 2022 found no new non-conformances to the ISO14001 standard.

Environmental Sustainability Strategy

In March 2022, ANSTO introduced a new Environmental Sustainability Strategy (Strategy). Aligning with the implementation of the Lucas Heights Campus Renewal Program, the Strategy establishes ten high-level goals to be achieved by 2035, supported by a series of ambitious objectives seeking to significantly reduce ANSTO's emissions, burden on landfill waste, and impacts on the local environment. The Strategy is currently being reviewed to align with recent Australian Government policy announcements, such as the APS Net Zero by 2030 Policy, Commonwealth Fleet Selection Policy, the National Waste Strategy. Over the next six months, ANSTO will develop a roadmap and specific actions to enable ANSTO to achieve net zero emissions by 2030. The Strategy also aims to substantially reduce ANSTO's waste burden and progressively reduce its reliance on hydrocarbons for the vehicle fleet, in line with the recent changes to the Commonwealth Fleet Selection Policy.

The performance of the Strategy's implementation is supported by a series of key performance indicators and short-term targets aligned to each objective which will be tracked through ANSTO's Integrated Business Planning process.

In May 2023, ANSTO awarded a contract to install a 1.5-megawatt solar photovoltaic array at its Clayton campus during FY24. Utilising almost all of the remaining available roof space, this will produce approximately 1.8 gigawatt hours of electricity each year, accounting for about 8% of the campus' electricity consumption.

Environmental performance

ANSTO's environmental performance for FY2022-2023 along with a critical analysis of the results and a comparison to previous years is published here:

www.ansto.gov.au/science/environment/environmental-protection/environmental-performance

The Australian Government has introduced new carbon emissions reporting requirements. This report was provided to the Department of Finance (DoF) in August 2023. The report includes emissions from scope-1 sources (from the direct combustion of fuels or releases of greenhouse gases), scope-2 sources (from the consumption of electricity from the grid), and limited scope-3 sources (from the transmission losses for the supply of electricity, and combustible fuels, and indirect emissions from staff business flights). Reporting of further emissions sources are expected to become mandatory in FY2024-25.

The table below provides a summary of the emissions reported by ANSTO to DoF.

Emission Source	Scope 1 kg CO2-e	Scope 2 kg CO2-e	Scope 3 kg CO2-e	Total kg CO2-e
Electricity [^]		50,932,286	4,189,705	55,121,991
Natural Gas	663,992		77,466	741,458
Fleet Vehicles	206,752		51,946	258,697
Domestic Flights			203,258	203,258
Other Energy	56,673		14,266	70,939
Total kg CO2-e	927,417	50,932,286	4,536,641	56,396,344

[^] Location Based Approach

ANSTO also continues to report annually on its greenhouse gas emissions and energy consumption and production as required under section 19 of the National Greenhouse and Energy Reporting Act 2007; the data is aggregated and disseminated by the Clean Energy Regulator.

ANSTO routinely reports to regulators on its performance and communicates with other interested parties where there is a possibility that its activities may have an impact on the environment.

Environmental monitoring program

ANSTO conducts an extensive effluent and environmental monitoring program that measures radioactivity in authorised emissions to air and liquid effluent discharges to the sewer; and in samples of air, surface water, ground water, sediment, and biota from the local environment. Many of the monitoring results are independently verified.

The results of environmental monitoring conducted in 2022-2023 demonstrate that ANSTO's authorised releases of radioactive material to the air and sewer continue to be effectively controlled, comply with regulatory limits, and have minimal radiological impact on humans, wildlife, or the environment. Radiation monitoring is ongoing and the data is published online every minutes at:

www.ansto.gov.au/environmental-protection/radiation-monitoring

Local environmental radiation levels and weather conditions are reported here:

www.ansto.gov.au/environmental-monitoring/lucas-heights-weather-station

Environmental protection in operations

ANSTO has adopted an integrated approach to planning and decision-making in order to optimise the efficient and effective management of its operations.

Supporting the application of the National Construction Code to new developments, the ANSTO Building Code outlines the principles of ecologically sustainable design required for new and refurbished buildings. All new projects for all new and refurbished buildings are required to have an independent sustainable design consultant involved in the design phase. ANSTO currently requires relevant new buildings to achieve a minimum 5-star National Australian Built Environment Rating System (NABERS) energy rating and comply with the requirements for the Energy Efficiency in Government Operations Policy. Through the implementation of the Environmental Sustainability Strategy, ANSTO will progressively increase the minimum standards for achieving NABERS energy, water, indoor environment, and waste ratings over the next seven years. Furthermore, other minimum standards for the efficient use of water in offices and laboratories, installation of rainwater tanks, re-use of wastewater, and sub-metering are all enforced through the ANSTO Building Code.

Environmental protection principles are mandated for all major project activities through the implementation of project/construction environmental management plans. All capital projects such as the construction of buildings, infrastructure and support facilities must have these plans in place to prevent or minimise environmental impacts such as emissions, waste, soil erosion, dust, noise, and discharges to stormwater. Assurance for these projects include the independent approval of these plans, ad-hoc inspections, and formal audits. All projects are evaluated on their environmental protection performance throughout their life and on completion.

EPBC Act Referrals

Within this reporting period, ANSTO submitted two referrals under the EPBC Act:

- **2022/09355 –**

- **Legacy Mineral Sands Remediation and Disposal**

- ANSTO referred this action to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) following ANSTO's self-assessment that this action could have a significant impact on the environment on Commonwealth land (s26 EPBC Act). DCCEEW decided that this action was not a controlled action if conducted in a particular manner.

- The area located within the Lucas Heights Science and Technology Centre was successfully remediated in February-April 2023. A compliance report was provided to DCCEEW in April 2023 confirming with evidence, that all particular manners stipulated in the EPBC referral decision were complied with.

ANSTO embeds sustainable procurement considerations into all new tenders and contracts awarded, meeting the requirements of the Commonwealth Procurement Rules, specifically seeking value-for-money, and aligning to the Australian Government's Sustainable Procurement Guide. All tenders include environmental and sustainability specifications and potential suppliers must provide evidence of their commitment to environmental protection plus their capacity to deliver upon relevant environmental outcomes. ANSTO routinely evaluates successful suppliers on their environmental performance.

ANSTO continues to investigate opportunities to divert waste away from landfill through reuse and recycling programs including construction wastes, soft plastics, metals, e-waste, batteries, and green waste. ANSTO also actively works with suppliers to reduce packaging wastes and ensure end-of-life reuse or recycling options for purchased goods can be secured.

ANSTO's bushland perimeter covers an area of approximately 300 hectares, which includes many important Indigenous heritage places and provides a significant wildlife corridor between the Royal and Heathcote National Parks to the east and the remnant Cumberland plain woodlands to the west. ANSTO conducts regular inspections of the Lucas Heights bushland perimeter area to ensure that biodiversity values are maintained and Indigenous cultural sites are preserved. No significant impacts to biodiversity or Indigenous cultural values have been reported during this reporting period. Rehabilitating historically disturbed areas within the bushland perimeter area has been established as a focus area in ANSTO's new Environmental Sustainability Strategy. Progress on achieving the relevant objectives to restore or improve the habitat within the bushland perimeter area will be monitored through these routine inspections.

- **2022/09352 –**

- **Phase A HIFAR Decommissioning**

- This is the first of two phases for the decommissioning of the High Flux Australian Reactor (HIFAR) which operated from 1958-2007. ANSTO referred this action to DCCEEW following ANSTO's self-assessment that this action constitutes a nuclear action, specifically the decommissioning of a nuclear installation (s21 EPBC Act). DCCEEW decided that this action was not a controlled action if conducted in a particular manner.

ANSTO is currently awaiting the award of a decommissioning licence from the Australian Radiation Protection and Nuclear Safety Agency. Decommissioning activities are anticipated to commence in late 2023.

Supporting research and collaboration for environmentally sustainable outcomes

Leveraging ANSTO's Environment Industry Engagement Strategy, ANSTO will look to build new opportunities to work with industries concerned with product sustainability and mitigating or remediating environmental impact from industrial activity. ANSTO continues to collaborate with other research partners to progress research in the key areas of air quality, soil erosion, water resource management, wetland health, biodiversity, food provenance, and climate variability and global warming impacts such as rising sea levels and temperatures on marine ecosystems.

ANSTO participates in the Sustainability Advantage Program facilitated by the NSW Office of Environment and Heritage, for which ANSTO was awarded a silver partnership award in 2019.

In February – June 2023, ANSTO commenced a project in conjunction with the NSW Sustainability Advantage Program and Point Advisory Ltd to map and calculate ANSTO's scope-3 carbon emissions profile. This project was conducted on FY2021-22 resource consumption, supplier spend data, and downstream sales and waste discharges. This project aims to produce a tool which will enable ANSTO to report annually into the future on its full scope-3 emissions. Results from this study are available here:

www.ansto.gov.au/science/environment/environmental-protection/environmental-performance

Another project which commenced in June 2023 in conjunction with the NSW Sustainability Advantage Program and 2XE Pty Ltd is aiming to develop a stakeholder engagement toolbox to assist ANSTO to positively engage with its suppliers to reduce the supplier's environmental and supply chain risks, and ultimately reduce the supplier's operational and supply chain carbon emissions.

Regular independent inspections have been undertaken throughout the projects to evaluate conformance with the environmental commitments made by ANSTO within the referrals.

Supporting staff to be environmentally sustainable

Environmental awareness is promoted throughout the organisation via inductions, the staff intranet, training, and communication programs. ANSTO encourages staff to cycle, carpool, or take public transport to travel to work, and to walk rather than drive around the site. A new shared path connecting the Lucas Heights site to the neighbouring suburb of Barden Ridge was completed in late 2020, further encouraging staff living in the area to walk or ride to work.

ANSTO encourages staff to proactively report environmental hazards (near misses) or incidents using ANSTO's incident management system. In FY2023, ANSTO staff raised 37 reports, most of which were of low significance not requiring any further investigation.

ANSTO's chemical management system enables staff in different business areas to share and track chemical resources, which reduces the need to procure new chemicals. ANSTO is also utilising the system to report on requirements under the National Pollution Inventory, and to improve the identification and control of environmentally hazardous chemicals. Further advancements in the transition to full digital authorisations and workflows continue, with the aim of achieving a paperless office environment.

Functions and powers of the organisation under the ANSTO Act

The ANSTO Act details our functions, powers, Board, Chief Executive Officer's duties, staffing, finance, and other roles and responsibilities.

The Act (No. 3 of 1987 as amended) and taking into account amendments up to Act No. 109 of 2017, as prepared by the Office of Legislative Drafting and Publishing, Attorney-General's Department, Canberra (19 September 2017) and can be found on the Federal Register of Legislation.

A summary of the key statutory provisions in relation to ANSTO's functions are outlined below. Section 3: Interpretation "scientific research, innovation and training" includes the following, whether or not related to nuclear science and nuclear technology:

Section 3: Interpretation

"scientific research, innovation and training" includes the following, whether or not related to nuclear science and nuclear technology:

- (a) any activities in the fields of natural or applied science (including engineering and technology) for the extension or application of knowledge;
- (b) any activities that involve innovation or high levels of technical risk for the purposes of creating new or improved materials, products, devices or processes;
- (c) the education and training of persons in matters related to activities mentioned in paragraph (a) or (b).

Section 5: Functions of Organisation

(1) The functions of the Organisation are:

- (a) to undertake research and development in relation to:
 - (i) nuclear science and nuclear technology; and
 - (ii) the application and use of nuclear science and nuclear technology; and
 - (iii) the production and use of radioisotopes, and the use of isotopic techniques and nuclear radiation, for medicine, science, industry, commerce and agriculture; and
 - (iv) such other matters as the Minister directs; and
- (b) to encourage and facilitate the application and use of the results of such research and development; and
- (c) to condition, manage and store radioactive materials and radioactive waste, arising from:
 - (i) the Organisation's activities (including the production of radioactive materials for other persons); or
 - (ii) the activities of companies in which the Organisation holds a controlling interest (including the production of radioactive materials for other persons); or
 - (iii) the use by other persons of radioactive materials produced by the Organisation or such companies; or
 - (iv) the activities of other persons who are specified in the regulations; and
- (d) to condition, manage and store radioactive materials and radioactive waste generated, possessed or controlled by the Commonwealth or a Commonwealth entity; and
- (e) to condition, manage and store radioactive materials and radioactive waste at the request of:
 - (i) a law enforcement agency; or
 - (ii) a Commonwealth, State or Territory agency responsible for the management of emergencies or disasters; including, but not limited to, radioactive materials or radioactive waste involved in, or arising out of, a radiological incident or a radiological emergency; and
- (f) to condition, manage and store radioactive waste that has been, or is to be, sent to Australia under contractual arrangements relating to the conditioning or reprocessing of ANSTO spent nuclear fuel; and c) to produce, acquire, provide and sell goods, and to provide services, that are:
 - (i) in connection with the production and use of radioisotopes, and the use of isotopic techniques and nuclear radiation, for medicine, science, industry, commerce and agriculture; or
 - (ii) in connection with the conditioning, management and storage of radioactive materials or radioactive waste; or
 - (iii) in connection with nuclear science and nuclear technology; or
 - (iv) in connection with the application and use of nuclear science and nuclear technology; or
 - (v) otherwise in connection with matters related to its activities; and

- (g) to act as a means of liaison between Australia and other countries in matters related to its activities; and
 - (h) to provide advice on aspects of:
 - (i) nuclear science and nuclear technology; and
 - (ii) the application and use of nuclear science and nuclear technology; and
 - (iii) other matters related to its activities; and
 - (j) to make available to other persons, whether or not on a commercial basis, the knowledge, expertise, equipment, facilities, resources and property of the Organisation by:
 - (i) providing training and management expertise; or
 - (ii) selling or leasing equipment; or
 - (iii) leasing land, buildings and facilities; or
 - (iv) taking any other action that the Organisation thinks appropriate; and
 - (k) to cooperate with appropriate authorities of the Commonwealth, the States and the Territories, and with other organisations and institutions in Australia or elsewhere, in matters related to its activities; and
 - (l) to publish scientific and technical reports, periodicals and papers on matters related to its activities; and
 - (m) to collect and sell or distribute, as appropriate, information and advice on matters related to its activities; and
 - (n) to arrange for training, and the establishment and award of scientific research studentships and fellowships, in matters related to its activities; and
 - (o) to make grants in aid of research into matters related to its activities; and
 - (p) to make arrangements with universities and other educational research institutions, professional bodies and other persons for the conduct of research or of other activities in matters related to its activities.
- (2) (1A) A regulation made for the purposes of subparagraph (1)(ba)(iv) must not have the effect of authorising the premises on which the Lucas Heights Research Laboratories are situated to become a national nuclear waste repository.
- (3) (1B) In subsection (1A): “national nuclear waste repository” means a site chosen by the Commonwealth, after the commencement of this subsection, for the storage of nuclear waste with a view to it never being moved to another site.

Section 6A: Constitutional limits

- (1) The Organisation may perform its functions only:
- (a) for purposes relating to activities that are peculiarly adapted to the government of a nation and cannot otherwise be carried on for the benefit of the nation; or
 - (b) for purposes relating to trade and commerce:
 - (i) between Australia and places outside Australia; or
 - (ii) among the States; or
 - (iii) within a Territory, between a State and a Territory or between 2 Territories; or
 - (c) for purposes relating to postal, telegraphic, telephonic or other like services;
 - (d) for purposes relating to the security or defence of Australia; or
 - (e) for purposes relating to astronomical and meteorological observations; or
 - (f) for purposes relating to statistics; or
 - (g) for purposes relating to weights and measures; or
 - (h) for purposes relating to copyrights, patents of inventions and designs, and trademarks; or
 - (j) for purposes relating to the provision of medical and dental services; or
 - (k) for purposes related to external affairs, including:
 - (i) giving effect to any international agreement to which Australia is a party; and
 - (ii) addressing matters of international concern; and
 - (iii) by way of the performance of its functions in a place outside Australia; or
 - (l) for purposes relating to the relations of the Commonwealth with the islands of the Pacific; or
 - (m) in, or for purposes relating to, a Territory; or
 - (n) in, or for purposes relating to, a Commonwealth place (within the meaning of the Commonwealth Places (Application of Laws) Act 1970); or
 - (o) for purposes relating to matters incidental to the execution of any of the legislative powers of the Parliament or the executive power of the Commonwealth.
- (2) A term used in subsection (1) and the Constitution has the same meaning in that subsection as it has in the Constitution

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Compliance index

PGPA Rule reference	Part of report	Description	Requirement
17BE(a)	116-117	Details of the legislation establishing the body.	Mandatory
17BE(b)(i)	116-117	A summary of the objects and functions of the entity as set out in legislation.	Mandatory
17BE(b)(ii)	14	The purposes of the entity as included in the entity's corporate plan for the reporting period.	Mandatory
17BE(c)	52	The names of the persons holding the position of responsible Minister or responsible Ministers during the reporting period, and the titles of those responsible Ministers.	Mandatory
17BE(d)	52	Directions given to the entity by the Minister under an Act or instrument during the reporting period.	If applicable, mandatory
17BE(e)	N/A	Any government policy order that applied in relation to the entity during the reporting period under section 22 of the Act.	If applicable, mandatory
17BE(f)	N/A	Particulars of non-compliance with: (a) a direction given to the entity by the Minister under an Act or instrument during the reporting period; or (b) a government policy order that applied in relation to the entity during the reporting period under section 22 of the Act.	If applicable, mandatory
17BE(g)	16 - 46	Annual performance statements in accordance with paragraph 39(1)(b) of the Act and section 16F of the rule.	Mandatory
17BE(h),17BE(i)	N/A	A statement of significant issues reported to the Minister under paragraph 19(1)(e) of the Act that relates to non-compliance with finance law and action taken to remedy non-compliance.	If applicable, mandatory
17BE(j)	121	Information on the accountable authority, or each member of the accountable authority, of the entity during the reporting period.	Mandatory
17BE(k)	50 - 51	Outline of the organisational structure of the entity (including any subsidiaries of the entity).	Mandatory
17BE(ka)	122 - 123	Statistics on the entity's employees on an ongoing and non-ongoing basis, including the following: (a) statistics on full-time employees; (b) statistics on part-time employees; (c) statistics on gender; (d) statistics on staff location.	Mandatory
17BE(l)	49	Outline of the location (whether or not in Australia) of major activities or facilities of the entity.	Mandatory
17BE(m)	48 - 59	Information relating to the main corporate governance practices used by the entity during the reporting period.	Mandatory
17BE(n), 17BE(o)	55	For transactions with a related Commonwealth entity or related company where the value of the transaction, or if there is more than one transaction, the aggregate of those transactions, is more than \$10,000 (inclusive of GST): (a) the decision-making process undertaken by the accountable authority to approve the entity paying for a good or service from, or providing a grant to, the related Commonwealth entity or related company; and (b) the value of the transaction, or if there is more than one transaction, the number of transactions and the aggregate of value of the transactions.	If applicable, mandatory
17BE(p)	56	Any significant activities and changes that affected the operation or structure of the entity during the reporting period.	If applicable, mandatory
17BE(q)	47 - 48	Particulars of judicial decisions or decisions of administrative tribunals that may have a significant effect on the operations of the entity.	If applicable, mandatory

PGPA Rule reference	Part of report	Description	Requirement
17BE(r)	58 - 59	Particulars of any reports on the entity given by: (a) the Auditor-General (other than a report under section 43 of the Act); or (b) a Parliamentary Committee; or (c) the Commonwealth Ombudsman; or (d) the Office of the Australian Information Commissioner.	If applicable, mandatory
17BE(s)	N/A	An explanation of information not obtained from a subsidiary of the entity and the effect of not having the information on the annual report.	If applicable, mandatory
17BE(t)	58 - 59	Details of any indemnity that applied during the reporting period to the accountable authority, any member of the accountable authority or officer of the entity against a liability (including premiums paid, or agreed to be paid, for insurance against the authority, member or officer's liability for legal costs).	If applicable, mandatory
17BE(taa)	54 - 55, 122	The following information about the audit committee for the entity: (a) a direct electronic address of the charter determining the functions of the audit committee; (b) the name of each member of the audit committee; (c) the qualifications, knowledge, skills or experience of each member of the audit committee; (d) information about each member's attendance at meetings of the audit committee; (e) the remuneration of each member of the audit committee.	Mandatory
17BE(ta)	108 - 109	Information about executive remuneration.	Mandatory
17BF		Disclosure requirements for government business enterprises	
17BF(1)(a)(i)	60 - 103	An assessment of significant changes in the entity's overall financial structure and financial conditions.	If applicable, mandatory
17BF(1)(a)(ii)	60 - 103	An assessment of any events or risks that could cause financial information that is reported not to be indicative of future operations or financial conditions.	If applicable, mandatory
17BF(1)(b)	60 - 103	Information on dividends paid or recommended.	If applicable, mandatory
17BF(1)(c)	N/A	Details of any community service obligations the government business enterprise has including: (a) an outline of actions taken to fulfil those obligations; and (b) an assessment of the cost of fulfilling those obligations.	If applicable, mandatory
17BF(2)	N/A	A statement regarding the exclusion of information on the grounds that the information is commercially sensitive and would be likely to result in unreasonable commercial prejudice to the government business enterprise.	If applicable, mandatory

PGPA Rule section 17BE(j), (i)–(v) — Accountable Authority

Details of Accountable Authority during the reporting period — Current report period (2021–22)

Name	Qualifications of the Accountable Authority	Experience of the Accountable Authority	Executive / Non-Executive Position Title / Position held	Date of Commencement	Date of Cessation	Number of meetings of accountable authority attended/ total number of meetings of accountable authority eligible to attend
The Hon Dr Annabelle Bennett AC SC FAA	BSc (Hons), PhD, LLB, D Univ (hon Causa), D Laws (hon Causa)	Chancellor of Bond University and practicing consultant Senior Counsel, mediator and arbitrator.*	Non-Executive Board Chair	21 March 2019	20 March 2024	9/9
Ms Penelope (Penny) J Dobson	Dip Pharm, MPS, MBA, GAICD	Global pharmaceutical executive and businessperson.*	Non-Executive Deputy Board Chair	APPOINTED: 24 April 2014 APPOINTED DEPUTY CHAIR: 14 March 2018 APPOINTED ACTING CHAIR: 1 September 2018 – 20 March 2019 REAPPOINTED: 24 April 2019	23 April 2024	9/9
Mr Shaun Jenkinson	BSc (Hons), GAICD	Chief Executive Officer.*	CEO	ACTING CEO: 10 August 2020 – 30 March 2021 APPOINTED CEO: 31 March 2021 <i>for a 3-year term</i>	31 March 2024	8/8
Emeritus Professor Stephen Buckman, AM	BSc (Hons), PhD, FAPS, FAIP, FinstP	Academic and researcher at ANU.*	Non-Executive Board Member	APPOINTED: 23 July 2015 REAPPOINTED: 23 July 2020	22 July 2023	9/9
Professor Brigid Heywood	BSc (Hons), PhD	Experienced leader in the university sector.*	Non-Executive Board Member	APPOINTED: 28 June 2016 REAPPOINTED (ACTING): 28 June 2021 REAPPOINTED: 28 September 2021	27 September 2025	9/9
Mr Gregory (Greg) Storr	BSc (Hons), PhD, GAICD	Nuclear engineering and safety specialist.*	Non-Executive Board Member	APPOINTED: 16 September 2021	15 September 2024	9/9
Ms Andrea Sutton	BEng Chemical (Hons), GradDipEcon	Senior executive in the mining industry.*	Non-Executive Board Member	APPOINTED: 30 April 2020	29 April 2025	9/9

* See full bio at www.ansto.gov.au/ansto-board

PGPA Rule Section 17BE (taa) - Audit committee

Risk and Audit committee

Member name	Qualifications, knowledge, skills or experience (include formal and informal as relevant)	Number of meetings attended / total number of meetings	Additional Information
Ms Andrea Sutton (Chair)	BEng Chemical (Hons), GradDipEcon Senior executive in the mining industry.	8/8	Appointed 1 July 2022.
Mr David Antaw	B.Bus. MComm Senior corporate executive.	8/8	
Professor Brigid Heywood	BSc (Hons), PhD Experienced leader in the university sector.*	8/8	
Mr Stephen Ludlam	MSc NucEng Global submarine expert.	8/8	
Mr Gregory (Greg) Storr	BSc (Hons), PhD, GAICD Nuclear engineering and safety expert.	8/8	Appointed 1 July 2022.

* See full bio at www.ansto.gov.au/ansto-board

PGPA Rule section 17BE(ka) – Management of Human Resources

All ongoing employees current report period (2022–2023)

	Male			Female			Indeterminate			Total
	Full-time	Part-time	Total male	Full-time	Part-time	Total female	Full-time	Part-time	Total indeterminate	
NSW	709	17	726	299	56	355	1	0	1	1082
Vic	86	2	88	17	3	20	0	0	0	108
Overseas	0	0	0	1	0	1	0	0	0	1
Total	795	19	814	317	59	376	1	0	1	1191

All non-ongoing employees current report period (2022–2023)

	Male			Female			Indeterminate			Total
	Full-time	Part-time	Total male	Full-time	Part-time	Total female	Full-time	Part-time	Total indeterminate	
NSW	39	1	40	34	4	38	0	0	0	78
Vic	18	1	19	14	1	15	0	0	0	34
Total	57	2	59	49	5	54	0	0	0	113

All ongoing employees previous report period (2021–2022)

	Male			Female			Indeterminate			Total
	Full-time	Part-time	Total male	Full-time	Part-time	Total female	Full-time	Part-time	Total indeterminate	
NSW	734	19	753	288	66	354	0	0	0	1107
Vic	83	4	87	24	1	25	0	0	0	112
Overseas	0	0	0	1	0	1	0	0	0	1
Total	817	23	840	313	67	380	0	0	0	1,220

All non-ongoing employees previous report period (2021–2022)

	Male			Female			Indeterminate			Total
	Full-time	Part-time	Total male	Full-time	Part-time	Total female	Full-time	Part-time	Total indeterminate	
NSW	35	1	36	37	3	40	0	0	0	76
Vic	23	0	23	15	1	16	0	0	0	39
Total	58	1	59	52	4	56	0	0	0	108

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