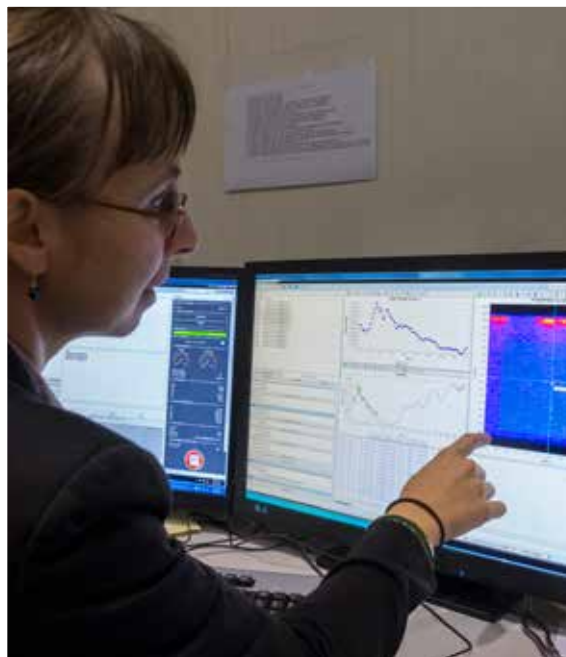
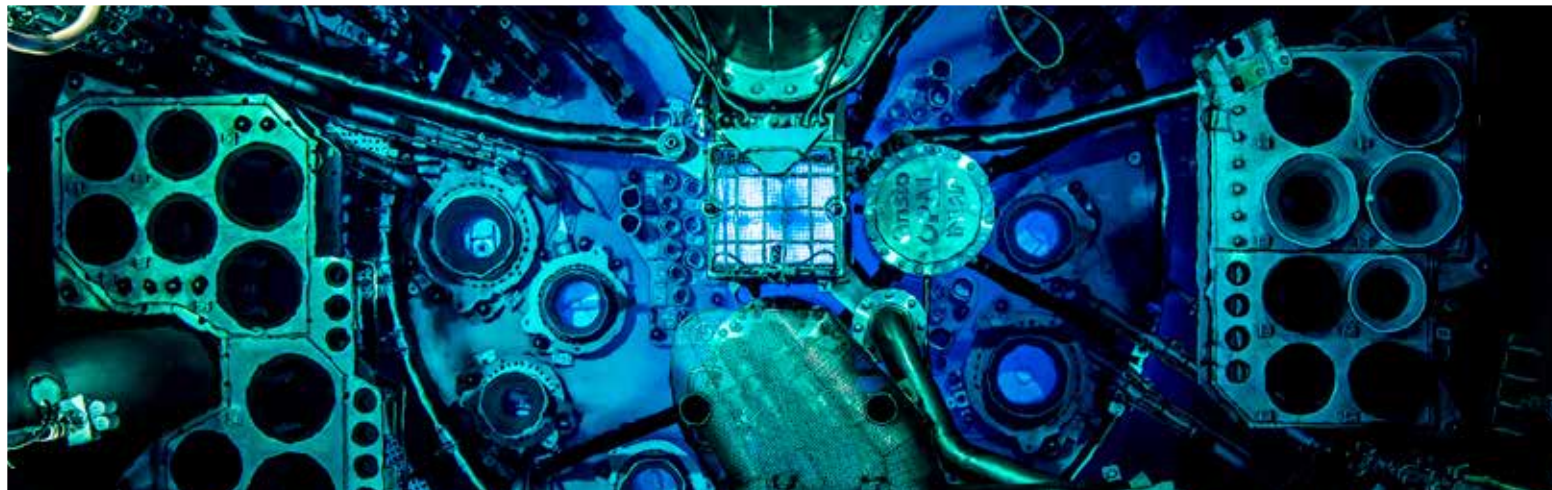




Corporate Plan

2017 - 2018



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A message from the CEO

The next four years will not be business as usual for ANSTO. Together with our partners, we are going to tackle some of Australia's and the region's most significant challenges. We will increase our reach and impact at every level – locally, nationally and globally.

We are the proud custodian of Australia's key national research and science infrastructure, enabling some of the country's greatest minds for the benefit of the Australian economy, its people and the environment. Over the coming years, we will continue to expand our research infrastructure's capacity and capability for the national benefit. The release earlier this year of the Chief Scientist's *2016 National Research Infrastructure Roadmap*, provided a comprehensive plan to support an Australian future of innovation. In particular, it highlighted the necessity for a long-term investment strategy to ensure the sustainability of Australia's research infrastructure and capabilities, and we look forward to the next steps in this process.

In response to the national challenge of intensifying Australian innovation, we are planning for an ANSTO Innovation Precinct. The precinct will 'crowd-in' and co-locate industry, university graduates and scientific partners in an environment that fosters collaboration and is built around ANSTO's nuclear capabilities. In an exciting venture, the precinct will link our world-class researchers and unique research infrastructure with business, driving Australian innovation. Harnessing our close partnership with Australia's universities, we will provide a formalised program to support graduate and postgraduate students in addressing some of the big questions from agriculture to zoology, in the A to Z of science.

I present the Australian Nuclear Science and Technology Organisation's 2017-18 Corporate Plan, which covers the period 2017-18 to 2020-21, as required under section 35(1)(b) of the *Public Governance, Performance and Accountability Act 2013*.

Key documents that have informed the development of this Corporate Plan include:

- *Australian Nuclear Science and Technology Organisation Act 1987*
- Industry, Innovation and Science Portfolio Budget Statements 2017-18, Budget Related Paper No. 1.12
- Australia's National Science Statement 2017
- *National Science and Research Priorities*

Our organisation will substantially grow its ability to provide key isotopes to enable life-saving nuclear diagnostics and therapies. The opening of the ANSTO Nuclear Medicine (ANM) facility late this year will ensure a stable supply of nuclear medicine for Australian patients as well as unprecedented capacity to support global needs.

The Government's commitment to building Australia's particle therapy capabilities with a new proton therapy centre in South Australia is an important step for health care in Australia. ANSTO welcomes the opportunity to collaborate on the development of the new facility, and will continue to lead national discussions on the potential for proton and carbon therapy in Australia.

ANSTO maintains a robust approach to the safe management of its radioactive waste, generated as a result of its lifesaving nuclear medicine production and research into areas of high national priority. This highly specialised expertise positions the organisation to undertake research into and provide advice on the full life-cycle management of radioactive waste. Synroc, ANSTO's cutting edge waste treatment technology, will be a critical tool in Australia's approach.

International collaborations are crucial to the success of ANSTO and our organisation continues to welcome and initiate these opportunities. ANSTO's new partnership with Sri Lanka reflects our focus on building international partnerships and supporting innovative health outcomes, which will ultimately have global impact. Further, Australia's Generation IV International Forum (GIF) membership, through ANSTO, will build on home-grown expertise in the next generation of nuclear technologies through this major international cooperation.

Over the next four years, we will continue to strive for our vision of excellence in innovation, insight and discovery through our people, partnerships, distinctive competencies, nuclear expertise and landmark infrastructure.



Dr Adi Paterson
Chief Executive Officer



Vision

To deliver excellence in innovation, insight and discovery through our people, partnerships, distinctive competencies, nuclear expertise and landmark infrastructure.

Values

ANSTO's values underpin our vision, capabilities and strategic objectives, and are critical to how we carry out our work. They also describe how our people will engage with one another and external stakeholders. Our values extend to the way we partner with government, universities, industry, communities and other stakeholders.

Curiosity	Leadership	Excellence	Working together	Trust + Respect
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Safe. Secure. Sustainable.

Figure 1: ANSTO's Values underpin our work. These were developed by our staff and have been widely communicated and supported since 2014.



ANSTO's purpose

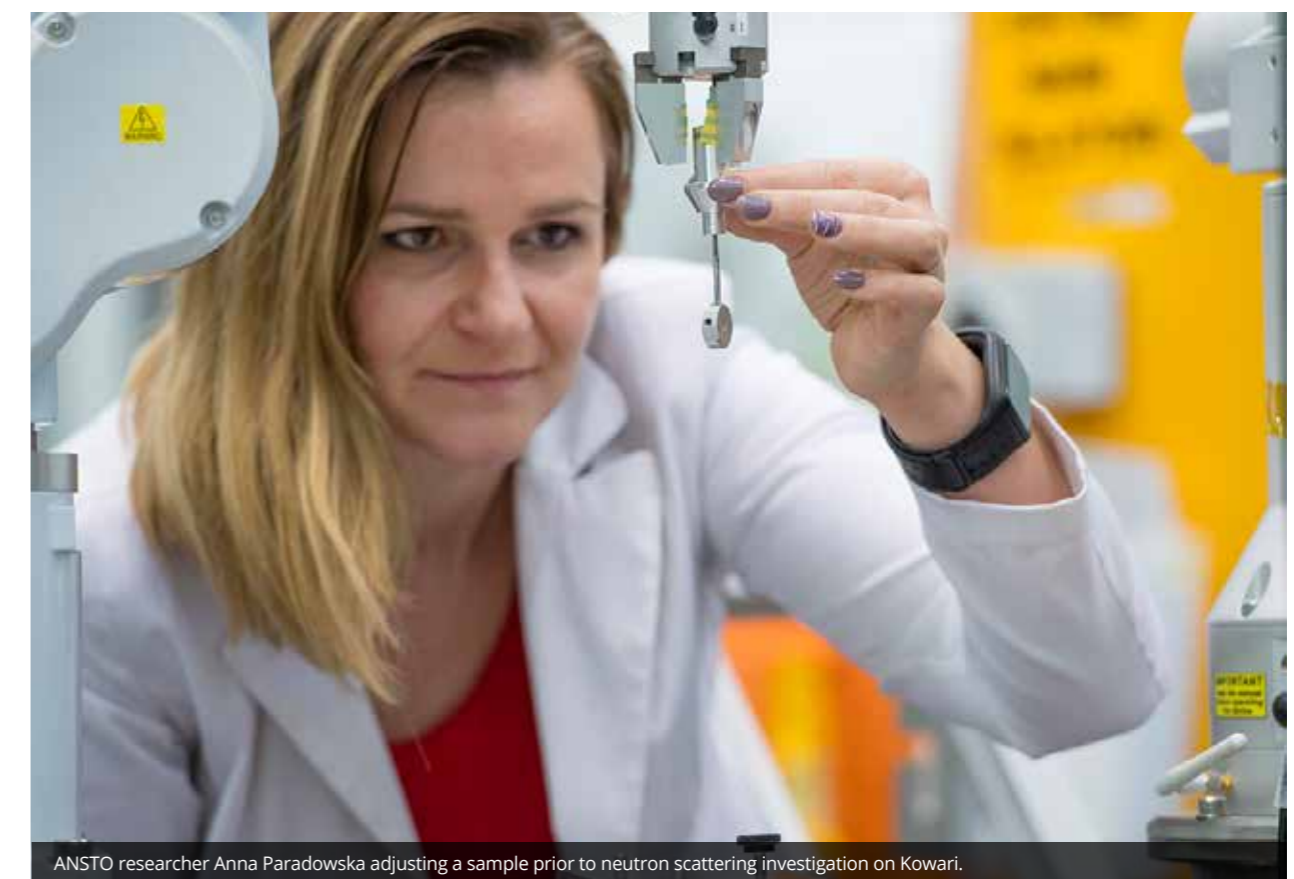
ANSTO's purpose is defined by the following functions set out in section 5 of the *Australian Nuclear Science and Technology Organisation Act 1987*:

- Conduct research and development in relation to nuclear science 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 the results 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
- Make available facilities (on a commercial basis, where appropriate), equipment and expertise for research in nuclear science and technology

- Publish scientific and technical reports, periodicals and papers, and provide public information and advice
- 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.

ANSTO is a corporate Commonwealth entity within the Australian Government's Industry, Innovation and Science portfolio with accountability to the Minister for Industry, Innovation and Science.

ANSTO operates under the oversight of a Board which is appointed by the Minister.



The environment

Over the last year, there have been significant developments in science policy – the *2016 National Research Infrastructure Roadmap*, the *National Science Statement*, the progression of the *National Innovation and Science Agenda* and the release of *Innovation and Science Australia's 2030 Strategic Plan Issues Paper*. Two consistent themes have emerged from this extensive policy thinking: firstly, that Australia's innovation economy can only progress if there are greater synergies between industry, researchers and universities; secondly, that longer-term thinking, planning and investment are critical to Australian science, particularly in relation to Australia's research infrastructure.

Scientific research and innovation, and their interconnectivity with industry, are fundamental to the economic and social prosperity of our country. The combination of ANSTO's unique infrastructure, distinctive competencies and nuclear expertise positions ANSTO as an important player in Australia's innovation system. ANSTO is committed to using its resources to drive innovation, support economic growth and improve the international competitiveness of Australian enterprises. It is responding to the need for greater connectivity through a number of initiatives, including the establishment of an ANSTO Innovation Precinct, a major undertaking which is detailed later in this Plan.

Research infrastructure is a critical part of Australia's economic base. It enables the development of breakthroughs in knowledge and technology, solves problems for industry and maintains a highly skilled workforce. Importantly, it also sustains Australia's competitiveness and global relevance. The changes in the structure of our economy mean research-intensive organisations cannot continue to rely on old solutions, but must develop new models that are proactive, responsive, connected and sustainable in order to deliver beneficial outcomes for Australia.

ANSTO took ownership of the Australian Synchrotron in July 2016, and integration activities are close to completion. For the first time, ANSTO has more than 10 per cent of its staff based outside New South Wales. The provision of 10 years' funding certainty and clarity around the future direction of the Australian Synchrotron provides an important opportunity to leverage the full capacity of this landmark facility, which will allow it to continue to serve a wide range of users from the industry, health, research and university sectors.



The opening of the ANM facility by the end of 2017 will be significant for ANSTO and Australia. It will see the end of a major engineering, procurement and construction project and the commencement of nuclear medicine production in the new facility, the scale of which is unprecedented for Australia. The \$168.8 million investment by the Australian Government in this high-end manufacturing facility will position Australia as a global leader in nuclear medicine production, capable of delivering up to 25 per cent of global supply for the most commonly used nuclear medicine. The ANM project, which also includes construction and operation of the world's first Synroc waste treatment plant, will create around 60 additional smart jobs for Australia.

With climate change, sustainability, energy security and economic competitiveness at the forefront of public discourse, both locally and internationally, there has been increasing attention paid to the future of the nuclear fuel cycle in Australia. As a trusted adviser to government and other stakeholders, ANSTO continues to lend its unique technical expertise and globally informed perspectives to these discussions.

ANSTO has been encouraged by progress made by the Department of Industry, Innovation and Science towards establishing the National Radioactive Waste Management Facility, with the Government's acceptance of a voluntary nominated site at Barndioota in South Australia in 2016, and a further two sites at Kimba in South Australia in mid-2017. ANSTO continues to work closely with the Department and the South Australian communities, both through the provision of technical advice and community education and outreach. ANSTO welcomes community members and policy-makers to its Lucas Heights campus to gain a better understanding of the processes involved in radioactive waste management, and of the relatively small inventory of waste that Australia needs to manage.

Demographic shifts in Australian society, dominated by an ageing population, have raised the importance of

affordable healthcare and the ability to tackle associated challenges as key priorities. In the 2017-18 Federal Budget, the Government announced investment in the first particle therapy centre in Australia, a proton beam facility to be operated by the South Australian Health and Medical Research Institute. This investment is an important first step towards Australia establishing a national approach to delivering proton and carbon ion particle therapy for Australian patients who would otherwise receive sub-optimal care. Over the course of the coming years, ANSTO will continue to convene a national discussion on addressing the need for both proton and carbon ion particle therapy in Australia, bringing together stakeholders from all states, spanning the clinical, health systems, research and engineering fields.

ANSTO operates in a national and international landscape where innovation and invention are no longer based on individuals or small groups, but are founded on highly networked collaborations. These collaborations capitalise and draw on the unique skills and resources of each participant to provide maximum impact. Australia must remain engaged with advanced global research infrastructure and science mega-projects, such as ITER (fusion reactor) and CERN (fundamental physics research), to maintain capability and produce leading research results. Engagement with these facilities also stimulates the development and commercialisation of Australian engineered instruments and technology. As acknowledged by the *2016 Roadmap*, neither Australia nor any other nation has the resources for the independent establishment of these multinational, multi-billion dollar projects. Therefore, it is essential that Australia connect and partner with these facilities in a strategic and supported way. Just as Australia is now a major partner in preparing to establish and operate the largest radio telescope in the world, the Square Kilometre Array, Australia should also be involved in the largest sub atomic microscope in the world at CERN.



ANSTO owns and operates the Australian Synchrotron based in Victoria.

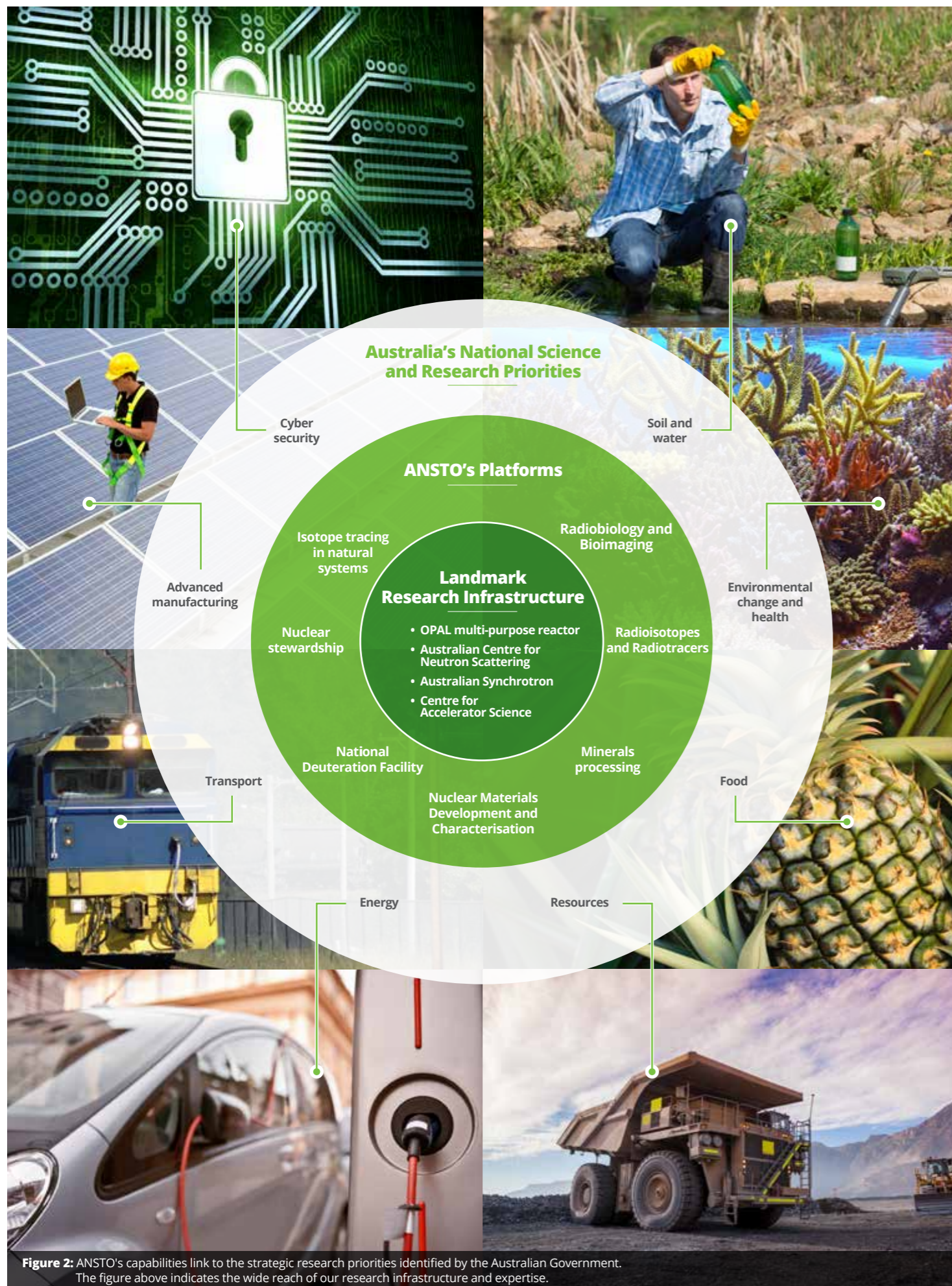


Figure 2: ANSTO's capabilities link to the strategic research priorities identified by the Australian Government. The figure above indicates the wide reach of our research infrastructure and expertise.

ANSTO's core capabilities

ANSTO's core capabilities facilitate discovery, increase knowledge, provide unique pathways for innovation, and deliver real-world impacts and solutions for some of Australia's greatest challenges. Our capabilities include the operation and strategic management of much of Australia's landmark and national research infrastructure; the application of ANSTO's unique science and technology expertise for research and industry; the provision of specialised advice of nuclear and related matters; education and training; and the provision of products and services for the benefit of all Australians.

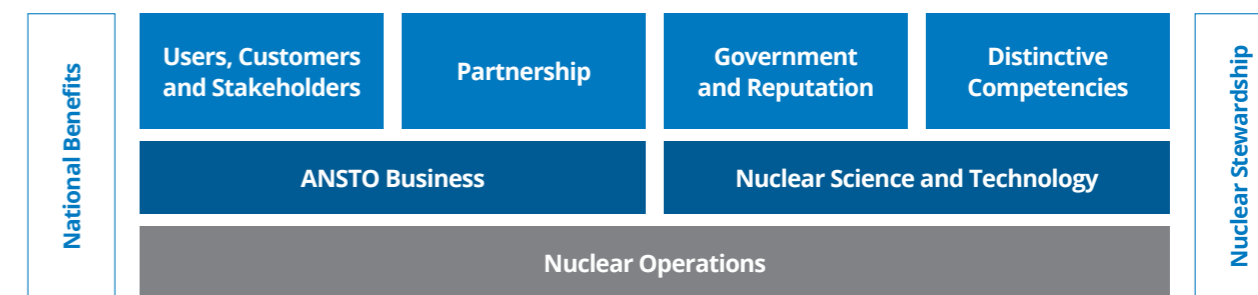


Figure 3: This figure shows key components of ANSTO's capability to deliver to our stakeholders.

Nuclear Operations encompasses the operation of Australia's world-class multi-purpose reactor, OPAL; the provision of essential radiation safety services to ANSTO; the management of radioactive waste from the production of nuclear medicines and the application of nuclear techniques for a broad range of research. Provision has been made for the extension of waste management facilities at ANSTO's Lucas Heights campus, and these projects are now underway. ANSTO now has a complete 'end-to-end' fuel cycle framework in place to secure the management of spent fuel for the life of the OPAL reactor. Under this plan, the first shipment of OPAL spent fuel to France is planned for mid-2018.

ANSTO is the custodian of Australia's nuclear capabilities and expertise, which are unique in the national setting. It has a wealth of **distinctive competencies**, including the strategic management of multi-user, multi-disciplinary, multi-decadal research infrastructure; end-to-end logistics management (for the critical production and distribution of nuclear medicines); radioactive waste management, nuclear applications in health care, maintenance of the measurement standard for radioactivity (the Becquerel), and nuclear forensics (ensuring that Australia has necessary tools to prevent and respond to nuclear security threats).

ANSTO provides benefits to society by means of its **ANSTO Business** and **Nuclear Science & Technology and Landmark Infrastructure** groups. These groups

provide a range of benefits to Australia, including the provision of products and services, research within key themes aligned with issues of national priority in collaboration with numerous other organisations, and importantly the facilitation of access to ANSTO's landmark research infrastructure. Complementing this are a number of activities in which ANSTO undertakes **Nuclear Stewardship** on behalf of Government to ensure that Australia's reputation and leadership in the peaceful use of nuclear technology continues to develop over time. By emphasising benefits and stewardship, ANSTO can be responsive to a wide range of institutions in Australia and internationally.

One of ANSTO's key modalities to deliver value is through partnerships. The very nature of research depends upon partners working together so they might better understand and solve complex problems in the world around us. Partnership and collaboration have formed the foundation of ANSTO since its establishment. ANSTO remains a strong government partner, providing trusted advice across government. Research partnerships across many industries and sectors facilitate the provision of expert advice and access to our landmark infrastructure.

Major projects

ANSTO has a number of key major projects to support its mandate. These projects are in different stages of development. Some have reached the construction or commissioning phases, while others are being workshopped with stakeholder communities to ensure that the projects are aligned with national objectives.

ANSTO Innovation Precinct

In line with the national priority to drive Australian innovation through greater synergies between science and business, as articulated in the *National Science and Innovation Agenda (NISA)* and *Australia's National Science Statement 2017*, ANSTO is developing a proposal to establish an Innovation Precinct at its main campus in Southern Sydney. The ANSTO Innovation Precinct will have three major components; a Graduate Institute, an Innovation Incubator and a Technology Park. It will 'crowd in' and co-locate knowledge-intensive businesses, high-tech industry, science, technology, engineering, mathematics and medicine (STEMM) graduates from Australian universities, and scientific partners around Australia's centre of nuclear capabilities and expertise. This will create an innovation community that nurtures and drives technology development and transfer, commercialisation, entrepreneurialism, collaboration and market-ready postgraduates.

The Innovation Incubator, launching shortly, will become the home of knowledge exchange, commercialisation, innovation and entrepreneurship at ANSTO.

The Graduate Institute will establish a formal program of postgraduate training and development, with approximately 300-400 graduate and postgraduate students undertaking research studies at ANSTO's Sydney and Melbourne campuses, as well as working with innovative businesses located in the ANSTO Innovation Precinct.

The proposed Technology Park will cluster SMEs, high-tech industry and knowledge-intensive businesses, which will have the benefit of close access to ANSTO's people, unique capabilities, nuclear applications and research infrastructure. Businesses that have already approached ANSTO regarding possible co-location include those in high-end medical manufacturing, next generation food production and 3D data capture.

Industry groups, universities and all levels of government have been actively engaged in the planning process for the ANSTO Innovation Precinct and are excited about the opportunities it will bring, including smart jobs, a boost to the local economy, industry-experienced graduates and a drive in Australian innovation. Growing ANSTO's research and technological facilities with a precinct at Lucas Heights has also been identified in the Greater Sydney Commission's draft South District Plan as a 'Productivity Priority Area' for the South Sydney District. The Greater Sydney Commission's plan is due to be finalised by the end of 2017.

The Government is seeking changes to ANSTO's governing legislation, the *Australian Nuclear Science and Technology Organisation Act 1987*, to support the vision of the ANSTO Innovation Precinct and provide greater flexibility in the co-location of high-tech industry and knowledge-intensive business around ANSTO's nuclear infrastructure and expertise. The *Australian Nuclear Science and Technology Organisation Amendment Bill 2017* was introduced into Parliament in June 2017.

Mo-99 Production Facility

The Mo-99 Production Facility will be commissioned and commence operations by the end of 2017. It will enable ANSTO to provide up to 25 per cent of the global demand for molybdenum-99 (Mo-99), the precursor to technetium-99m (Tc-99m). Tc-99m is used in 80 per cent of diagnostic nuclear medicine procedures worldwide – approximately 45 million medical procedures every year. The facility will ensure the security of supply of Mo-99 for Australia and New Zealand, ANSTO's Mo-99 Production Facility will also go a long way towards mitigating a potential global supply constraint following the shutdown of the major producer in Canada in October 2016, and the shutdown of other suppliers over the coming decade, due to ageing reactors and production facilities. The capability to supply such a large proportion

of the world's demand stems from the modern design and scale of the Mo-99 Production Facility, the world-leading reliability and productivity of the OPAL reactor, and ANSTO's streamlined production and logistics chains.

This project has particular significance on the world stage as one of the only export-scale Mo-99 production processes to exclusively use proliferation-proof low enriched uranium. ANSTO's process positions Australia as a country that exemplifies world's best practice in addressing possible proliferation concerns related to nuclear medicine production, and provides the country with another avenue to advance its non-proliferation principles on the international stage.



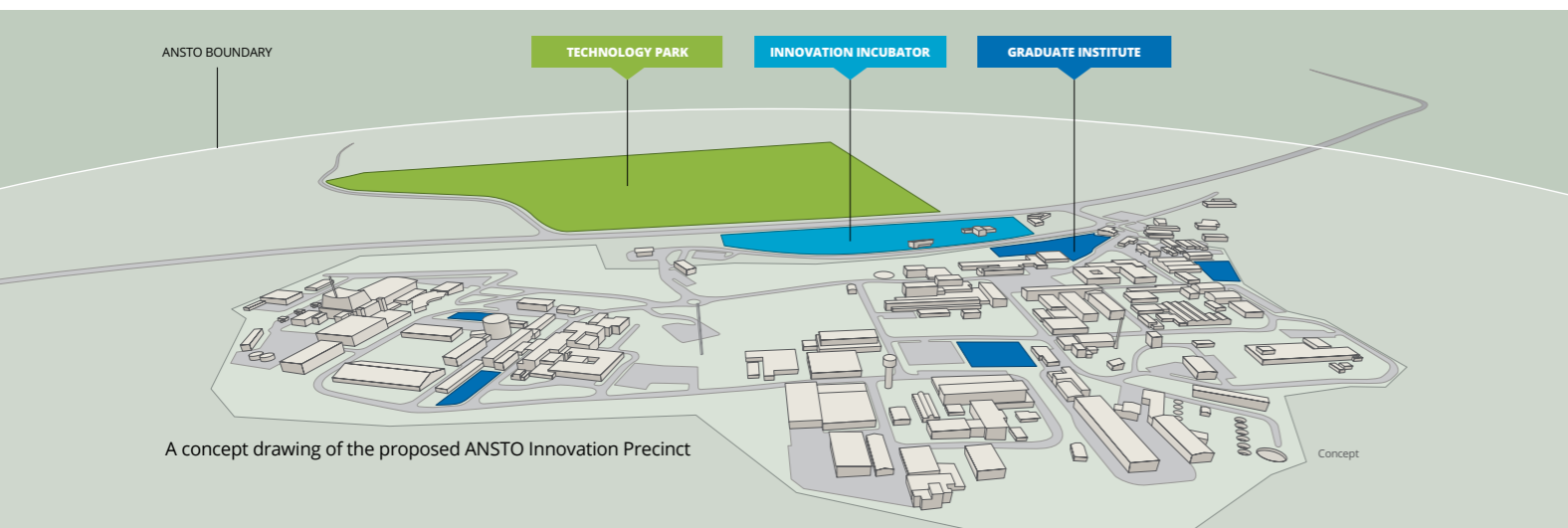
The ANSTO Nuclear Medicine building at Lucas Heights.

Expanding our waste management capabilities

ANSTO is delivering a Synroc waste treatment plant, to be co-located with the ANM facility. The plant will deliver a permanent, safe and economical way of managing waste from the past, current and future manufacture of nuclear medicines. Synroc is an exciting Australian innovation that dramatically reduces the volume of waste compared to other methods. ANSTO is aiming for this first-of-a-kind plant to be operational in the fourth quarter of 2019.

As well as the delivery of the Synroc plant, over the coming years, ANSTO will undertake research into disposal solutions for niche waste, not currently suitable for treatment with Synroc. As the custodian of Australia's radioactive waste management expertise, there is potential for ANSTO's research and technologies to extend beyond solutions for its own wastes, and to assist in radioactive waste management at an international level.

ANSTO continues to provide technical advice on the full life-cycle management of radioactive waste. This includes advice to the Department of Industry, Innovation and Science and the communities surrounding sites that have been volunteered to host the National Radioactive Waste Management Facility. Its capacity strengthens national radioactive waste management capabilities and stems from decades of experience in safely managing radioactive waste. Having operated for over 60 years, ANSTO also has significant experience in effectively engaging and educating the community about the benefits of nuclear science and technology.



Project BR-GHT

The Australian Synchrotron, which was transferred to ANSTO in July 2016, is a world-class landmark research facility that delivers high quality research in collaboration with industry and university partners, amongst others. As part of the National Innovation and Science Agenda (NISA), the Australian Government has committed over \$500 million to the operation of the Australian Synchrotron over the 10 years to June 2026. A portion of this funding is contingent on ANSTO securing third party capital investment for new beamlines.

In the second half of 2016, ANSTO launched project BR-GHT, a capital expansion project to support up to eight additional beamlines that will greatly expand the Synchrotron's capability and capacity.

Through project BR-GHT, ANSTO has been working closely with universities, research institutes and governments to best respond to the needs of the user community. The addition of new beamlines will allow ANSTO to further bolster academic and industry research outcomes to meet the high demand from local and international researchers for access to synchrotron techniques. Success in this endeavour will complement the secure operational funding stream from NISA, and ensure that Australian research remains at the cutting edge.

Strong early support from stakeholders will enable ANSTO to commence building two new beamlines at the Australian Synchrotron in FY18.



The Australian Synchrotron building in Clayton, Victoria.

Nuclear medicine processing and distribution facility

In the coming years, ANSTO will be seeking to undertake a capital program to upgrade its nuclear medicine processing and production facility. The current facility at ANSTO has supplied millions of doses of lifesaving medicine to patients and doctors at hospitals and clinics across Australia, but is coming to the end of its operating life. Consequently, a proposal for a nuclear medicine processing and distribution facility that will meet current and future compliance requirements and enables ANSTO to meet increased demand and allows for the introduction of new diagnostic and therapeutic agents for Australia is in development. The proposed facility will enable ANSTO to continue to

provide the reliable processing and distribution of a range of nuclear medicines for current and future Australian health care needs. The facility will be designed to have processing capabilities for products under development or to be introduced into Australia, including lutetium-177, which is currently in clinical trials for the treatment of neuroendocrine tumours. The design will incorporate modern manufacturing techniques, automation and long-term maintainability. The design phase of the plant will leverage domestic and international experience in order to secure the reliable future supply of a range of critical nuclear medicines.

Particle Therapy

Particle therapy is a cutting edge treatment that destroys cancer non-invasively using charged ions. Particle therapy offers advantages in treatment efficacy over conventional radiotherapy using X-rays. It allows clinicians to target cancers more effectively, reducing radiation doses to healthy surrounding tissues and reducing the number of treatments required.

The Australian Government's welcome investment in Australia's first particle therapy facility, at the South Australian Health and Medical Research Institute, will assist the South Australian Government in delivering the most mature form of particle therapy, which uses proton beams, for the first time in Australia. Proton-based particle therapy is a well understood and well utilised technology that was first trailed internationally in the 1950s. There are now more than 60 proton facilities internationally, and a further 40 under construction as of July 2017. Proton-based particle therapy in Australia will allow Australian clinicians to deliver effective treatments to a cohort of patients who would otherwise receive sub-optimal care.

Particle therapy is not restricted to the use of protons. Carbon ion-based particle therapy is an emerging technology being applied in Japan, Germany, Austria, Italy and China. It is proving to be effective against some cancers for which there is currently no treatment. Its deployment would significantly improve patient outcomes and take Australia into a community of nations adopting the most advanced approach to cancer treatment.

ANSTO is facilitating a national discussion on Australia's approach to particle therapy that encompasses the well-established proton-based technologies, and the emerging carbon ion-based technologies. It is also providing technical assistance and access to overseas experts through its international networks to the various state-based proposals that are being developed. In particular, ANSTO has assisted the NSW Government in developing the only proposal to date that would deliver a carbon ion particle therapy facility, at the Westmead medical precinct in Western Sydney.



A treatment room at the National Institute of Radiological Sciences' HIMAC Particle Therapy Facility in Chiba, Japan.

Strategic objectives

ANSTO has established five strategic objectives that will drive and inform its capability development and service delivery over the next four years, to fulfil its purpose and functions. These objectives have been aligned with its core values to link the development of ANSTO's culture to drive outcomes that are valued in our society. They are supported by ANSTO's five year Business Plan.

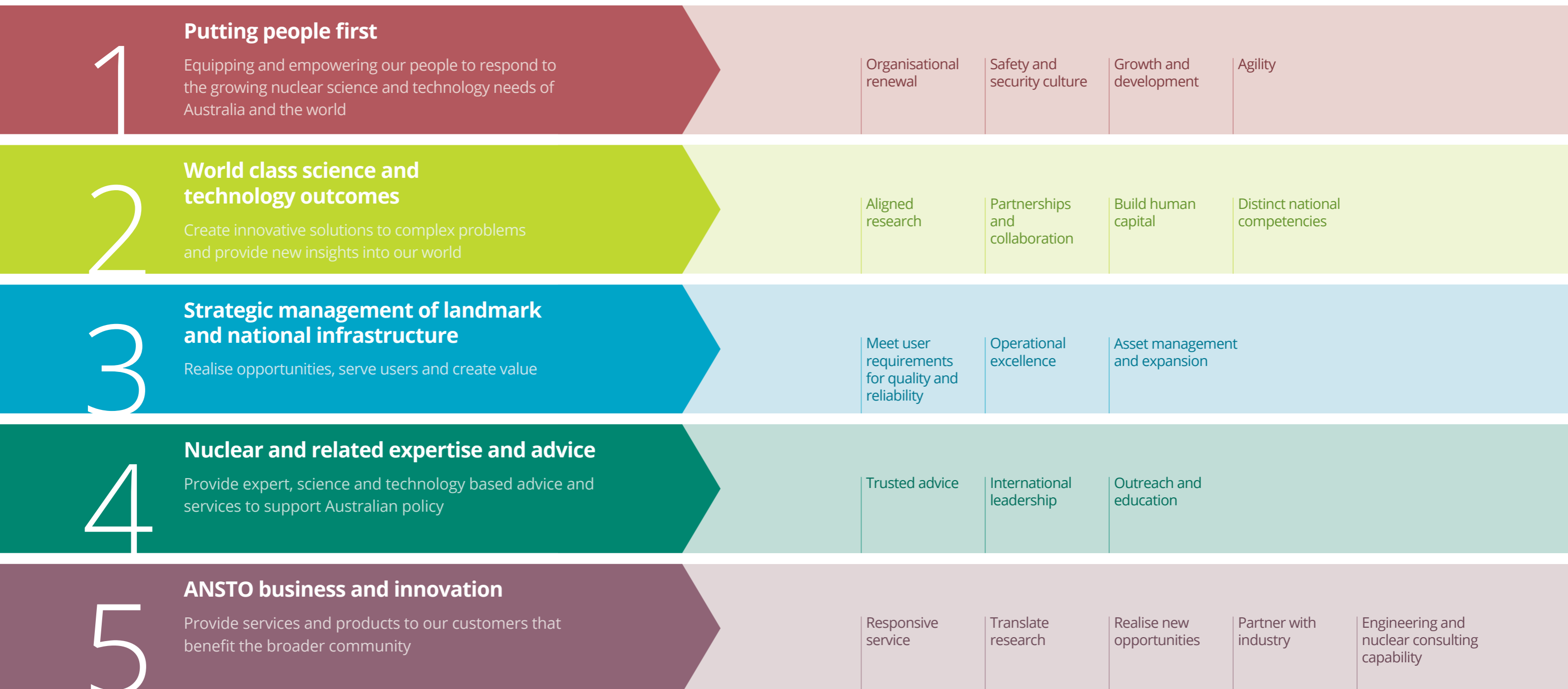


Figure 4: Our strategic objectives have been expanded to include a focus on people.

STRATEGIC OBJECTIVE 1

Putting people first

To equip and empower our people to respond to the growing nuclear science and technology needs of Australia and the world.

a) Organisational renewal

To support an engaged, flexible, inclusive and empowered workforce with a focus on diversity and gender equity initiatives

b) Safety and security culture

To continue to strengthen our commitment to provide a safe, secure and healthy workplace

c) Growth and development

To support the learning and development objectives of our people to allow them to reach their full potential

d) Agility

To equip and empower our people to work effectively in diverse environments and across boundaries, locally, regionally and internationally, and with industry, government, researchers and academia.

People, culture and safety are central to everything ANSTO does. Having the right people with the right skills, who are empowered and working effectively and safely, is the primary enabler for achieving ANSTO's purpose and strategic objectives.

Our safety culture works within the context of a strong regulatory framework, including oversight from the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), the Therapeutic Goods Administration (TGA), Comcare and the Australian Safeguards and Non-Proliferation Office (ANSO). ANSTO will continue to engage its regulators in proactive dialogue to ensure continuous improvement in its safety, security and environmental performance.

Over the next two years, ANSTO will develop a common work health and safety management system certified to the new international standard ISO 45001. ISO 45001 is in the latest stages of development internationally, and ANSTO is leading the way in its application in Australia. This new standard will allow for smooth integration with other existing management systems, such as quality,

environment and risk, due to a common system structure. ANSTO's focus is to have a work, health and safety management system that both exceeds the latest standards and provides practical guidance on maintaining a safe and healthy workplace for all of our staff. ANSTO is planning to attain certification to ISO 45001 by mid-2019.

ANSTO's diverse workforce, with more than one third involved in research, is based in several locations. Over the coming years, there may be opportunities for ANSTO to increase its presence, both nationally and globally. Having our people located across Australia and the world creates greater opportunities for sharing skills and building capabilities, while presenting challenges in maintaining common values.

ANSTO has undertaken significant workforce planning to develop strong links with universities, industries and other government agencies and secure the pipeline for future specialists in nuclear science and technology. Particular importance has been placed on ensuring opportunities at ANSTO for the next generation of STEMM professionals.

ANSTO targets early engagement with high potential STEM students - at a high school level through numerous activities including the Big Ideas Forum, and throughout university study via the Year In Industry program and internships. At the graduate level, ANSTO runs a highly competitive Graduate Development Program, and funds a number of post-doctoral placements. Additionally, planning for an ANSTO Graduate Institute for post-graduate and post-doctoral students from Australian universities as part of the Innovation Precinct is underway. For employees, a new career pathways model is under development for researchers that better reflects the multi-dimensional competencies required by contemporary researchers to support the increasing use of nuclear techniques in important fields such as medicine, climate change and innovation. Importantly, this planning tool will assist employees in exploring a wide range of career options, and understanding important competencies including collaboration, engagement and science communication as fundamental building blocks to career development.

ANSTO has established an Engineering Council to provide a community of practice to engineering and specialised technical services across the organisation. The Engineering

Council undertakes ANSTO-wide workforce planning for staff in these roles, develops resource plans for our capital programs and ensures these highly specialised staff members have opportunities to further develop their skills and careers.

ANSTO has committed itself to achieving greater diversity and gender equity, and has joined the Australian Academy of Science's Science in Australia Gender Equity (SAGE)

program, which is designed to improve gender equity and diversity in STEMM. The first stage of this commitment is working to achieve a bronze level Athena SWAN accreditation. As part of the accreditation process, during 2017 ANSTO ran an Equity and Diversity Survey for staff across all sites. The responses to the survey will inform ANSTO's four year Equity and Diversity Action Plan, which will be finalised in the first half of 2018.



Researchers working in our Quality Assurance Laboratory at ANSTO Health.

STRATEGIC OBJECTIVE 2

World class science and technology outcomes

To create innovative solutions to complex problems and provide new insights into our world.

a) Aligned research

To engage in research that has scientific and commercial impact and aligns with Australia's science and research priorities, with a focus on human health, the environment and the nuclear fuel cycle

b) Partnerships and collaboration

To build strategic partnerships and collaborations to leverage more effective research and innovation outcomes for Australia

c) Build human capital

To develop the next generation of nuclear scientists and engineers and the graduate and post-doctoral career pipeline, and to promote STEMM careers in Australia

d) Distinct national competencies

To leverage ANSTO's nationally distinctive capabilities for the national interest.

ANSTO undertakes research and development that responds with agility to the important issues and key challenges facing Australia. ANSTO, applies its unique nuclear expertise to research in areas of national priority including human health, water resource management and environmental change, food security, national security and the nuclear fuel cycle.

ANSTO's world-class scientists lead important mission-based research utilising ANSTO's landmark facilities. These projects are focused on research that aligns with the *National Science and Research Priorities* as well as improving Platform capabilities. ANSTO's mission-based research reflects the organisation's commitment to using its expertise to provide solutions to some of the greatest challenges facing Australia and to remain at the forefront of international nuclear-based research and innovation.

ANSTO is currently developing a program of research in the key area of **Defence Industry** and **National Security Research**.



ANSTO undertakes research in three broad areas:

RESEARCH THEMES

The Nuclear Fuel Cycle



Fuel Resources and Systems

Reactor Systems

Spent Fuel Management

Environment



Water Resources Sustainability

Environmental Change

Contaminant Impacts

Human Health



Interaction of radiation with living matter

Nuclear technologies for health

Food and Nutrition

Figure 4: Schematic representation of ANSTO's research themes. These will be the basis of our strategic partnerships and collaborations to amplify the outcomes and benefits of research and technology development at ANSTO.

The Nuclear Fuel Cycle

Research under this theme extends to all aspects of the nuclear fuel cycle, and currently includes:

- (i) the development of improved fuels for advanced reactor designs;
- (ii) investigation of materials for use in nuclear systems, structures and components, and the effects of irradiation and high temperature on their structural properties; and
- (iii) the development of immobilisation/encapsulation techniques for existing and potential new waste streams from nuclear processes.

In June 2016, Australia became the fourteenth member of the Generation IV International Forum (GIF), following a lengthy membership process that required the unanimous approval of the GIF's existing members. The GIF is a consortium of advanced nations committed to collaborative long-term research on advanced nuclear power reactor technologies that will provide enhanced safety, security and non-proliferation characteristics, and improved efficiency and economics. Australia's success in joining GIF is based on ANSTO's ability to contribute in areas not previously available to the existing members, in particular the world-class capabilities and expertise in nuclear materials engineering within ANSTO's Nuclear Fuel Cycle research theme.

Australia's participation in GIF will, at minimal cost, enable the nation to benefit from involvement in this major international research program, which has the potential to develop reactor designs which will further Australia's non-proliferation and nuclear safety objectives. It will also ensure that Australia has a full understanding of these technologies as they are rolled out across the world, including throughout the Asia Pacific region, in the coming decades.

Australia is required to accede to the GIF Framework Agreement before it can participate fully in the forum's research and development activities. ANSTO is currently leading the treaty accession process in close consultation with the Department of Foreign Affairs and Trade and the Department of Industry, Innovation and Science (DIIS).

Environment

Research under this theme applies nuclear-based techniques to fill critical knowledge gaps which will inform sustainable management strategies and capacity to respond to environmental challenges. ANSTO's focus currently includes:

- (i) water resources sustainability
- (ii) environmental change
- (iii) contaminant impacts.

The **Sustainable Water Resources** program is focusing on the delivery of outcomes for Australian industry, as well as to international programs. A highlight is a three year project to quantify the nitrogen cycle - from farm gate to catchments, groundwater and atmosphere. The project has received significant funding from the Cotton Research and Development Corporation (CRDC). Nitrogen is essential for plant and animal growth, but, in excess, can have adverse effects on the water table and marine environment. Internationally, ANSTO's water resource sustainability program will continue to provide targeted training to regional developing countries through the International Atomic Energy Agency-sponsored project on the sustainable management of groundwater.

The **Environmental Change** research program will continue to deliver a better understanding of climate variability in key areas of agricultural production in Australia. Cave studies and monitoring programs, complemented by key studies on lake sediments from the Westerly Winds zone (bringing winter rain to key agricultural areas of southeast Australia and southwest Australia), will provide new and more detailed insights on the variability of the climate. This work is in partnership with the University of New South Wales and further funded by a collaborative Australian Research Council (ARC) - Discovery grant with the University of Melbourne.

Our **Contaminant Impacts** program is delivering research outcomes as part of the East Australia Air-Monitoring Program. The program contributes to the World Meteorology Organisation's baseline air pollution station by measurement of the naturally occurring radioactive tracer radon-222. The group also delivers a much deeper understanding of the behaviour of radionuclides in waste legacy sites around the world, by targeted research at the Little Forest Legacy Site. The outcomes of this study will assist in better managing and/or remediating such sites. It also contributes to the wider understanding of radionuclides in the environment, in particular to possible permanent radioactive waste repository sites.

Human Health

Research under this theme aims at reducing the risks which lead to population health impairment and disease. Focus currently includes:

- (i) investigation and early mitigation of environmental (biological, chemical, physical and societal) risk impact on health
- (ii) the development of new tools to deliver highly effective and lifesaving therapies to patients
- (iii) understanding how to maintain good health through improving food quality and function.

In response to the needs of society, ANSTO has developed an integrated strategy for health, which will leverage ANSTO's suite of research infrastructure to develop new treatments, enhance engagement in clinical trials and increase ANSTO's focus on food and nutrition.

Using a range of platforms, including deuteration techniques available at the National Deuteration Facility, ANSTO will continue to focus on the development of novel strategies to increase the range and efficiency of radiopharmaceuticals. This work is complemented by ANSTO's total-body imaging research program based on the PET-Explorer prototype, which is designed to be 40 times more sensitive than current state-of-the-art scanners. Critically, this new prototype allows all organs and tissues in the body to be seen at once using only background-level radiation exposure. In bringing this prototype to its full potential in partnership with the University of Sydney, ANSTO will deliver a powerful tool for disease evaluation in paediatric patients and long-term preventive care.

In partnership with the University of Wollongong, ANSTO is also undertaking important research to improve the effectiveness of radiation therapies for cancer patients, while minimising potentially harmful side-effects.

ANSTO is producing Lutetium-177 for use in Australian clinical trials (for neuro-endocrine tumours and prostate cancer). ANSTO is also currently undertaking a series of trial irradiations to support the provision of new radiopharmaceuticals to the health industry.

In mid-2017, ANSTO signed a Memorandum of Understanding (MoU) with Sri Lanka to facilitate work between ANSTO and the Sri Lankan Presidential Taskforce to investigate the epidemiology of chronic kidney disease of unknown aetiology (CKDu). CKDu has emerged as a significant public health issue in Sri Lanka. This disease disproportionately affects agricultural workers, the majority of whom are male, between 40-60 years of age. It is estimated that 1,500 Sri Lankans die from CKDu each year. The only available treatment at present is dialysis and kidney transplant, which places a substantial strain on the country's health system.

ANSTO will facilitate collaboration by bringing together skilled nephrologists and additional medical and environmental researchers to use its world-class nuclear science infrastructure, such as the Australian Centre for Neutron Scattering (ACNS) and the Australian Synchrotron. ANSTO will specifically facilitate research into the geological, hydrological, meteorological, demographic, and toxicology aspects of CKDu.

ANSTO will continue to participate in its existing strategic international and bilateral research collaborations to ensure Australian scientists are connected to a global network of experts and important global research projects. These important partnerships give Australian scientists access to some of the world's most sophisticated research infrastructure, techniques and researchers, enabling discoveries that benefit Australia and the world. In the coming years, ANSTO will continue to mature and grow its partnerships in alignment with its strategic priorities.

ANSTO has a long established and highly collaborative relationship with CERN through a MoU that was signed more than 20 years ago. ANSTO holds this MoU on behalf of Australia. CERN operates the world's largest accelerator, the Large Hadron Collider (LHC). ANSTO's strategic collaboration with CERN allows Australian scientists to connect with important global research projects, benefit from cutting-edge research, and develop expertise through the use of CERN's particle accelerator platforms and large-scale accelerator facilities, particularly in the ATLAS collaboration. However, obtaining the maximum benefit from engagement in this project will require further investment.

STRATEGIC OBJECTIVE 3

Strategic management of landmark and national infrastructure

To serve users, enable world-class research and create economic impact and benefit.

a) Meet user requirements for quality and reliability

To provide excellent service to our user base and engage them in future planning

b) Operational Excellence

To provide effective and efficient utilisation, best practice facility operation and continual improvement

c) Asset management and expansion

To strategically plan and invest in the lifecycle and development of landmark and national research infrastructure to serve the needs of users, collaborators and partners.

The strategic development, effective use and maintenance of ANSTO's infrastructure are crucial to Australia's economic and social prosperity.

The expansion of the Australian Synchrotron's capacity and capability will ensure research remains at the cutting edge. Similarly over the coming years, ANSTO plans to grow Australia's neutron scattering capabilities with a new instrument suite that incorporates innovation in neutron science. Earlier this year, ANSTO was gifted a neutron beam instrument, now called SPATZ, from one of Germany's leading research organisations, the Helmholtz-Zentrum Berlin. ANSTO's 15th instrument greatly complements existing capabilities and will be used for a wide range of applications in biomedicine, energy and materials science. The 2016 *National Research Infrastructure Roadmap* identified new neutron beam capabilities, to be housed within a second neutron beam guide hall at ACNS, as a priority for Australia.

The OPAL multi-purpose reactor, through ACNS, and the Australian Synchrotron attract approximately 6,000 Australian and international research and industry visits every year. ANSTO is continuing to develop its user

programs to ensure that the scientific and technical needs of existing users are well serviced, and to increase awareness amongst industry and academic researchers of the huge variety of ground-breaking neutron scattering and synchrotron x-ray applications that are on offer at ANSTO.

ANSTO is continuing to develop its access programs to ensure that the scientific and technical needs of users are well supported. Introduced in 2017, the ANSTO User Experience is a user-centric model which describes the various stages researchers from any sector progress through when utilising research infrastructure that underpins their research. The model is applicable for all of ANSTO's landmark and national research infrastructure platforms. It will assist in developing and implementing best practice user-focused support that enables excellent science discovery and innovation outcomes for researchers within ANSTO, universities, industry and other research institutes.

In addition, the ANSTO Research Portal (ARP) was introduced in 2017 to provide the national and international user community with better access to all of ANSTO's landmark and national research facilities. Continuing development will result in refinement of the ARP and ensure the user experience is streamlined and that functionality is optimised. The ARP project will be integrated into a broader eResearch (or digital research infrastructure) strategy that will support researchers through the entire user experience – from scientific concept to innovation and impact. The strategy is currently being developed, with implementation to commence in 2017-2018.

Many of ANSTO's ancillary buildings at the Lucas Heights site are reaching the end of their service and design life. Over the coming years, ANSTO will be undertaking essential upgrades to critical site infrastructure that is ageing and deteriorating to maintain safety and efficiency.

TABLE 1

Performance measures as per the Australian Government Portfolio Budget Statements 2017-18, Industry, Innovation and Science portfolio.

	2017-18	2018-19	2019-20	2020-21
FULL UTILISATION OF OUR LANDMARK INFRASTRUCTURE: Continue to achieve a high standard of operational efficiency and effectiveness for ANSTO's landmark and national research infrastructure				
OPAL Reactor: days at power	300 days	300 days	300 days	300 days
Australian Synchrotron facility utilisation	95%	95%	95%	95%
Neutron beam instruments-average utilisation	85%	85%	85%	85%
Accelerators: average instrument utilisation	65%	65%	65%	65%
HUMAN HEALTH PRODUCTS: supply vital medicines and diagnostics that enhance human health				
Radiopharmaceutical doses: potential doses target	4,604,611	5,733,561	5,905,444	6,082,607



ANSTO's landmark and national research infrastructure

ANSTO operates a large proportion of Australia's landmark and national research infrastructure. This multi-user, multi-disciplinary, multi-decadal infrastructure places Australia at the forefront of innovation for the benefit of public health, industry and the environment.

OPAL multi-purpose reactor

As one of the world's newest and most productive multi-purpose reactors, OPAL:

- Produces 85 per cent of Australia's life-saving nuclear medicines, which will be required on average, by one in two Australians
- Supplies neutrons for research at the Australian Centre for Neutron Scattering
- Produces 48 per cent of the world's irradiated silicon used by the semiconductor industry in high-reliability and high-precision applications, such as fast trains and hybrid cars



The OPAL multi-purpose reactor at Lucas Heights in New South Wales.

Australian Centre for Neutron Scattering (ACNS)

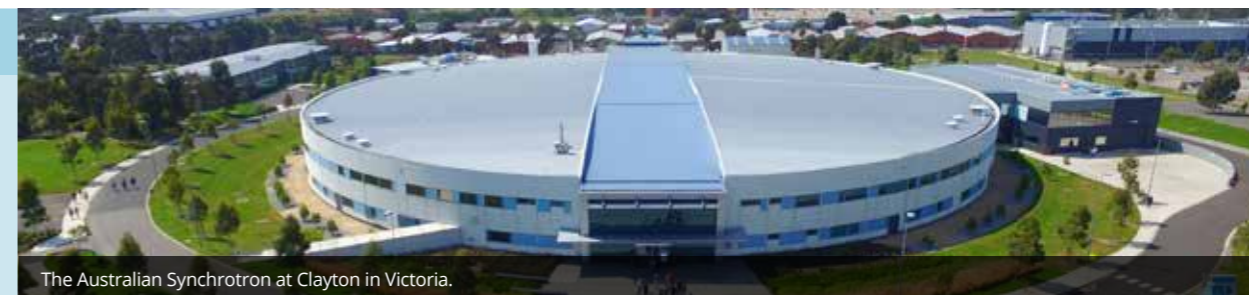
ACNS uses neutrons from the OPAL reactor to help Australian industries solve complex problems, and enables research into areas of national importance including health and materials engineering. ACNS is home to 15 neutron beam instruments, and services more than 1400 domestic and international visits each year. It is a global leader in neutron science.



Dingo, one of the instruments at the Australian Centre for Neutron Scattering at Lucas Heights in New South Wales.

Australian Synchrotron

The Australian Synchrotron uses accelerator technology to produce a powerful source of light, a million times brighter than the sun, for a wide variety of research purposes including human health, agriculture and manufacturing. The Australian Synchrotron hosts more than 5000 researcher visits annually.



The Australian Synchrotron at Clayton in Victoria.

Centre for Accelerator Science

Ion accelerators have a vast array of applications and can be used for everything from agriculture to zoology. Accelerator science is now more important than ever in addressing challenges of climate change and particle pollution, and in detecting and preventing nuclear proliferation. The Centre for Accelerator Science, funded in part by the National Collaborative Research Infrastructure Strategy (NCRIS), houses four world-class accelerators and is the largest centre of its kind in the southern hemisphere.



The Sirius accelerator, part of the Centre for Accelerator Science at Lucas Heights in New South Wales.

National Imaging Facility Research Cyclotron

The Cyclotron is operated by ANSTO and used by researchers from ANSTO and the Brain and Mind Centre, amongst others. The National Imaging Facility Research Cyclotron is Australia's first cyclotron dedicated entirely to biomedical research. This facility allows researchers to make profound discoveries about molecules that have the potential to help tackle almost any human diseases.



The Cyclotron at Camperdown in New South Wales.

STRATEGIC OBJECTIVE 4

Nuclear and related expertise and advice

To provide expert advice, education and services to support Australian policy and strengthen Australia's nuclear knowledge base.

a) Trusted advice

To assist the government in protecting the national interest through the provision of specialised advice and support; and provide accessible information to enhance public knowledge of ANSTO's work

b) International leadership

To engage with key international nuclear organisations and contribute to global and regional nuclear discussions to implement Australian Government policy and ensure that Australia remains a nuclear science and technology leader

c) Outreach and education

To provide resources that meet the needs of the education and academic communities, and demonstrate the benefits of nuclear science and technology to the wider community.

Under the *ANSTO Act*, and as the custodian of Australia's nuclear expertise, ANSTO is responsible to support and engage with the community and a wide range of stakeholder groups at all levels, both within Australia and internationally. ANSTO provides trusted advice and support to Government, and liaises with the international community on nuclear issues on behalf of Australia.

As mandated by the *ANSTO Act*, ANSTO plays a vital role in providing expert advice to the Australian Government on all matters relating to nuclear science, technology and engineering and related matters. ANSTO also contributes to and informs policy-making in this area. This is achieved through frequent engagement with the Minister and his office, the Department of Industry, Innovation and Science and the Chief Scientist of Australia.

Expert and technical advice is also provided across Government, particularly to the Foreign Affairs and Trade portfolio in the areas of peaceful uses of nuclear energy, nuclear security and nuclear non-proliferation. ANSTO also contributes to major policy inquiries and to expert working groups, including the Chief Scientist's expert working group for the *2016 National Research Infrastructure Roadmap*.

Over the course of the coming year, ANSTO will continue

to work with Innovation and Science Australia in their development of the 2030 Strategic Plan, and continue to provide technical advice to the National Radioactive Waste Management Facility project as requested.

As well as supporting the Australian Government's interactions with the International Atomic Energy Agency (IAEA), ANSTO provides direct support to the IAEA in a number of areas. ANSTO staff serve on high-level committees and participate in IAEA missions and activities in the areas of nuclear security, nuclear safety, nuclear law, environmental studies, human health and waste management. ANSTO acts as the interface between the IAEA and Australia on all matters related to nuclear applications and technical cooperation.

ANSTO also has strong involvement with the OECD Nuclear Energy Agency (NEA), based in Paris, including representation on its Steering Committee for Nuclear Energy (the highest policy-setting body) and the Nuclear Development Committee.

It continues to engage in the NEA's High-Level Group on the Security of Supply of Medical Radioisotopes, which is the major forum for engagement with the global nuclear medicine industry. ANSTO will also continue to coordinate Australia's contribution to the Forum for Nuclear Cooperation in Asia, sharing experience and knowledge on the peaceful applications of nuclear technology in our region. Ongoing support for Australia's participation in the Global Initiative to Combat Nuclear Terrorism will continue to position ANSTO as a leader in nuclear security issues.

ANSTO has a comprehensive education and outreach program, connecting with thousands of high school and primary school students and teachers each year. Activities include tours of the facilities tailored to school curricula, school incursions, virtual tour programs and a range of educational events.

ANSTO is an expert advisor to the IAEA on the development of education and outreach materials for developing countries.

ANSTO provides information to stakeholders and engages the wider community through a variety of activities and events. This includes our Fact or Fiction shows and Citizen Science programs, through our web and social media platforms and traditional media.



ANSTO's Discovery Centre leader, Rod Dowler, delivering a talk to visiting students.

STRATEGIC OBJECTIVE 5

ANSTO business and innovation

To provide services and products to our customers that benefit the broader community.

a) Responsive service

To operate our businesses to effectively serve our clients and the community

b) Translate research

To leverage and translate research outcomes into new products and services

c) Realise new opportunities

To serve new markets, create opportunities and introduce new products and services for the benefit of the Australian people and industry

d) Partner with Industry

To respond to the needs of industry to drive Australian innovation

e) Engineering and nuclear consulting capability

To expand and serve new opportunities in nuclear decommissioning and new research reactor projects.

ANSTO Health manufactures and distributes nuclear medicines throughout Australia and increasingly to overseas hospitals and clinics. These products are used in nuclear medicine scans to help diagnose a wide range of illnesses including cancers and heart, brain, bone, lung and endocrine diseases. ANSTO Health also produces and distributes therapeutic products, which represent a novel approach for treating difficult to treat cancers, representing a significant growth opportunity for ANSTO.

Currently, ANSTO Health supplies approximately 85 per cent of the nuclear medicines used in diagnostic scans in Australia. ANSTO currently delivers the equivalent of 11,000 patient doses of molybdenum-99 (Mo-99), the most widely used nuclear medicine, across Australia each week. The ANM facility, which will come on line by the end of 2017, will enable ANSTO to supply up to 25% of global needs for Mo-99.

Over 2017-2021, ANSTO will increase supply of current and new therapeutic agents to the domestic market and will continue to provide a reliable supply of nuclear medicines.

This will ensure the accuracy and speed of diagnosis for Australian patients – leading to the most appropriate clinical management and treatment of these debilitating and life-threatening conditions.

ANSTO Health will work with domestic and international partners to improve access to established and new products, supporting the production of nuclear medicine to facilitate medical treatments in Australia, developing countries in the Asia-Pacific and the broader global community.

China is highly motivated to develop domestic capability around the use of nuclear medicine. ANSTO is well situated to play an important role in supporting the growth of cost-effective diagnostic isotopes and highly effective therapeutic isotopes. ANSTO has already engaged with a range of strategic stakeholders in China and will continue that development over the coming years.

ANSTO will continue to support clinical trials of the isotope, lutetium-177 (Lu-177) which, when combined with various molecules, has the potential to treat a variety of cancers, including prostate cancer and neuroendocrine tumours.

ANSTO Radiation Services is focused on being the pre-eminent national radiation safety training centre in Australia. As a high-calibre and comprehensive provider of radiation protection consultancy and instrument calibration, there is a favourable outlook for the continued growth of this area.

ANSTO Minerals provides consulting and process development services to the minerals industry, and undertakes long-term R&D focused on the needs of future clients. ANSTO Minerals has specialised facilities that permit laboratory studies and pilot scale operations for adding value to a range of minerals areas, including minerals containing naturally occurring radioactivity, and minerals processing operations with complex metallurgy.

ANSTO Minerals has been able to add value to key projects in Australia and overseas, and will continue its focus on strategic metals, particularly uranium, rare earths and lithium. Utilising their expertise, along with new technologies, to overcome challenges of lower grades and more complex ores is critical to advance projects in these areas. It is also important for employment growth and ensuring ongoing world supply of these critical materials.

ANSTO supplies the world's most reliable silicon irradiation services, using the OPAL multi-purpose reactor to provide clients with the highest quality neutron transmutation doped (NTD) silicon for special applications in high-power microelectronics, including in fast trains, electric cars and high voltage switching gear. The silicon ingots are delivered by customers to ANSTO, irradiated in the OPAL reactor,

and returned for supply further along the microelectronics supply chain. ANSTO has secured 48 per cent of the global market share for silicon irradiation services, through a focus on improving logistics and better defining customer needs in a cyclical market. ANSTO aims to continuously improve its processing capabilities and provide greater value for existing and new customers.

TABLE 2

ANSTO Subsidiaries operate in the context of the Corporate Plan to enhance our capabilities or provide transitional arrangements as we reorganise our activities.

ANSTO Subsidiaries	Jurisdiction of Operation	Status
Australian Synchrotron Holding Company Pty Ltd	Victoria	Will be deregistered following the termination of its role during FY18
Synchrotron Light Source Australia Pty Ltd	Victoria	Will be deregistered following the termination of its role during FY18
PETTECH Solutions Pty Ltd	New South Wales	Operating provider of cyclotron-based nuclear medicines
ANSTO Nuclear Medicine Pty Ltd	New South Wales (incorporated in Victoria)	Will undertake production of Mo-99 following commissioning of the new ANM facility in 2017-18



ANSTO's Radiation Services employees.



ANSTO Minerals employee in the laboratory.

Organisational capabilities and framework

Organisational Excellence

Organisational Excellence combines our commitment to customers and partners, effective planning for predictable outcomes and responsive operations to continuously improve our products and processes. At the organisational level, ANSTO deploys the excellence approach to plan, deliver and report on our progress. This approach ensures attention to customers through integrated planning of supply and demand reconciled against financial outcomes with a 24 month rolling forecast and five year plan.

ANSTO Enterprise (Ae) is a program to digitise and integrate ANSTO's processes and systems, and implement best practice across the whole organisation, including our businesses. The release of new SAP, the core component of Ae, is a significant pillar for our digital transformation.

It will provide ANSTO with a unified, connected enterprise system to underpin key processes throughout the organisation. It will harmonise asset management across our campuses and for our national and landmark infrastructure. The suite of systems that has been progressively rolled out includes a learning management system to provide transparency on the training status of all staff, a budget forecasting tool and a travel management system. The digitisation and integration of end-to-end systems and processes is achieving long term efficiencies, as well as enabling greater transparency to minimise operational surprises. Ae will deliver a reliable information and decision-making support mechanism for ANSTO's current and future capabilities and operational needs.



ANSTO researcher, Henri Wong, at work in his laboratory.

Business planning framework

ANSTO's business planning cycle and framework responds to the Public Management Reform Agenda. It ensures the coherence of our planning and agreed timescales in the annual cycle.

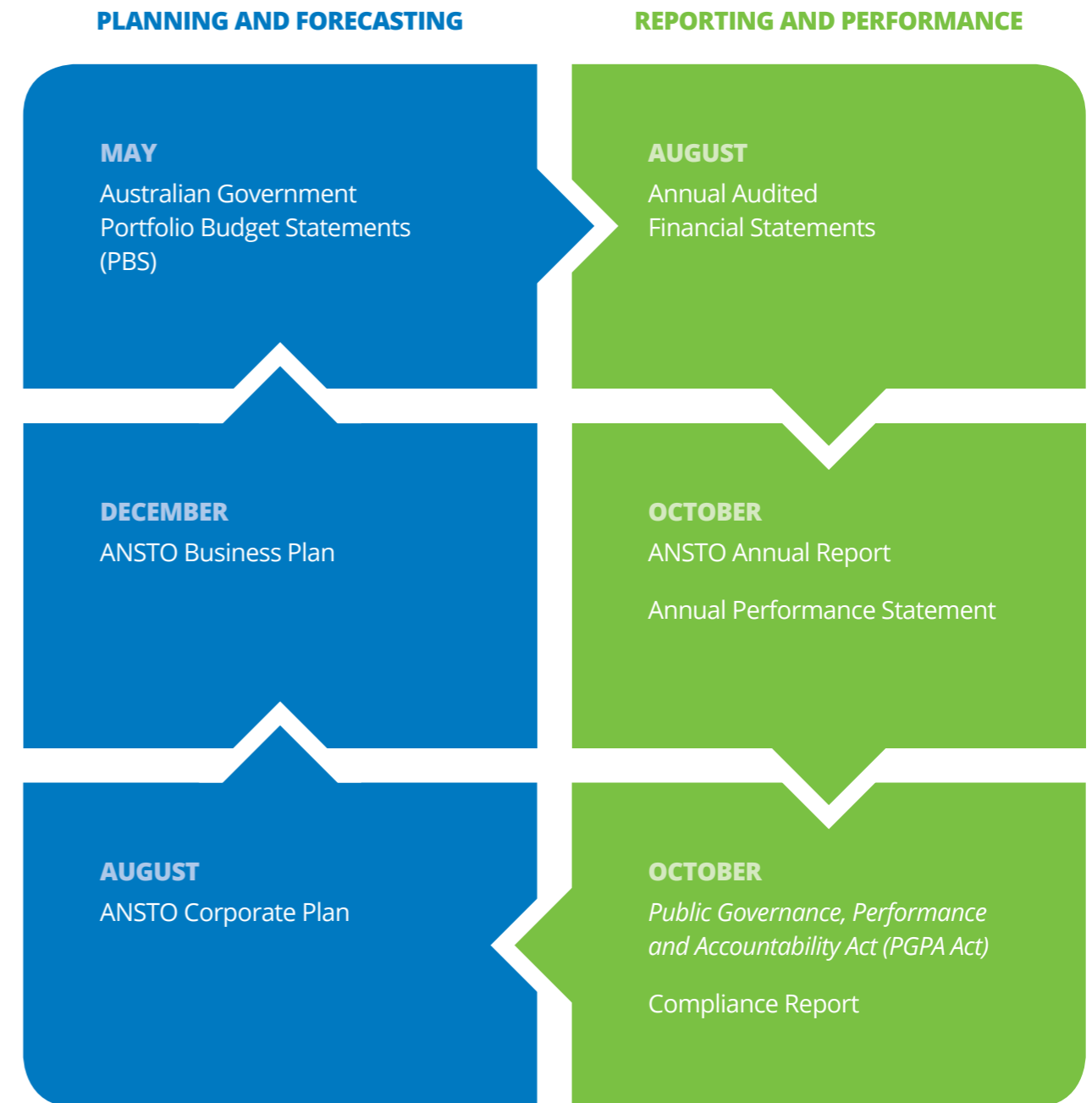


Figure 6: The updated business planning framework.

Governance and risk management

The ANSTO Board provides oversight of ANSTO's systems of risk management, compliance and internal control, setting the boundaries for acceptable risk-taking (risk appetite) and performance variability (risk tolerances) as we pursue our strategic and business objectives. Management is accountable to the Board for designing, implementing, monitoring and continuously improving these systems; and for their integration into the day-to-day activities of the organisation.

During 2016-17 ANSTO undertook a comprehensive review of its existing Risk Management Framework to ensure its alignment with contemporary risk management thinking and global best practices. The improved framework provides ANSTO with a number of key benefits:

- accountability for the management of risk is better defined for all levels across the organisation
- more simplified and streamlined risk management process with supporting toolkits
- clearer visibility of key risk exposures, on the individual risk and aggregated level, through focused dashboard reporting
- improved risk culture and more focused assurance activities.

The framework will be implemented across ANSTO and its subsidiaries during 2017-18.

The ANSTO Board has a Risk and Audit Committee in compliance with section 16 of the *Public Governance Performance and Accountability Act 2013 (PGPA Act)*. The Committee provides independent assurance and assistance to the Board on the appropriateness of ANSTO's systems of risk oversight and management, and systems of internal control, and its external accountabilities and legislative compliance.

The primary duties of this Committee are overseeing the adequacy and effectiveness of ANSTO's:

- governance framework
- risk management process and framework – including insurance arrangements and business continuity / disaster management
- fraud, corruption prevention and business ethics strategies
- overall internal control environment and specific elements of the control environment – including the optimisation of assurance coverage through the adoption of a combined assurance model, legal and regulatory compliance management process and framework
- quality, safety and environmental management systems and performance
- external financial reporting
- Internal Audit function – including approval of Internal Audit plans, review of Internal Audit reports and monitoring management's implementation of Internal Audit recommendations.

At executive and management level, the Risk Oversight Committee is responsible for oversight of governance, risk and compliance. ANSTO aligns its risk oversight and management practices to relevant standards and frameworks, including:

- Australian / New Zealand Standard ISO 31000:2009 (Risk Management Principles and Guidelines)
- Commonwealth Risk Management Policy 2014
- Australian/New Zealand Standard ISO 19600 (Compliance Management System)
- Fraud Control Plan
- COSO Internal Control – Integrated Framework (Internal Control)
- Australian / New Zealand Standard ISO 9001 (Quality Management System)

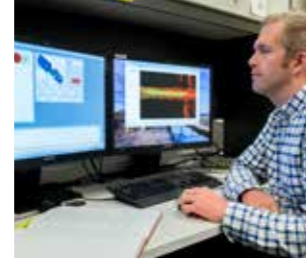
The Board of ANSTO Nuclear Medicine Pty Ltd also has a Risk and Audit Committee that undertakes a similar role to the Risk and Audit Committee of the ANSTO Board.

ANSTO endeavours to understand and effectively manage risks to minimise losses while maximising opportunities. ANSTO takes a structured, consistent and ongoing approach to risk and compliance management and consistently strives to improve its risk management practices, risk awareness and the overall risk culture. Effective risk management is viewed as essential to achieving our strategic and business objectives, by understanding and appropriately responding to threats and opportunities to not only ANSTO but also our subsidiaries.

Compliance Management is a key element of ANSTO's internal control framework and is integrated with our Risk Management Framework. ANSTO's compliance landscape is complex, but we enable our staff by training initiatives and an annual management certification process. In 2016, the ANSTO Board endorsed a new Fraud Control Plan established under the *PGPA Act*, which will further enhance our Risk Management Framework.



ANSTO's Nuclear Operations team meeting.





Australian Government



Locations

Lucas Heights | Camperdown | Clayton