

## ***A Draft Strategic Plan for the Australian Synchrotron 2013 – 2016***

*This document sets out a draft paper towards a Strategic Plan for the Australian Synchrotron to deliver value to the community in the period 2013 – 2016. The Strategic Plan will be publically accessible and must therefore communicate the objectives for the facility to the general reader. The Plan also serves as the basis for operational planning, budgets and work team planning within the Australian Synchrotron and must therefore also set out the key objectives and initiatives that focuses effort within the facility and underpins external interactions.*

*The draft has been sourced from staff planning day inputs, advisory committee reports and stakeholder input. A significant amount of such input has been provided across a range of contexts, which allows a well-developed draft to be presented at this stage. Further input is now sought in response to the draft from a range of stakeholders including users, staff, advisory committees and funding partners.*

## **A Strategic Plan for the Australian Synchrotron 2013 – 2016**

### **Introduction**

The Australian Synchrotron has, since commencing user operations in 2007, become an iconic part of the Australian research landscape. To 2012 the facility has supported over 2500 experiments and more than 10,000 user visits resulting in scientific research that has already had a significant and lasting impact. Research performed at the Australian Synchrotron has led to world-leading results in: medical and life sciences, including key insights into diseases such as malaria and diabetes; advanced materials and engineering, including drug delivery systems and new electronic systems; and earth and environmental sciences including reduced CO<sub>2</sub> emissions in cement manufacture and hydrogen storage materials.

With more than 600 new users registered each year and consistent oversubscription of facility resources it is clear that there is a mandate for continued improvement of the resources offered by the Australian Synchrotron. A secure funding package to 30 June 2016 and the certainty in operating and governance structures provided by ANSTO assuming responsibility for operations of the facility means that the Australian Synchrotron also has a stable platform from which to grow and deliver research outcomes.

This document sets out a Strategic Plan for the Australian Synchrotron to deliver value to the community in the period 2013 – 2016. The main elements of this Strategic Plan for the Australian Synchrotron are:

- Our Vision, Mission and Core Values;
- The relevance of the Australian Synchrotron;
- Our Strategic Objectives;
- What we will do – Strategic Initiatives;
- Outcomes – assessing our performance.

### **Input documents**

- Decadal Plan for the Australian Synchrotron 2007 – 2017

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- Science Case II and the Investment Case for the Australian Synchrotron
- The 2012 National Research Investment Plan
- Operating Services Agreement
- Staff planning day materials

## Our Vision Mission and Core Values

The Australian Synchrotron is primarily a user facility, the key focus of which is to provide a thriving scientific research environment that is conducive to creating and nurturing the best scientific outcomes for the community. While recognizing the importance of the facility's location in Victoria to the local community, the Australian Synchrotron has a broad supporter base that has meant that, since its inception and through subsequent operations, the facility has taken an approach that encompasses the entire nation as well as New Zealand.

Our vision sees the Australian Synchrotron acting as the catalyst for the best scientific research and innovation in Australia and New Zealand. The strong ethos of service to science and the community that is expressed in the facility mission will continue with the user experience enhanced through the support of highly skilled staff. User experiments will be optimized using leading equipment and scientific computing that provides a seamless transition from data collection to analysis, whether locally or by remote access. The same ethos will see the growth of dedicated research groups at the Australian Synchrotron centered on staff research strengths and capitalizing on the opportunity for convergence between disciplines that is present at a synchrotron facility. Research strengths will be based in our key strengths – medical and life sciences, advanced materials and engineering sciences, and earth and environmental sciences. The successful implementation of our vision will see a facility with optimised accelerator facilities, more beamlines, more staff and more ancillary facilities. The Australian Synchrotron will deliver significant research outcomes and value to the community across a wide array of disciplines.

### Our Vision

To be the catalyst for the best scientific research and innovation in Australia and New Zealand.

### Our Mission

Enabling science for the benefit of the community, by providing world-class synchrotron expertise and facilities.

### Our Core Values

Achieving our Vision and Mission requires people and it is our staff that makes the Australian Synchrotron a success story. In setting our Core Values we recognize and celebrate the high performance standards and dedication of our staff:

- |            |   |  |
|------------|---|--|
| Passion    | – | we are a relatively new workforce, the average length of service at the Australian Synchrotron is less than 5 years. Many people at the facility are highly invested in its performance. We value that sense of mission and passion for the outcomes of our work as well as the passion for the outcomes of scientific research. |
| Respect    | – | we respect and value diversity in our staff, users and all we interact with. We also respect and are proactive about preserving our environment.   |
| Innovation | – | the Australian Synchrotron is a rich environment and provides a wealth of opportunities to apply creative solutions to meet needs. We value innovation across the full range of activities undertaken by our staff – whether it is to collect or analyse   |

data, automate or simplify business systems, or apply new technology to our engineering or technical systems.

- Collaboration – we collaborate both internally and externally to achieve outcomes. As a user facility we recognise the importance of engaging with our community and the valuable function that we can provide by acting as a central point in a network for distributing information through collaboration.
- Excellence – the Australian Synchrotron is a world-class facility. As the custodians of one of the nation’s premier landmark research facilities our staff recognises the importance of setting the highest standards and showcasing the unique abilities of the Australian Synchrotron.

### The relevance of the Australian Synchrotron

The Australian Synchrotron epitomises scientific research excellence in Australia and New Zealand. In bringing together a host of techniques that span nearly every research sector in the country it has given the research community the ability to undertake investigations that were simply not possible before 2007, when the Australian Synchrotron commenced general user operations. The results include:

- very high rates and quality of publication;
- an impressive accumulation of highlights and high impact outcomes;
- strong rates of subscription that provide a positive feedback for excellence;
- significant uptake by and training of students and early career researchers that ensure that the next generation of research leaders will further enhance the productivity of the facility;
- administration of an international access program that keeps Australian researchers at the leading edge of techniques not available at the Australian Synchrotron; and
- the development of technical capability that has placed the Australian Synchrotron in the world class of synchrotron facilities and, in some areas world leading.

The Australian Synchrotron currently hosts 9 beamlines (or experimental facilities) that were built to provide key capability across a wide spread of techniques used by researchers in Australia and New Zealand. A synchrotron facility works by generating a bright light that is directed onto a sample. At the Australian Synchrotron that light is mainly in the form of x-rays, although on one beamline infra-red light is used. The particular properties of the light used and its interactions with a sample mean that, at the Australian Synchrotron, experiments that can be characterised as imaging, spectroscopic or diffraction/scattering are performed. Most beamlines will have an emphasis on one of these characteristics, although increasingly experiments and beamlines are recognising the value in employing complementary techniques that may span multiple beamlines or even facilities.

Research concentration and strengths at the Australian Synchrotron are reflective of strengths around the country and can be broadly categorised as follows:

- Medical and Life Sciences
  - Structural biology
  - Cellular imaging and biochemistry
  - Medical imaging and therapies
- Advanced Materials and Engineering Science

- Polymers, semiconductors, ceramics and composite materials
- Magneto, optical and molecular electronics
- Nanoscale materials
- Earth and Environmental Sciences
  - Mining technology and mineralogy
  - Energy technologies
  - Environmental systems

Two areas of research expertise have also developed at the Australian Synchrotron:

- Synchrotron research methods;
- Accelerator science.

### Our Strategic Objectives

The Australian Synchrotron has 5 Strategic Objectives that identify our priorities as a facility and which are also used to provide direction for daily planning and operations. Allocation of resources to projects and activities is also assessed with reference to the Strategic Objectives.

- Strategically grow and support the user community to enhance scientific output, industry engagement and the reputation of the facility (Users).
- Lead and develop a safety focussed, high performance workforce, aligned with our values, to optimise the outcomes of the Australian Synchrotron (People).
- Collaboratively develop and expand our capabilities, capacities and infrastructure to maintain our world class standing (Equipment).
- Enhance the Australian Synchrotron standing as a world-class science facility, strengthening national and international networks (Reputation).
- Secure funding for operations and capital expansion, while sustaining financial stability and regulatory compliance (Funding).



## What we will do – Strategic Initiatives – and how we will measure Outcomes

The Strategic Initiatives set out here describe key facility projects and activities that will be (or are being) implemented in order to support the Strategic Objectives. We will know that we are being successful with our initiatives if the measurable outcomes identified with each initiative are achieved.

### Strategically grow and support the user community to enhance scientific output, industry engagement and the reputation of the facility

Research is the life-blood of the Australian Synchrotron. The success of the facility is measured by the ability of our people and our equipment to support and deliver research outcomes, whether they be fundamental results for academic research or applied insight for industry clients. Working across our areas of research strength we will continue to support our user base by:

- Providing outreach and training for new and existing users – seminars to user institutions, web-based introductory materials and induction and experiment support are business as usual for the facility. The Australian Synchrotron also commits to continuing support for the successful broad new user symposium and for specific beamline workshops that provide hands on training and optimisation tips.
  - New User Symposium supported annually, and hosted at the Australian Synchrotron in alternate years
  - Beamline workshops held by the majority of beamlines each year
- Enhancing the user experience – the Australian Synchrotron emphasises the need for a strong sense of customer focus, which is delivered by all staff. Our User Office, which also administers our guesthouse arrangements, is the first point of contact for most users and is consistently rated by our users as providing valuable support and assistance. This support will be enhanced by a major initiative, to complete in FY14, which is to deliver an entirely new portal environment that will manage user applications, the administration of beamtime, and track user outcomes.
  - New portal software fully manages a complete user cycle and positive user feedback ratings about the interaction are maintained or improved
- Optimising experiment efficiency – measures in place already include provision of productivity metrics to assist the Program Advisory Committees in assessing beamtime applications, after hours beamline support by beamline and operator staff, and constant improvement of beamline equipment. The Australian Synchrotron will increase resourcing into beamline capability by increasing budget allocation to the development of beamline equipment and by pursuing projects that support pooling or standardising of resources where appropriate. Scientific computing will also be a key focus with the establishment of an integrated IT and Scientific Computing group and allocation of funding towards necessary upgrades to the computing infrastructure at the Australian Synchrotron.
  - Essential operating upgrades supporting equipment development increases in FY14 by 25% from FY 13 levels and is grown or maintained to 2016
  - Computing infrastructure and services are upgraded allowing for a data storage solution, stable and secure network architecture and sustained operation and development of user access and analysis tools including remote access

### Lead and develop a safety focussed, high performance workforce, aligned with our values, to optimise the outcomes of the Australian Synchrotron

The Australian Synchrotron is successful because of its staff. Maintaining a sense of mission is vital to the continued high levels of performance and this can be challenging in an environment where the anticipated

growth in the facility has not been as rapid as expected. In order to challenge and stimulate staff we need to ensure that the structure and opportunity exists within the organisation for staff to be proactive in optimising outcomes across all work streams. Part of this structure will come naturally from the increasing integration of our operations with ANSTO. We will add to the existing high level of staff support by:

- Implementing transparent management systems – communication and clarity are the fundamental principles upon which all areas of management operate. In an environment where all aspects of the organization can see and understand what others are doing, the opportunity for improving safe work and for cross-fertilisation is increased. A regular staff forum for questions and discussion will be established and supported and communication of key meetings will be supported.
  - Attendance levels at staff forum grow or are maintained and feedback is positive
  - Internal communication of Executive Management Team meetings is regular and available to all staff
- Developing clear career structures – whether the facility is growing by adding new beamlines or not it is important for all staff to understand what is available for career enrichment and progression. At the Australian Synchrotron this includes training and development, mentoring programs and opportunities for cross-skilling and cross-work stream appointments. Integration of Australian Synchrotron operations with ANSTO will bring a new space for career progression including liaison, secondments and appointments within the ANSTO structure. We will also focus on providing a career structure that has well-defined progression steps and performance management and promotions systems that recognise the diversity of contributions that staff makes to the facility.
  - Levels of interaction with ANSTO increase
  - Banding, PDP and promotions structures are revised and adopted
- Improving administrative systems – as an organization whose main currency is information we are proud of our ability to process data. This same expertise will be brought to bear on our administrative functions, where it is clear that, by upgrading some of our process from paper to an electronic system, we will improve the efficiency and accuracy of transactional work as well as having a beneficial effect on the environment.
  - A paperless purchasing system is implemented in FY14 and further paperless systems are developed to FY16

### **Collaboratively develop and expand our capabilities, capacities and infrastructure to maintain our world class standing**

A synchrotron facility is sometimes likened to running a formula 1 racing car – without constant technological advance the winning car one year can find itself at the back of the pack in the next. At the Australian Synchrotron the need to develop and expand can take the form of upgrading existing equipment or acquiring new capabilities. There is a range of scale across these activities from those enabled within existing budgets, through to those, like new beamlines or major facility upgrades, which require a significant influx of new funding. ***It is also well-known that the Australian Synchrotron is well behind international best practice in expanding its initial suite of beamlines. Redressing this will remain a key priority.*** In planning for all such activities the Australian Synchrotron recognises its role as a national resource and will engage in a consultative and collaborative approach with relevant stakeholders to define needs and to implement solutions. In growing capacity at the Australian Synchrotron we will:

- Prioritise projects – resource allocation for development projects is a key function of management. We improve objectivity and transparency of the decision making process by articulating facility

strategic objectives, as set out in this Plan, and further clarity is gained when specifics are also identified. The high level priority order for the facility is always headed by safety and repair, or preventative maintenance, of essential operating equipment. Specific high priority projects during the life of this Plan are the Imaging and Medical Beamline commissioning and clinical readiness project and the X-ray Absorption Spectroscopy beamline refurbishment project.

- The facility project approval process is recognised as aligning with strategic objectives
- In each year the imaging and medical beamline increases availability to users, increases capability for a clinical micro-beam radiation therapy program and is clinical ready by end FY16
- The x-ray absorption spectroscopy beamline supports the needs of the majority of its user community by end FY14
- Strategic development of some of the existing beamlines is continued
- Maintain and develop the Australian Synchrotron Development Plan – considerable planning and consultation has gone into the science and investment case for new facility capability. More recently an initial suite of concept design reports has been developed. We will continue to develop readiness for major capability expansion and will regularly review and assess the portfolio of projects. The primary source for major developments at the Australian Synchrotron is anticipated to remain with government and the timeframe for such investment remains uncertain. In the meantime we will continue to develop partnerships as a way to build capacity.
  - A portfolio review of plans for new beamlines and major facility upgrades is completed and identifies state of readiness for projects
  - A partnership model for capability growth up to the scale of a new beamline is developed and examples are implemented

### **Enhance the Australian Synchrotron standing as a world-class science facility, strengthening national and international networks**

The Australian Synchrotron has been remarkably successful in a short time at enabling high impact research outcomes. It has also been good at communicating those outcomes. Expanding the reach and breadth of that communication is a core responsibility of the facility in educating and informing others about the benefits of research.

A feature of the Vision and Mission for the facility is that we catalyse and enable science and research. This has manifested as an extraordinary level of staff support for researchers using the facility. As the facility matures the opportunity, and indeed, the responsibility for Australian Synchrotron staff to lead the way in synchrotron research methods increases. The next phase in the evolution of the Australian Synchrotron will see the growth of recognized research centres at the facility. Similarly, we enhance our reputation and strengthen our regulatory relationships by following best practice approaches to the way we operate the facility.

We will enhance our standing as a world-class science facility by:

- Implementing targeted communications and industry engagement strategies – communications to key stakeholders and development of materials will continue to emphasise the unique role and impact of the Australian Synchrotron.
  - Our communications plan is recognized as increasing the understanding and appreciation of the impact of facility research outcomes
  - Our industry engagement strategy increases the level and benefit to industry of research undertaken at the Australian Synchrotron



- Supporting staff science – the next several years will see an increase in the number and quality of scientists at the Australian Synchrotron recognized as leaders in their field. While the Australian Synchrotron is, and will remain, primarily a user-support facility an effective way to facilitate high impact research outcomes is when the people, who best know how to use the facility, demonstrate and showcase methods and research that will inspire others. We will support this growth in staff science by increasing funding to science projects and by prioritizing other projects, such as automation, that create more time for enabling research. We will also encourage networks and collaborations that leverage our research outputs.
  - Staff research outputs increase year by year
- Supporting the stakeholder community – the Australian Synchrotron is, in many ways, a representative of its user community. We will continue to act as a focal point for community issues and will also support the user community by providing a forum and support mechanism for the broader reach of professional research life. This will include direct support such as staff time for activities such as acting on organising committees and in professional associations. We will also facilitate workshops and meetings, for instance by assisting with planning and logistics.
  - Levels of non-beamline activities in support of the user community are maintained or increased from FY13 levels
- Enhancing internal data systems – the Australian Synchrotron survives on its data management skills. At the most basic level this is the business of acquiring and analyzing data that is undertaken during experiments. In terms of our reputation, our strength at handling the meta-data created by the facility is equally important. We will continue to improve systems that can capture and disseminate information about the outputs and activities of the facility. This includes improving our capture of information related to research outputs such as citations of papers, networks of researchers and identification of clusters of research topics.
  - The Australian Synchrotron portal system is developed to be able to capture measures of impact and research connectivity from publication data
- Follow best practice processes – maintaining a high degree of demonstrated compliance with internationally accepted systems helps drives efficiencies and transparency in how we work. Our accreditations, such as ISO9001 for business management and AS4801 for safety systems as well as ISO14001, which we are working towards for environmental systems, are also an important part of showing our regulatory bodies that we take our responsibilities seriously.
  - Obtain and maintain a full operating license from the Australian Radiation Protection and Nuclear Safety Authority

### **Secure funding for operations and capital expansion, while sustaining financial stability and regulatory compliance**

This has been a perennial issue for the Australian Synchrotron since its inception and the existence of an operational funding package until 30 June 2016 does not alter the imperative to secure a sustainable funding stream. Successfully implementing the earlier parts of this Strategic Plan are all key elements towards securing long-term operational and capital funding – doing what we do and doing it well is the essential pre-requisite for the continuation and growth of the facility. The central tenets of our future funding strategy are that transfer of the underlying asset into the Federal sphere and control of operations by ANSTO are essential. Full integration of operations with ANSTO can take place when the facility is owned nationally and coordination of AS activities at the national level will mandate Federal funding. We will facilitate our ability to capture funding by:



- Asset transfer – working with stakeholders to effect transfer of the Australian Synchrotron to the Federal Government will be an important priority.
  - A pathway to asset transfer is articulated and accepted by stakeholders
- Developing a coordinated funding strategy – a funding strategy that synthesises the relevant strategic initiatives from this Plan as well as specific other approaches is a key step in articulating how we intend to stabilise the funding stream for the Australian Synchrotron
  - A Funding Strategy is adopted and implemented by the Australian Synchrotron operating company board and by ANSTO
- Enhance the case for new beamline funding – materials accessible to the general public will be developed supporting the case for capital injection into the facility. This includes the case for new beamlines as well as major facility upgrades.
  - Reader-friendly upgrade case is developed and materials are widely circulated



## Users

- New User Symposium supported annually, and hosted at the Australian Synchrotron in alternate years
- Beamline workshops held by the majority of beamlines each year
- New portal software fully manages a complete user cycle and positive user feedback ratings about the interaction are maintained or improved
- Essential operating upgrades supporting equipment development increases in FY14 by 25% from FY 13 levels and is grown or maintained to 2016
- Computing infrastructure and services upgraded allowing for a data storage solution, stable and secure network architecture and sustained operation and development of user access and analysis tools including remote access

## People

- Attendance levels at staff forum grow or are maintained and feedback is positive
- Internal communication of Executive Management Team meetings is regular and available to all staff
- Levels of interaction with ANSTO increase
- Banding, PDP and promotions structures are adopted
- A paperless purchasing system is implemented in FY14 and further paperless systems are developed to FY16

## Equipment

- The facility project approval process is recognized as aligning with strategic objectives
- In each year the imaging and medical beamline increases availability to users, increases capability for a clinical micro-beam radiation therapy program and is clinical ready by end FY16
- The x-ray absorption spectroscopy beamline supports the needs of the majority of its user community by end FY14
- A portfolio review of plans for new beamlines and major facility upgrades is completed and identifies state of readiness for projects
- Partnership model for capability growth to the scale of a new beamline developed with examples implemented
- Strategic development of some of the existing beamlines is continued

## Reputation

- Our communications plan is recognized as increasing the understanding and appreciation of the impact of facility research outcomes
- Our industry engagement strategy increases the level and benefit to industry of research undertaken at the Australian Synchrotron
- Staff research outputs increase year by year
- Levels of non-beamline activities in support of the user community are maintained or increased from FY13 levels
- The Australian Synchrotron portal system is developed to be able to capture measures of impact and research connectivity from publication data
- Obtain and maintain a full operating license from the Australian Radiation Protection and Nuclear Safety Authority

## Funding

- A pathway to asset transfer is articulated and accepted by stakeholders
- A Funding Strategy is adopted and implemented by the Australian Synchrotron operating company board and by ANSTO
- Reader-friendly upgrade case is developed and materials are widely circulated