Australian Government
Bureau of Meteorology

BUREAU OF METEOROLOGY

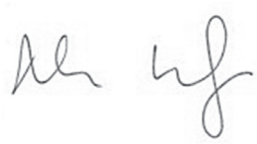
CORPORATE PLAN 2015–16

Message from the Director

It is my pleasure to release the Corporate Plan for the Australian Bureau of Meteorology for 2015–16. The Plan has been prepared in accordance with subsection 35(1) of the *Public Governance, Performance and Accountability Act 2013* and the Public Governance, Performance and Accountability Amendment (Corporate Plans and Annual Performance Statements) Rule 2014. The Plan outlines the Bureau's priorities and planned achievements for 2015–16, and the outlook for the forward estimates period until 2018–19.

The services of the Bureau are critical to the safety, sustainability, security, well-being and prosperity of the nation. Throughout the term of this plan the Bureau's leadership team and staff will continue to strive for excellence in observing, analysing, predicting and providing relevant and timely advice on Australia's weather—including space weather, climate, oceans and water resources.

The Government's investment in the Bureau will continue to be used efficiently to meet Australia's needs, using innovation, diligence and skill.



Dr Rob Vertessy FTSE
Director of Meteorology and CEO

17 August 2015

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Introduction

The Bureau of Meteorology Corporate Plan 2015–16 (the Plan) outlines the agency's priorities and planned achievements for 2015–16 and the outlook for the forward estimates period until 2018–19.

The Plan is one component of the Bureau's performance planning and reporting framework (see Figure 1), driven and monitored by the Bureau Executive, which ensures transparency and accountability regarding the resourcing, operations and performance of the agency.

As a requirement under the *Public Governance, Performance and Accountability Act 2013*, the Plan is relevant to the Bureau's day-to-day operations. It will be monitored internally throughout the year, reported upon publicly in the Bureau's Annual Report for 2015–16 and updated annually. The Plan is flexible enough to evolve throughout the year, if needed, to suit changing priorities.

The Plan articulates the Bureau's purpose, the environment in which it operates, its core operational activities and the capability and resources required to ensure these activities meet user needs. The measures used to monitor planned performance are outlined, as well as the strategies that are used to manage risk.

The Plan generates a strong focus on the achievement of key priority objectives and demonstrates a visible link between planned and actual outcomes, including financial performance. Performance measures outlined in the Plan demonstrate how the agency's outcome, deliverables and key performance indicators contained in the Bureau's Portfolio Budget Statement will be achieved. The Bureau is currently undertaking improvements in the way it verifies and communicates its performance and we expect that this information will improve in the coming years.

The core operational activities outlined in the Plan are the enablers that will allow the intent of the Bureau's Strategic Plan 2015–20 to be met. The Strategic Plan outlines the Bureau's four key strategies to maintain its world class services to help Australians respond to the challenges of the 21st century. These strategies impact on everything the agency does, from products and services, to infrastructure, operations, science and technology and staffing.

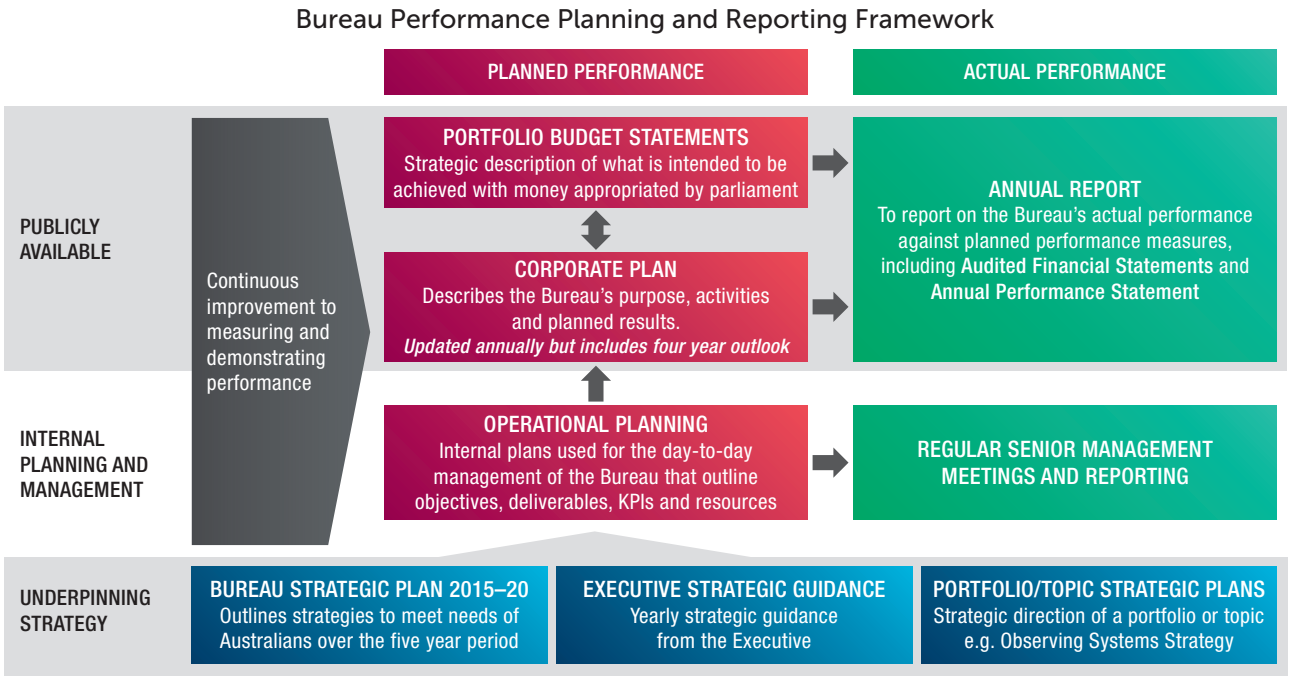

Figure 1. The Bureau's Performance Planning and Reporting Framework

The Bureau's purpose

Who we are

The Bureau of Meteorology is Australia's national weather, climate and water information agency. It operates under the authority of the *Meteorology Act 1955* and the *Water Act 2007* which together identify a range of functions that underpin delivery of weather, climate, water and environmental information, advice, warnings and associated services to meet Australia's needs. The Bureau is an Executive Agency under the *Public Service Act 1999*, and a prescribed agency under the *Public Governance, Performance and Accountability Act 2013*. It is under the Environment Portfolio and reports to the Minister for the Environment and the Parliamentary Secretary to the Minister for the Environment.

The Bureau has obligations under three international conventions as well as bilateral treaties or memoranda of understanding with 13 organisations in 11 countries to which Australia is a signatory. The *Meteorology Act 1955* requires the Bureau to fulfil Australia's international obligations as its National Meteorological and Hydrological Service for the purposes of the Convention of the World Meteorological Organization (WMO) and is Australia's designated Meteorological Authority for the purposes of the Convention on International Aviation. The Bureau's Meteorological Authority Office acts independently from the provision of aviation weather services within the Bureau, and assists the Director of Meteorology in the regulation of aviation meteorological reporting services. The Bureau also has obligations under the International Convention for the Safety of Life at Sea, providing mandatory services such as marine warnings for ships on the high seas. It contributes to Australia's national Antarctic program by conducting continuous meteorological operations in Antarctica. The Bureau also contributes to Australian Government participation in a range of intergovernmental bodies and frameworks, including the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC-UNESCO), the Intergovernmental Panel on Climate Change, the United Nations Framework Convention on Climate Change and the Intergovernmental Group on Earth Observations.

Bureau staff are located across Australia, its offshore islands and Antarctica. Staff work from offices in 74 locations across Australia including the Head Office, seven Regional Offices and six Regional Maintenance Centres, more than 50 Field Offices and a number of special purpose facilities such as a data centre, two solar observatories and a baseline air pollution station. Staff and their dependents are provided with housing at 17 remote locations. As at 30 June 2015, the Bureau had 1452 ongoing and 201 non-ongoing staff employed under the *Public Service Act 1999*. These figures include 19 Senior Executive Service (SES) staff, but exclude the Head of Agency. The Bureau employs shift workers to maintain a 24/7 nationwide weather and flood watch and to deliver forecasts every day of the year.

The Bureau has a clearly defined executive and management structure. The Bureau Executive is made up of the Director of Meteorology and the five Deputy Directors. Together they provide leadership and make decisions on program, policy, financial and people management across the Bureau under the authority of the Director. Each Deputy Director leads one of five Divisions including Hazards, Warnings and Forecasts Division, Observations and Infrastructure Division, Environment and Research Division, Information Systems and Services Division and the Corporate Services Division. These divisions are further broken down into 18 branches and a number of business units that are responsible for delivering a portfolio of work within the Bureau's program structure. Each of the Bureau's Regional Offices is led by a Regional Director, playing a key leadership and stakeholder consultation role in that State or Territory. A number of senior management forums and subject matter committees support the management of the Bureau.

*Further information on the Bureau's Structure can be found **here**.*

What we do

The Bureau of Meteorology provides Australians with the environmental intelligence they need to manage and live within their natural environment—encompassing the atmosphere, oceans, water and land. A wide range of products and services protect lives and property, support national security, contribute to a strong and productive economy and help to meet other national challenges. The Bureau's products and services include a dynamic range of observations, forecasts, warnings, analysis and advice to support informed decision-making by governments, industry and the community. Key users include the emergency management, defence, aviation, transport, water management, resources, agriculture and environmental management sectors. This intelligence allows users to make prudent decisions based on the best available information, for purposes such as short-term emergency response and long-term infrastructure planning.

The Bureau's outcome, as defined in the 2015–16 Portfolio Budget Statements, is:

> *Informed safety, security and economic decisions by governments, industry, and the community through the provision of information, forecasts, services and research relating to weather, climate and water.*

To achieve this, the Bureau:

- monitors and reports on current environmental conditions;
- provides forecasts, warnings and long-term outlooks on weather, climate, water, oceans, space and other environmental phenomena;
- analyses and explains trends in environmental data;
- fosters greater public understanding and use of environmental intelligence; and
- extends its understanding of, and ability to forecast, Australia's weather, climate and water resources.

The Bureau distributes environmental intelligence directly (through channels such as briefings, its website and mobile platforms) and through the media and third-party service providers. Mechanisms for stakeholder input and review are provided through a number of theme-based advisory and consultative committees, at a national and/or State and Territory level.

The Bureau has a number of partnerships with other Commonwealth agencies to manage the delivery of common outcomes, including through distributed responsibilities in science and research with the CSIRO and Geoscience Australia. It also has strategic partner agreements with the Department of Defence, Murray–Darling Basin Authority, the Australian Broadcasting Commission and the Department of the Environment's Australian Antarctic Division. At a State and Territory level the Bureau works closely with a number of government agencies and other bodies, including emergency service agencies, to deliver its products and services.

The Bureau's Service Charter sets out the standards of service that clients can expect from the Bureau, their rights and responsibilities and how to find out more about the organisation. The charter was recently refreshed.

*Further information on the Bureau's Service Charter can be found **here**.*

Strategic direction

Under its new Strategic Plan 2015–20, the Bureau of Meteorology's mission remains 'to provide Australians with environmental intelligence for safety, sustainability, security, well-being and prosperity'. The Plan focuses on four key strategies that will maintain and build its world-class services to meet Australia's contemporary and emerging needs for environmental intelligence over the coming five years. These are:

- enhancing product utilisation by providing the products and services that users need in accessible and effective formats;
- lowering the cost of operations to improve value and strengthen the organisation's sustainability;
- delivering higher-value functions that provide the greatest benefit for Australia; and
- growing business development capability to diversify external revenue streams.

*Further information on the Bureau's Strategic Plan can be found **here**.*

Environmental scan

The Bureau operates in a dynamic environment and must continuously adjust to changes in end-user preferences, advances in science and technology, the directions and capabilities of its partners, and Government policy and priorities.

The Australian community has very high expectations of the Bureau of Meteorology because they depend on its environmental intelligence so greatly. Changing climate is seeing an increase in severe weather and placing greater pressures on the environment. Coupled with population growth and the increasing value of assets, this means more is at risk. There is also growing contention about managing competing demands around environmental issues such as water usage, drought, coal seam gas and the Great Barrier Reef. Increasing user demand and involvement in contentious issues leads to greater scrutiny of the Bureau's work. A robust and transparent approach to providing products, services and advice is increasingly essential. The Bureau must continuously evolve its service offering to keep pace with user demands. This is demonstrated by an increasing preference for visual services and for greater accessibility via mobile devices and emerging technology, matched by the decreasing impact of traditional media. In the digital age, users expect immediate access to localised information, and want products and services that are outcome-focused.

The Bureau's challenging budget position mandates that its operations must achieve greater operational efficiency. The Bureau's level of appropriated revenue is expected to decline over the next three years, which will require the organisation to identify more savings and grow external revenue sources. In addition, much of the Bureau's budget is fixed cost and service-focused, making finding efficiency savings a challenge. The nature of the Bureau's commitments necessitates a distributed geographic base of infrastructure and capability, with the associated high operating and maintenance costs. Some of its assets, including its radar fleet, are over-aged—leading to higher maintenance costs and a growing risk of failure. Often assets are problematic to retire, due to user concerns that services will be affected. The Bureau's approach is to continuously improve by increasing operational efficiency. Where consolidation can lead to greater efficiency without compromised services quality or greater risk, then this must be considered. In addition, further thinking is required to identify how future network reinvestment will be made.

Since 2008 the Bureau, in cooperation with its partners, has developed a comprehensive, reliable and up-to-date picture of Australia's water resources. These products and services are vital to manage Australia's major challenges of sustainable water supply in the face of a changing climate and rising demand for water. The Government's ten-year funding commitment for the Bureau's water information services program terminates in 2016–17, and if this is not replaced the Bureau's water forecasting and information services will cease.

The Bureau must also diversify its revenue base by growing its tailored service offerings for specialised users, and exploring innovative opportunities to grow income. Commercial advertising was introduced on the Bureau's website in April 2013 following its proposal as a revenue stream in the *Munro Review of the Bureau of Meteorology's capacity to respond to future extreme weather and natural disaster events and to provide seasonal forecasting services*. These initiatives are necessary to enable the Bureau to maintain the broad scope and significant impact of its activities.

Rapid advances in science and technology create opportunities but also pressure to deliver. Data volumes are expected to increase exponentially with the launch of higher-resolution satellites and as scientific modelling and data assimilation capabilities advance through enhanced supercomputing capability. The completion in 2014 of the national rollout of the Next Generation Forecast and Warning System (NexGenFWS), to modernise the Bureau's forecast production process and provide state-of-the-art forecast services, illustrates the agency's focus on providing products that meet the needs of its end users. The Bureau will continue to prioritise strategies and projects that put user needs first and increase efficiency.

International engagement and global data exchange are critical to the operational success of the Bureau. Under the *Meteorology Act 1955*, the functions of the Bureau include cooperation with the national meteorological services of other countries in relation to a broad range of activities, including the taking of meteorological observations, the issuing of forecasts, warnings and related information and undertaking meteorological research. Monitoring and predicting the state of the atmosphere requires participation in the international systems that collect and exchange global environmental information. International cooperation also ensures that the Bureau can benefit from scientific, technological and operational developments and expertise in other countries. Through these engagements, the Bureau can: achieve substantial financial efficiency; provide a more robust operational service; strengthen its skills, capabilities and knowledge base; build its profile and reputation; and foster goodwill and collaboration with key partners.

Globalisation also continues to increase expectations from users, as products and services provided by other organisations become more accessible. The Bureau's international reputation makes it a highly-valued contributor and partner, and we will continue to engage with overseas agencies—including the United Kingdom Met Office, the China Meteorological Administration, the Korea Meteorological Administration, the Japan Meteorological Agency, Environment Canada and the United States National Weather Service—to further build influence and relationships, and promote Australian and multilateral projects.

Performance

Achieving the Bureau's purpose

To achieve its purpose, the Bureau is responsible for a single Government programme: **Programme 1.1 Bureau of Meteorology**. The performance of this programme is measured by a number of deliverables and key performance indicators (KPIs) as outlined in the Portfolio Budget Statements for the Environment Portfolio.

To deliver this programme, an internal structure provides a logical partitioning of Bureau activities for the purposes of:

- strategic planning and management at the activity level;
- setting and achieving performance goals and targets;
- internal resource allocation and financial monitoring;
- risk management;
- monitoring and reporting on the achievement of planned objectives;
- monitoring the quality and effectiveness of individual deliverables; and
- effective stakeholder management and engagement.

Each Bureau portfolio focuses on a key aspect of the Bureau's work and is generally delivered by a single division within the Bureau's organisational structure. Each portfolio contains a number of work programs, which are generally delivered by branches of the organisation, each with a set of performance targets. These targets are used to measure and assess the organisation's achievement of its Government-agreed deliverables and KPIs, and therefore its effectiveness in achieving its purpose. Underpinning this work is the Bureau's Strategic Plan 2015–2020, as well as a number of other strategies around critical work areas such as the Observing System Strategy.

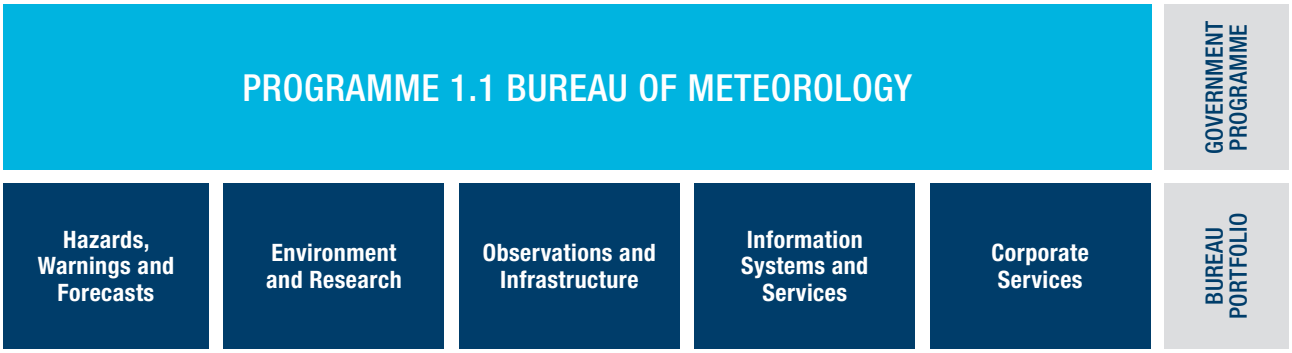

Figure 2. The Bureau of Meteorology's internal portfolio structure

A description of each Bureau portfolio, their allocated resources and their intended results is provided below. Appropriated resource figures exclude depreciation.

Hazards, Warnings and Forecasts

Intended result: *The safety, well-being and prosperity of all Australians is enhanced by the provision of relevant, accurate and timely weather, ocean and streamflow forecasts; the delivery of critical warning services for severe weather, floods, tropical cyclones, fire weather, tsunami, volcanic ash, storm surge and space weather events; and the provision of quality-assured meteorological products and services for aviation and the Australian Defence Force.*

Delivery strategy:

The Hazards, Warnings and Forecasts portfolio provides a range of forecast and warning services. The portfolio works closely with State and Territory emergency service organisations in all aspects of disaster mitigation planning, preparation, response and recovery. The portfolio also works closely with national and international disaster mitigation and hazard awareness programs, particularly the Council of Australian Governments' Australia–New Zealand Emergency Management Committee and the United Nations International Strategy for Disaster Reduction. The portfolio provides specialised services under cost-recovery and commercial funding arrangements for stakeholders and users, such as the aviation and maritime industries, the Australian Defence Force and the Department of Foreign Affairs and Trade.

The work of the portfolio is delivered through four programs:

- Weather Forecasting Services;
- Flood Forecasting and Warning Services;
- Hazard Prediction Services; and
- Aviation and Defence.

Resources

Appropriated resources	$33.675m*
Externally-generated resource	$48.733m
Asset investment and replacement	$11.297m

** Excludes depreciation*

Environment and Research

Intended result: *Decision-making by government, industry and the community is informed by:*

- *the National Climate Record and high-quality and timely climate data, information and advice, with a particular emphasis on seasonal forecasts and the emergence of climate conditions leading to social, environmental and economic stress;*
- *accurate, relevant, timely information, assessments and accounts on the status of Australia's water resources;*
- *access to authoritative sources of environmental information; and*
- *the application of advanced scientific knowledge related to weather, climate, oceans and hydrology to meet the current and future system and service needs of the Bureau and its users.*

Delivery strategy

The Environment and Research portfolio develops and applies advanced scientific knowledge related to weather, climate, oceans and hydrology to build world-class systems and prediction services.

The work of the portfolio is delivered through four programs:

- Climate Information Services;
- Water Information Services;
- Environmental Information Services; and
- Research and Development.

Resources

Appropriated resources	$30.749m*
Externally-generated resource	$18.103m
Asset investment and replacement	$4.689m

** Excludes depreciation*

Observations and Infrastructure

Intended result: *The operation and maintenance of a resilient observations system, incorporating a diversity of in situ and remote sensing platforms, delivers a national observing programme for Australia in support of the nation's climate record, weather services, research and international obligations; and provides current weather information for the Australian community.*

Delivery strategy:
Meteorological, hydrological and oceanographic observations are gathered by the Bureau, from surface-based, airborne and space-based platforms, to underpin the Bureau's essential weather warnings and routine weather, climate and water services. They also inform countless decisions within industry, for the environment, and for the safety and lifestyle of the Australian community. Observations are stored for future use as part of Australia's national climate record.

The Bureau invests a significant proportion of its resources in the taking and recording of observations. It strategically plans, builds and operates the observing network and supporting systems, and maintains significant technical, engineering and science capability. Regular monitoring and review of the Bureau's observing systems is undertaken to assess performance and fitness for purpose.

The work of the portfolio is delivered through three programs:

- Observing System Strategy;
- Observing Network Operations; and
- Infrastructure Management.

Resources

Appropriated resources	$45.151m*
Externally-generated resource	$0.403m
Asset investment and replacement	$11.886m

** Excludes depreciation*

Information Systems and Services

Intended results: *The provision of information, computing and communications solutions that effectively and reliably support the production and delivery of the Bureau's weather, climate, ocean and water products and services.*

Delivery strategy:

The Information Systems and Services (ISS) portfolio provides an Information and Communications Technology (ICT) capability that enables the Bureau to develop, generate and deliver products and services to the Australian community. The Bureau needs highly resilient and reliable systems that operate continuously and seamlessly in support of its operations. ISS also provides advanced computer processing and data-storage facilities that support leading-edge forecasting and climate research.

Substantial in-house development and maintenance supports the Bureau's highly specialised data-gathering networks, numerical weather prediction models, forecasting systems, and product dissemination platforms. These include management of a 100-teraflop supercomputer, a large-scale data storage system, and a website that services tens of billions of hits per annum.

As part of adapting to changing organisational, fiscal and technical drivers, ISS is in the process of changing its structure to perform better on:

- consolidating systems;
- faster delivery of products (including improving its user focus on data as a strategic capability of the Bureau); and
- delivery of the new supercomputing capability.

Resources

Appropriated resources	$43.960m*
Asset investment and replacement	$59.096m

** Excludes depreciation*

Corporate Services

Intended results: *Sound and effective corporate services that provide good governance; fulfil compliance and accountability responsibilities; support the delivery and management of human, financial and other resources; facilitate communication and engagement with key stakeholders; and assist the Bureau in meeting its mission.*

Delivery strategy:
The Corporate Services portfolio provides guidance, coordination and corporate services to support the Bureau's operations. Its functions include strategic planning, finance and budgets, corporate real estate, human resources, corporate communication, library and legal services.

The work of the portfolio is delivered through three programs:

- Finance and Budget;
- Strategy, Parliamentary, International and Communication; and
- People Management.

Corporate Services also supports the entire Bureau through an Enterprise Portfolio Management Office, Enterprise Business Systems team, Property Management team and Business Development team. The Bureau is a highly distributed organisation with almost half of the Corporate Services budget relating to property operating expenses. In 2014–15 property-related payments were made at 332 sites which house operations and equipment, including for observation, computing and data-communication purposes. Staff are accommodated at 72 of these sites.

Resources

Appropriated resources	$21.851m*
Property operating expenses	$25.533m*
WMO and IOC-UNESCO contributions	$1.783m*
Externally-generated resource	$1.000m
Asset investment and replacement	$6.970m

** Excludes depreciation*

Performance monitoring and measurement

The Bureau's performance is measured and assessed against its achievement of the deliverables and KPIs contained in the Portfolio Budget Statements for the Environment portfolio.

The deliverables and KPIs below are taken from the 2015–16 Portfolio Budget Statements (Budget Related Paper No. 17). Due to the Bureau's primary role in service delivery and the enduring nature of its purpose, these rarely change. However, the techniques and evidence used to measure the Bureau's performance will be enhanced from year to year, and will be updated in successive Corporate Plans.

The Bureau draws on a range of evidence to measure its performance, in an attempt to provide an informative and meaningful performance story. A range of quantitative measures are used to indicate that the Bureau's information is successfully captured, that products and services meet quality standards, that services are accessible at all times, and that services benchmark well against the agency's previous performance and that of other national meteorological services (where information is available). Qualitative information is largely derived from user surveys and feedback that indicate users' level of satisfaction with the Bureau's products and services—going some way towards identifying the impact of our work.

In most cases, no single deliverable is the responsibility of an individual Bureau portfolio group, as the production and dissemination of deliverables requires the interaction of two or more portfolios working together for efficient and effective service delivery. Over the period 2015–2020, the four key strategies of the Bureau's Strategic Plan will guide the Bureau's decisions on how best to meet the deliverables and performance measures that it has committed to provide to Australia.

DELIVERABLE: **Take and gather observations of weather, water, ocean, marine, solar, space and atmospheric conditions.**

KPI: **Observations meet accuracy, timeliness, completeness, coverage and accessibility specifications.**

Evidence:

- Uptime (availability) of key observing equipment (radars, automatic weather stations, wind profilers) and networks (Tsunami) exceeds 95 per cent.
- 95 per cent of scheduled observations from Bureau satellite stations are received and pass quality checking.
- 95 per cent of scheduled marine observations are available to users.
- Uptime (availability) of space weather network observations exceeds 95 per cent.
- Uptime (availability) of the flood warning observations network exceeds 90 per cent.

DELIVERABLE: **Prepare and disseminate weather, water, ocean, marine, solar, space and climate variability forecasts to the Australian community and key sectors, including emergency services, aviation, the Australian Defence Force, maritime, agriculture and water management sectors.**

KPI: **Forecasts meet accuracy, coverage and timeliness specifications, and are used extensively, and satisfy users.**

Evidence:

- 99 per cent of routine weather forecast services are delivered as scheduled.
- The Bureau's ACCESS weather forecasting model performs amongst the leading global forecasting models.
- Weather forecast and information services meet target accuracy standards based on forecast verification (the statistical comparison between forecast and actual observed conditions).
- Seasonal climate predictions are issued on schedule and demonstrate statistical skill.
- Streamflow forecasts are issued on schedule and demonstrate statistical skill.
- 90 per cent of users are satisfied or very satisfied with the accuracy, coverage and timeliness of Bureau's weather and marine forecast services, as indicated by ongoing surveys and feedback.
- 90 per cent of aviation and defence users are satisfied or very satisfied with the Bureau's forecast products, as indicated by feedback and surveys.
- Increasing use of forecast products is indicated by web statistics.

DELIVERABLE: **Issue official warnings for heavy rain, hail, strong winds, floods, tropical cyclones, bushfire weather, heatwaves, volcanic ash, heavy seas, tsunamis, air turbulence and space weather disturbances.**

KPI: **Warnings meet accuracy, timeliness and coverage specifications, and are effective in influencing responses to impending critical events.**

Evidence:

- Weather, ocean and hazard warning services meet target accuracy standards based on verification (the statistical comparison between forecast warning and actual observed conditions).
- Flood warnings meet standards specified in relevant Service Level Specifications in relation to the accuracy of flood height predictions, the timing of flood peaks, and flood classification predicted.
- Timeliness (measures under development—to be identified from the Bureau's verification project).
- Key emergency services stakeholders are satisfied with the accuracy, timeliness and coverage of warnings—as indicated by feedback, post-event analysis and event debriefs.
- Event-related coronial inquests and commissions of inquiry find that the Bureau's warning services were appropriate.

DELIVERABLE: **Provide and maintain public access to national weather, water, ocean, climate and space weather data sets and information.**

KPI: **Data and information meet accuracy, timeliness and coverage specifications and satisfy users.**

Evidence:

- 95 per cent of climate and water data is ingested and quality-controlled within the prescribed period.
- 90 per cent of specialised climate service requests are completed within ten working days of receipt of payment.
- Increased uptake and usage of online climate and water data and information services is achieved, as indicated by web statistics.
- 85 per cent of users are satisfied or very satisfied with the accuracy, timeliness and coverage of the Bureau's information products, as indicated by feedback and surveys.
- 99 per cent availability of public access to data sets and information is maintained, as measured by uptime of the Bureau's website.
- The National Water Account is released within 12 months of the end of the reporting period, and contains more than 85 per cent of Australia's total water usage.
- Bioregional assessments for six priority bioregions and 13 sub-regions are delivered to the time, quality and scope requirements specified in the project agreement.

DELIVERABLE: **Provide advice on Australia's weather, water, ocean and climate matters.**

KPI: **Accurate and timely advice effectively informs decision-making and satisfies the needs of stakeholders and users.**

Evidence:

- Severe weather and critical event briefings and advice provided before and during emergency events satisfy the needs of emergency services and the government's Crisis Coordination Centre, as indicated by surveys and feedback.
- Climate and water advice, reports and briefings satisfy the needs of key decision makers and stakeholders, as indicated by surveys and feedback.
- Outputs and advice provided through the Drought Analysis Project support the Commonwealth's Drought and Drought Recovery Concessional Loans Scheme, as indicated by feedback from the Department of Agriculture and other stakeholders.
- Timely information and advice on weather, water, oceans and the climate is provided to the general community through a range of means, as measured by the number of specialist media interviews; the number of social media posts and corresponding user engagement; and participation in information and safety campaigns.
- The quality of the Bureau's scientific expertise is recognised nationally and internationally.
- The provision of specialised services and advice satisfies users and meets the Bureau's revenue targets.

DELIVERABLE: **Undertake operational research and development leading to efficiency and effectiveness improvements in the Bureau's weather, water, ocean and climate services.**

KPI: **Increased accuracy and capacity of the Bureau's products and services, and increased levels of stakeholder satisfaction.**

Evidence:

- Milestones in the supercomputer replacement project are achieved in accordance with the implementation plan.
- Milestones in the development of the Bureau's ACCESS forecasting model (APS 3 suite) are achieved as planned.
- The next generation Hydrological Forecasting System (HyFS) is implemented according to schedule and improves flood forecasting capability.
- The Advanced Storm Surge system is implemented according to schedule and improves storm surge prediction capability.
- Multiple apps will be developed across Windows, iOS (including Apple Watch) and Android platforms and deliver an average rating of four stars in each app store.
- User needs are met through the release of five new products or online tools that provide access to new information or allow it to be accessed in new ways.
- Further automation of the surface and upper-air observation network, and scheduled technology upgrades to the Bureau's radar network, are undertaken as planned.
- Systems and processes for the reception and use of data from the Japanese Himawari-8 satellite are implemented as planned.

DELIVERABLE: **Participate in international collaboration to meet Australia's obligations under the World Meteorological Organization, International Civil Aviation Organization, Intergovernmental Oceanographic Commission of UNESCO and International Maritime Organization.**

KPI: **Australia's interests are protected and advanced through effective engagement and the maintenance and development of international agreements that deliver improved outcomes for Australia.**

Evidence:

- The Bureau maintains active agreements with strategically important counterpart agencies overseas.
- Bureau staff hold senior positions on strategically important intergovernmental and other international bodies.
- The Bureau maintains a high level of participation and influence in intergovernmental bodies (such as WMO) that develop and implement international standards and protocols in weather, climate, water and related environmental fields.
- The Bureau's operational needs are satisfied by the quantity and coverage (spatial and temporal) of mission-critical, real-time meteorological and related environmental data and information received from other countries.
- The Bureau meets its commitments in relation to the exchange of real-time meteorological and related data and information.

Capability

The capability of the Bureau is complex and wide ranging, and enables it to meet its remit of being Australia's national weather, climate and water agency. Over the term of the Plan there are key areas where the Bureau is consolidating, enhancing or changing its capability to keep pace with the changing needs of users and ensure future sustainability. Capability will be enhanced in line with the four strategies of the Strategic Plan 2015–2020. This capability section outlines the Bureau's current capability and identifies enhancements or changes that are planned for the 2015–16 year and the outlook period (2016–17 to 2018–19) in seven key areas:

- People
- ICT, data and information
- Asset management
- Sustainability of forecast service delivery
- Business development
- Research and development
- Observations

People

> 'Our people are our greatest asset. Having the right people bring their skills and experience to the right jobs is essential to our success'
>
> -- CHRIS STOCKS, ASSISTANT DIRECTOR, PEOPLE MANAGEMENT BRANCH

Current capability

The Bureau's diverse, committed workforce of more than 1600 employees across Australia, its offshore islands and Antarctica is central to the delivery of its products and services. The Bureau has responded to the need for new products and services by building and sustaining workforce capability across a broad range of scientific, technical and ICT roles. Highly trained professionals and technical specialists collaborate to deliver the Bureau's services around the clock, every day of the year. The workforce profile includes 19 job families, of which nine include highly specialised skill sets. Levels of job engagement are high, with strong team interactions, supervisor engagement and agency pride facilitating a modern and high performing business.

Representation of women at the Bureau is lower than the APS average (29 per cent, compared with closer to 60 per cent in the APS), although in the last five years representation at the SES, EL2 and EL1 levels has been increasing faster than the APS average. The Bureau employs people from more than 75 different countries of birth and 22 per cent of its workforce is from non-English speaking backgrounds. The percentage of people with a disability is around the APS average of 3 per cent, and employment of Aboriginal and Torres Strait Islander people just under 1 per cent. The Bureau has a Workplace Diversity Program underpinned by its Reconciliation Action Plan, Agency Multicultural Plan and the recently released Disability Strategy and Action Plan 2015–2020. These help the Bureau to better attract and harness the talents of the diverse Australian community.

In the future, new models of business operation are required to meet the increasing demand for new products and services in a more sustainable way. The Bureau is focused on driving business performance by enhancing the agility, adaptability, skills and affordability of its workforce. Talent attraction and retention is a significant challenge within Australia's ageing population and a competitive market-place for scientific, technical and ICT professionals. The Bureau is responding with a focus on learning and development programs to meet emerging skill requirements, ensuring the Bureau's people are always safe and are well trained to meet the demands of their work.

Capability development

2015–16

In 2015–16 the Bureau continues to focus on attracting talent and aligning the skills and aptitudes of its people, with organisational requirements through learning and recruitment programs and facilitating a positive and collaborative workforce culture. The Bureau is committed to ensuring the health and safety of its people. Specifically, the Bureau is:

- developing Strategic Workforce Plans and analytics for critical job families and job roles that define demand, supply and gaps—to identify strategies and actions to enhance innovation and delivery of products and services;
- developing a talent attraction strategy and strong talent pipeline—supported by partnerships across the APS, tertiary and secondary education sectors;
- developing a new Workplace Diversity Program and underpinning strategies and action plans to meet strategic business and talent management objectives for 2015–2020;
- enhancing the continuous improvement culture in which all employees have agreed performance, learning and career plans that are supported by regular feedback and conversations with their managers;
- implementing organisational development action plans based on the annual employee census;
- embedding work health and safety initiatives around mental health, fatigue and driving; and
- through its training centre, continuing to enhance training programmes (including online training capabilities) in high-priority areas—including frontline forecasting through the Graduate Diploma in Meteorology, ICT, competency-based training and leadership training.

Three-year outlook (2016–17 to 2018–19)

In the forward period the Bureau is focusing on creating a transformative talent management strategy to have the right people connecting and collaborating to support the Bureau's aspirations. To achieve this, the Bureau is:

- identifying areas of future job role change and developing talent management processes (talent attraction, learning, performance, retention, succession and career planning) to support business transformation;
- growing the next generation of leaders by providing more opportunities on the job to increase leadership and management capabilities;
- building and adopting an integrated talent management model, supported by technology-enabled user applications, that will support the Bureau's business; and
- implementing blended learning—a combination of traditional and digital based learning opportunities—to ensure the future sustainability of the training budget.

ICT, data and information

> 'These days, an organisation that does not "do" IT well—that is, by integrating it fully into its operations and achieving its potential—will not succeed in meeting its objectives or expectations.'
>
> -- DR LESLEY SEEBECK, DEPUTY DIRECTOR, INFORMATION SYSTEMS AND SERVICES

Current capability

The Bureau is a technology organisation. Its ICT is diverse and complex and is essential to its operations on a 24/7 basis. ICT in the Bureau encompasses communication networks, high performance computing, data and information systems, platforms and applications—as well as desktops, servers, video conferencing and telephony technology that enable business. As an example of its complexity, the Bureau has 193 operational applications, 41 of which are classed as Category 1—a system whose failure has immediate and serious impact on essential Bureau operations and services, including external organisations.

The Bureau's website is the most popular in government and is the agency's primary product delivery vehicle. 13 000 of the Bureau's 15 003 products are delivered online. In 2014, the website had 533 million users and comprised around 1.9 million pages. In recent years, the Bureau has moved successfully into social media to help meet an increasing user appetite for digital service delivery. The Bureau completed a realignment project in 2013–14 to create a new Information, Systems and Services Division—consolidating the ICT function across the agency and improving operation and service delivery capacity.

The Bureau was allocated funds in the 2014–15 Budget to replace its existing supercomputer. The replacement supercomputer will become operational by mid-2016 and will be accompanied by additional investment in the Bureau's remotely located disaster recovery system and data storage capability. Supercomputing is essential to allow the Bureau to run a suite of sophisticated weather models to make forecasts and warnings for the nation. The new supercomputer is a strategic investment by Government that will see service improvements in accuracy, timeliness, certainty and responsiveness. The supercomputer's implementation will be managed as six projects, each with its own project executive and project manager, delivered through an integrated programme led by the Deputy Director, Information Systems and Services.

Data volumes are increasing exponentially, with the launch of high-resolution satellites (such as the Japanese Himawari-8 and -9) and enhancements in scientific modelling. Increasing data volumes will improve the accuracy and resolution of forecasts. The Bureau is addressing the challenge of managing the data value chain and ensuring that this national asset is leveraged to generate the best value for the Bureau, government and the community. The Bureau collects, processes, analyses, shares and preserves data from more than 6000 observation sites, satellite data, data generated by third parties and data created by running scientific models. It encompasses meteorological, hydrological, solar, oceanographic and space measurements across Australia and internationally. The Bureau's observation sites are connected with the Weathernet communications system, which transfers data to the Bureau's ingest and processing systems. The Bureau has over 4500 Terabytes of data storage.

Capability development

2015–16

2015–16 will be a year of transition in which the Bureau reviews its ICT strategy, structure, activities and process to be data-centric and user-focused. The Bureau is working through issues associated with consolidation of legacy systems and back-end ICT infrastructure. A roadmap for change is being developed, focusing on clear user needs and emerging technology drivers and capabilities, establishing performance metrics that reflect increased efficiency, effectiveness and agility and looking for opportunities to drive business for the Bureau. Specifically, the Bureau will:

- consolidate and strengthen back-end ICT infrastructure and legacy systems to support a more fast-paced, adaptive and user-oriented front-end;
- successfully implement the new supercomputer and enhancements to existing and new products made possible by improved spatial and temporal resolution of Himawari-8;
- enhance skills and capabilities of the ICT workforce to increase its flexibility;
- streamline the ICT structure to provide 'line of sight' from planning, to building, to operations;
- maintain effective governance, change management and investment business processes; and
- ensure business continuity and security to ensure the Bureau's systems are robust and resilient.

Three-year outlook (2016–17 to 2018–19)

Building on a consolidated and robust base, the focus in the three years after 2015–16 is to deliver ICT activities by:

- building a stable and secure ICT core comprising the appropriate and sustainable mix of in-house and as-a-service capability;
- ensuring the data value chain is coherent, robust and funded appropriately;
- focusing on secure digital delivery of services and products that are focused on user needs; and
- generating revenue from ICT resources, including through shared services with business and partners.

Asset management

> 'Improved asset management information such as life cycle assessment and extension, management of risk exposure and efficiency is key to the Bureau ensuring that its large asset base is in good shape and is providing the best value possible in support of products and services'
>
> -- DR SUE BARRELL, DEPUTY DIRECTOR, OBSERVATIONS AND INFRASTRUCTURE

Current capability

To deliver its services to the Australian public, the Bureau manages an asset base valued at $528 million, excluding inventories and cash, prepayments and receivables. Major asset categories include $122 million in land and buildings, $355 million in property, plant and equipment and $52 million in intangible assets. The Bureau's significant asset base is ageing and depreciating, leading to a continued challenge around ensuring that available resources are used to deliver optimum value products and services for users.

The Bureau's Asset Programme Board (Asset Board), established in 2014, is the key governance mechanism for capital expenditure projects in the Bureau. It recommends an enterprise programme of project expenditure to the Bureau Executive, and monitors delivery against the programme in cooperation with divisions and projects. Priority is given to projects that are required for legislative compliance or to keep existing services running, with additional consideration given to projects that are contractually committed, have strategic value or would lead to greater efficiencies and future cost savings (see Figure 3). Linkages and interdependencies between projects are also considered.

Two systems currently provide the intelligence used by the Bureau to maintain its asset base: SitesDB is an application designed to support the gathering of observations metadata, maintenance processes and reporting. The Bureau also maintains an asset register, which is a critical component of the financial asset management process. Investigation is underway into options to improve asset management systems and provide enhanced management information such as life cycle assessment and extension, management of risk exposure and efficiency.

Capability development

2015–16

In 2015–16 the Bureau is focused on asset governance and planning for system improvement, including bedding down improved asset governance arrangements and developing an investment roadmap and business case to address the Bureau's asset management and station metadata needs.

Three-year outlook (2016–17 to 2018–19)

Beyond 2015–16 further improvements are to be made in the way the Bureau manages its asset base. Central to these will be implementation of an asset management and station metadata system replacement to improve planning and monitoring intelligence. This system will enhance informed decision-making and ensure that asset maintenance activities are aligned with the most critical service areas.

Asset investment portfolio 2015–16 to 2019–20

The Bureau's asset investment portfolio over the period 2015–16 to 2019–20 addresses both the maintenance of the Bureau's existing capability and strategic improvements in priority areas. The priorities are outlined in the 2015–16 to 2019–20 Capital Management Plan submitted to the Department of Finance in January 2015, and are reflected in further detail in the Bureau's own internal planning.

Key investment in strategic improvement areas include:

- enabling interoperability and increasing automation of forecast platforms;
- the next generation of weather, flood, ocean and space forecasting services;
- investment required to reduce the Bureau's property footprint;
- building an Electronic Data Records Management system and improving back-office processes;
- improved water intelligence information suite to facilitate user decision making;
- improving the robustness, resilience, security and plasticity of computing infrastructure;
- enhanced digital interaction capability, including through improved website and mobile experiences;
- improvements to ageing radars and increasing automation of observing systems; and
- Himawari-8 satellite data streams and the infrastructure upon which the successful utilisation of these will depend.

These are in addition to maintenance of existing capability (e.g. sustaining the observing system) and improvements such as a storm surge prediction system.

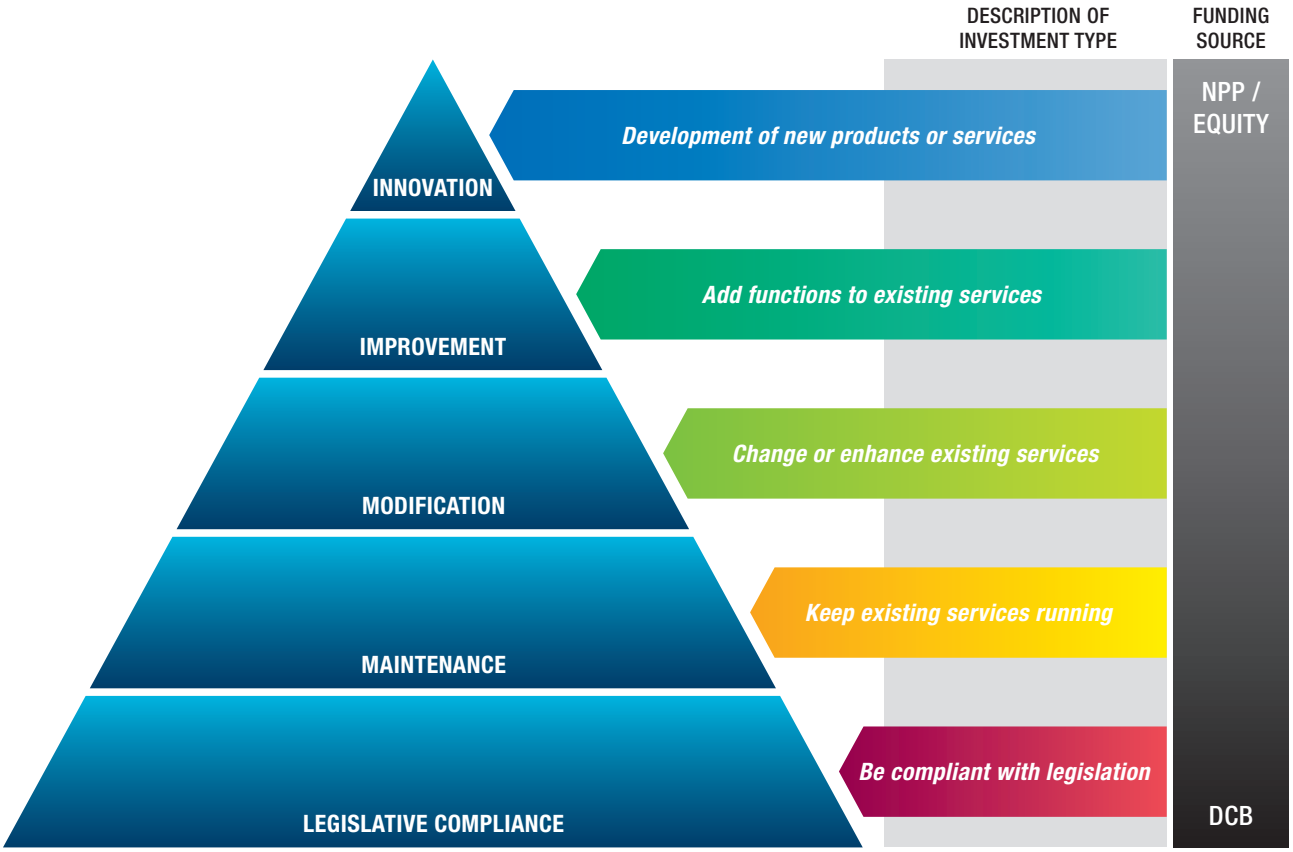

Figure 3. Investment Pyramid for the Bureau's Assets (where NPP = New Policy Proposal and DCB = Departmental Capital Budget).

Sustainability of forecast service delivery

> 'The Bureau will best serve the Australian community if it can do so on a sustainable footing. It is essential that we consider new ways to ensure our ability to meet user demand is robust, particularly during multiple and protracted severe weather events across Australia.'
>
> -- DR RAY CANTERFORD PSM, DEPUTY DIRECTOR, HAZARDS WARNINGS AND FORECASTS DIVISION

Current capability

The Bureau currently operates 24/7 forecast services from each of Australia's capital cities other than Canberra. Brisbane, Sydney, Melbourne, Hobart, Adelaide, Perth and Darwin each have a 24/7 Regional Forecast Centre (RFCs) that produces most Bureau products and services for the State or Territory. These include forecasts and warnings, consultation, media, and interpretation services to stakeholders in that State or Territory. The ACT is serviced by the New South Wales regional office in Sydney.

NexGenFWS has been implemented over the past five years and has significantly improved seven-day local forecasts across Australia to the quality, coverage and accuracy that was previously only possible in capital cities. This system is run from each RFC and almost 700 Australian towns and cities now receive detailed seven-day forecasts (compared to a handful in 2009). This has been a major boost to Bureau services for rural communities.

With an increasing incidence and severity of extreme weather, continuation of the current service delivery model is stretching the Bureau's ability to maintain the staff, systems, ICT and corporate resources required to underpin the full range of services from seven RFCs. In addition, the increasing preference of customers for digital delivery of Bureau products and services indicates increasing demand for real-time information at the local level, rather than a focus on where the forecast is generated.

Capability development

2015–16

Delivery of forecasts and warnings to stakeholders across Australia is a core element of the Bureau's purpose. In 2015–16, the Bureau is investigating ways to change and improve its service delivery model to ensure the sustainability of this service. In 2015–16 the Bureau will involve:

- workshopping alternative delivery models;
- testing recommended models, including cost outlays, system development and staffing configurations that would be required for any changes; and
- planning implementation of the chosen model.

Alternative delivery models may include consolidation of production of all or of specialised forecasts with corresponding changes to the Bureau's national footprint and mode of operations. A strong focus will remain on enabling high value services, liaison and business development within each State and Territory.

Three-year outlook (2016–17 to 2018–19)

The three-year period from 2016–17 to 2018–19 will see any planned changes to the Bureau's service delivery model start to be implemented. The timetable for implementation will depend on the scale of the changes.

Business Development

> 'Business development opportunities will enable us to extend the national impact of our services by meeting the needs of specific industry sectors.'
>
> -- DR ROB VERTESSY, DIRECTOR AND CEO

Current capability

In 2014–15 the Bureau earned over $77 million in externally generated revenue. In the same year the Bureau further enhanced its business development capability through the formation of a Business Development Unit and implementation of a Business Advisory Panel providing external advice to the Director. Currently, market demand for environmental intelligence exceeds the agency's capacity to service it. Cost-recovered and commercial revenue earned from business development opportunities enables the Bureau to extend the national impact of its services by meeting the needs of specific industry sectors.

Key sectors initially targeted for increased business development activity include resources, Defence, international capacity building, aviation and State and Territory governments. Tailored services will include the full breadth of capability from information and forecasting services, training, expert advice and network management of observing infrastructure. The Bureau's business development strategy takes into account factors that will impact success, including changes in global and domestic market conditions, availability of new technologies, customer expectations and government policies.

This more focused approach is beginning to bear fruit through the successful delivery of several new business opportunities in 2014–15. Policies and procedures have also been established that will enable better management of business opportunities that are pursued in the future.

Capability development

2015–16

In 2015–16 the Bureau is striving to embed the business development culture further into its day-to-day operations, and to focus on the opportunities for tailored sector support that the capability offers.
This will involve:

- continuing to proactively grow revenue, particularly in focus sectors;
- proactively managing opportunities;
- implementing and refining strategic relationships; and
- empowering senior managers and staff through skills development and access to business development tools to become accountable for delivery of business development opportunities within their areas.

Three-year outlook (2016–17 to 2018–19)

The three-year period from 2016–17 to 2018–19 will be a period of maturing and consolidating business development within the Bureau, so that it becomes an integral aspect of its services. This will involve:

- marketing the Bureau's capabilities to potential customers in the government, international and private sectors;
- continuing to grow and nurture opportunities for sustainable revenue growth;
- developing new products and capabilities to meet customer needs; and
- strategically managing and growing key customer relationships.

Research and Development

> 'Collaboration with national and international institutions is critical to maximising the value of the Bureau's investment in R&D and to meeting the Bureau's strategic R&D needs'
>
> -- DR SUE BARRELL, A WAY FORWARD FOR R&D IN THE BUREAU, SEPTEMBER 2014

Current capability

Research and Development (R&D) in the Bureau addresses high-priority service needs by building a national capability in weather, climate, water and ocean prediction. The development of the Bureau's underpinning numerical weather, ocean and climate prediction model—the Australian Community Climate and Earth System Simulator (ACCESS)—continues to produce advances in weather forecasting, ocean forecasting and climate prediction. The Bureau is also continuing to improve its understanding of atmospheric processes through modelling and observation, and is applying this knowledge to weather and climate prediction systems for advanced forecasting and environmental services. This includes prediction and monitoring of severe weather and environmental hazards, and seasonal and long-term climate patterns.

Research delivery is enhanced through the joint Bureau–CSIRO Collaboration for Australian Weather and Climate Research (CAWCR) and the Water Information Research and Development Alliance (WIRADA), also with CSIRO. Participation in Cooperative Research Centres and engagement with universities in Australian Research Council (ARC) funded projects and the ARC Centre of Excellence for Climate System Science also complements the Bureau's research agenda. Reducing external R&D revenues, and an ongoing requirement for efficiency, mean that demonstrating value and harnessing innovation in R&D is essential. R&D both supports existing services and expands capacity in growth areas such as business development.

A review of the Bureau's R&D arrangements was completed in 2014. The Director's response to this review included 23 actions, the majority of which are due for implementation by the end of 2015. Most were practical actions focused on engagement, communication, strategy, governance, accountability and process. The review concluded that collaboration with national and international institutions, including CSIRO, is critical to maximising the value of the Bureau's investment in R&D and to meeting its strategic R&D needs. This collaboration is to be more closely aligned to the Bureau's system and service areas (i.e. weather, climate, water, environment, oceans, observations, information) and based on the needs of end-users.

Capability development

2015–16

In 2015–16 implementation of the actions arising from the 2014 R&D review is a key focus. Improving 'line of sight' from R&D investment to the delivered benefits, and management of the end-to-end research process from planning and priority setting (in line with the Bureau's strategic needs) is a priority. Enabled by the Government's investment in the Bureau's new supercomputer, the Bureau will:

- develop a five-year R&D strategy including an investment model to continue to deliver systems and techniques for Bureau services and meet stakeholder and community needs;
- continue to invest in high-resolution weather, ocean and seasonal models to improve services—including a roadmap for the further development and implementation of ACCESS in the Bureau, and improvements in the resolution of the Bureau's seasonal prediction model;

- continue to work with research and governmental partners on climate variability and change—including analysis of Australia's climate drivers (such as the El Niño–Southern Oscillation), as well as drought and severe weather events;
- continue to invest in water resources research through WIRADA, with a focus on international standards in water data services and data exchange, seasonal and short-term streamflow forecasting, and improved analysis and assessment of continental-scale streamflows and water balances;
- improve governance across all aspects of the R&D program, from programme/project management to strategic oversight;
- implement a more structured and staged process for the transition of research outputs into operations;
- identify research needs for key Bureau changes such as the sustainability of forecast service delivery and business development; and
- renew agreements with research partners, implement improved management positions within the Bureau's R&D structure and implement an R&D Oversight Board.

Three-year outlook (2016–17 to 2018–19)

The key R&D capacity development activities between 2016–17 and 2018–19 are enabled by increased supercomputer capabilities and guided by the content of the R&D strategy, ACCESS roadmap and priorities around the Bureau's core capability development areas. Better understanding of the Earth's fundamental physical processes and the use of advanced observational techniques will improve the Bureau's modelling capability and increase the utility and utilisation of products and services. Research and innovation will contribute to increased efficiency of service development and delivery, through effective translation of research outcomes into operations and increased automation and streamlining enabled by models.

Observations

> 'We're living in a fast-changing world and it's really important that our workflows and service offerings adapt. I think that reinventing our observing systems is going to be key to that challenge.'
>
> -- DR ROB VERTESSY, DIRECTOR OF METEOROLOGY AND CEO

Current capability

The Bureau invests a significant proportion of its resources in the taking and recording of observations that underpin warnings and weather forecasts, climate services and water information. It strategically plans, builds and operates the observing network and maintains significant technical, engineering and science capability. Meteorological, hydrological, oceanographic and space weather observations are taken from 51 staffed offices, 60 weather surveillance radars, 685 automatic weather stations, and more than 12 000 other data collection units across Australia, its offshore territories and Antarctica. This network is supplemented and enhanced by globally distributed observations shared freely by international meteorological and space agencies, including data from 14 satellites operated by international partners.

Over the past two decades, the coverage and number of observations have grown significantly, with the configuration and management of the observations network also evolving. Over the past 30 years observations have increased from around two million to over 20 million each day and meteorological satellite advances give the Bureau capability to cover all of Australia and its surrounding oceans. Into the future, further change will be required to ensure a modern and efficient observing system. Challenges include the increasing demand for services, evolution of technology, workforce practices and capabilities, and an ageing and depreciating asset base within the context of tightening resources. Recognising these challenges, the Bureau released its Observing System Strategy for 2014–2020 and Beyond, which was based on a range of strategic studies and reviews. The strategy investigated the full range of user observation needs, and audited existing infrastructure and supporting capabilities. Addressing key structure themes of people, services, management and enabling systems, the strategy articulates a vision of the network that is:

- supportive of staff and their future career aspirations and opportunities;
- integrated with other agency networks to increase the overall service level to the nation;
- structured for external investment;
- tiered and tailored to maximise high-value delivery and minimise costs;
- streamlined for sustainability;
- automated wherever possible; and
- agile and responsive to technological advancements.

Capability development

2015–16

In 2015–16 the implementation of the Observing System Strategy continues with key activities being:

- completion and finalisation of the outcomes of staffing reviews and workforce planning for field officers;
- completion of implementation plans and communication strategies for third-party data, recruiting additional stations into the third party network and enhancing the Weather Observations Website (WOW);
- developing an investment plan for further automation of the surface and upper-air network and technology upgrades to the Bureau's radar network;
- contributing to research regarding the value of observations to the Bureau's numerical weather prediction models; and
- developing an implementation plan for the Network Tiering Framework developed under the Network Tiering Review.

Three-year outlook (2016–17 to 2018–19)

Building on the achievements of 2015–16, continued implementation of the Observing System Strategy will see strategic actions taken around the people, services, management and enabling systems that creates a modern, efficient observing system that leads to improvement in service levels, a lower cost of operating, and higher levels of staff satisfaction.

Risk oversight and management

> 'The threat of fraud is becoming more complex. The Bureau's increasing focus on the delivery of services online, and the secure storage of digital records and personal data creates opportunities for cybercriminals operating both in Australia and overseas.'
>
> -- DR ROB VERTESSY, DIRECTOR AND CEO IN HIS INTRODUCTION TO THE BUREAU'S FRAUD CONTROL PLAN

Introduction

The Bureau's comprehensive risk oversight and management framework provides a backdrop for ensuring accountability and compliance, whilst empowering well informed decision-making. The framework contributes to the safety of the Bureau's people and the continuity and quality of its services. The framework comprises risk management, business continuity, financial compliance, fraud control, quality management, a work health and safety management system, and an independent auditing function.

Risk management

The identification and management of risks is inherent in the Bureau's work. Risk management is integrated into planning and decision-making at all levels in the Bureau. All staff are responsible for risk management and are familiar with and competent in the application of the Bureau's Risk Management Policy. Accountability for the policy's implementation is shared by staff within their areas of responsibility.

The Bureau maintains comprehensive risk registers at the Enterprise, Program, Project and Regional levels, which are reviewed regularly as part of the overall planning process. The Bureau of Meteorology Audit Committee provides independent advice and assurance about the appropriateness of the Bureau's system of risk oversight and management. The Bureau Risk and Business Continuity Committee is responsible for the oversight of day-to-day risk management and business continuity within the Bureau. The Bureau participates in the Comcover Risk Management Benchmarking process each year. The Bureau consistently scores well above the APS average and the most recent benchmarking report rated the Bureau as 'Structured' (the second highest level attainable), whilst the average risk management maturity result for all APS agencies is rated as 'Top Down' (the third highest level).

Risk management enables the Bureau to target and optimise the limited resources available to best manage the risks encountered when carrying out Bureau business and delivering Bureau projects. This means that informed decisions can be made with sound consideration of the risks involved.

Business continuity

Business Continuity Management is a key process that identifies, in advance, the potential impact of disruptions to the Bureau's services. The Bureau has a strong record of managing such events, however, in an environment of increasing demand for services, tailored and up-to-date Business Continuity Management processes enhance the agency's ability to maintain essential services during periods of disruption, ensure resumption of services in an organised and efficient manner and respond to any additional service requirements that may arise from the cause/s of the disruption.

A Business Continuity Management policy, supported by business continuity plans and procedures at the program and regional level, have been established to ensure the Bureau will continue to provide critical services to the communities of Australia during and following business disruption. Oversight of business continuity processes are the responsibility of the Risk and Business Continuity Committee that meets, on average, four times a year and is made up representatives from the Executive, Programs and a Region.

The Bureau also has an incident reporting policy supported by a 24/7 incident reporting hotline to ensure early notification of incidents to the Executive and senior managers.

Financial compliance

In order to meet the requirements of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act) and the PGPA Rules, in addition to other Commonwealth policies, the Bureau provides officers with a suite of comprehensive information and advice on financial management practices. This advice, in the form of Accountable Authority Instructions (AAIs) and operational guidelines, interprets relevant legislation and enables Bureau staff to undertake financial activities within legislative requirements. The Bureau administers financial delegations under relevant legislation to ensure that the appropriate officers have been provided with the level of authority necessary to discharge their financial and other official responsibilities.

The Bureau's Certificate of Compliance process provides assurances that all relevant resources are managed in accordance with the PGPA Act. Nominated officials submit three periodic surveys reporting compliance with the PGPA within their area of responsibility. Surveys are reviewed by the Audit Committee prior to a submission of an annual report by the accountable authority to the Minister for the Environment and Minister for Finance.

The Bureau's financial statements are reported upon annually in its annual report, are developed in line with relevant legislation and accounting standards and are independently audited.

Fraud control

The Bureau's fraud control plan clarifies the responsibilities and obligations of managers and staff in the prevention, detection and investigation of real or suspected fraud. Managers and staff are required to consider fraud, including ICT security, as part of risk assessments at the program and project level and ensure that steps are taken to mitigate any exposure of the Bureau to fraud.

Quality management

The Hazards, Warnings and Forecasts Division (HWF), through the Quality Assurance and Governance Unit, has commenced extending its adoption of quality management across all its programs and functions. HWF has adopted the International Organization for Standardization (ISO) Quality Management Standard AS/NZS ISO 9001 for its Quality Management Systems (QMS). It has already achieved certification of compliance for its Aviation Weather Services (including Head Office, Sydney Airport Meteorological Unit, National Operations Centre Meteorological Office, and the Volcanic Ash Advisory Centre and Marine Weather Services). The Meteorological Authority in Corporate Services Division has also achieved ISO 9001 certification compliance. The development and implementation of QMS for the Defence Weather Services, Commercial Weather Services and Western Australia Regional Forecasting Centre are well underway. The Bureau's current external certification body is Lloyd's Register of Quality Assurance—a world-leading independent provider of business assurance services.

The benefits of adopting a quality management approach to the delivery of services relate to operational resilience and public transparency and include (but are not restricted to):

- independent auditing for enhanced quality assurance and customer satisfaction;
- embedded continual improvement to business processes;
- improved internal and external communications; and
- enhanced Bureau credibility and reputation nationally and internationally.

Observations that are generated within Bureau network are taken in line with international and/or national measurement standards. Quality assurance is applied through the design, implementation, documentation, training and verification methodologies. For those measurements not required for real-time operations extensive quality control is applied by the Observations and Infrastructure Division to the measurement streams before distribution to users. Planning is underway to restore and expand accreditation under ISO 17025 (which incorporates ISO 9001 but requires technical competencies) for laboratory based testing, verification and calibrations. The quality control of real-time surface meteorological and sea level data currently being undertaken in the Information Systems and Services and Hazards, Warnings and Forecasts Divisions is being examined to determine if it can provide feedback to the Observations and Infrastructure Division to improve site and measurement network performance.

Given the integrated nature of IT, the Information Systems and Services Division contributes to quality management across the Bureau. Recent governance initiatives from the Information Systems and Services Division, including the establishment of a Bureau IT Investment Steering Committee and Architecture Board, and improvements in IT service management and security, also contribute to the quality framework.

Work health and safety management system

The Bureau has zero tolerance for workplace injury or harm. The Bureau's work health and safety (WHS) management system is guided by a work health, safety and well-being statement of commitment policy, a three-year strategic plan (2013–14 to 2015–16) and underlying yearly operational plans that outline specific objectives, initiatives, actions and benefits.

The continued focus on the five objectives of leading our people, being proactive, ensuring we are properly reactive to matters that arise, educating our people and seeking to embed a safety culture at the Bureau continues to assist us to deliver a first-class system to ensure the health and safety of staff. In April 2014, the Bureau's WHS management system confirmed its compliance with the AS4801 Occupational Health and Safety Management System Standard. This was further affirmed by Comcare in April 2015. As part of their Federal Employer WHS Assessment Programme, to assess Federal Employers work health and safety policies and practices and to ensure officers meet and maintain due diligence responsibilities, Comcare deemed the Bureau 100 per cent conformant with the audit requirements.

The Bureau Executive proactively lead and empower managers, supervisors and staff to take action on work health and safety issues. Supporting them is a comprehensive suite of policies, procedures and training programs that address high risk areas. The WHS management system is embedded in the Bureau's organisational practices and is guided by a robust consultation process.

The Audit Committee

The Bureau's Audit Committee has been established by the Director in compliance with Section 45 of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act) and PGPA Rule Section 17 Audit Committees for Commonwealth Entities. The Committee provides independent assurance to the Director on the Bureau's financial and performance reporting responsibilities, risk oversight and management, and system of internal control. The Bureau's internal audit function is supervised by the Audit Committee and delivers the internal audit plan.

Budgeted financials

The Bureau's operations are funded primarily from Government appropriation. Other revenue is derived from several sources including from the sale of goods and services, projects with external organisations and other government agencies, services provided to the aviation industry, defence, and commercial services to the private sector.

The Bureau's appropriation for 2015–16 (summarised below) is outlined in the Portfolio Budget Statements of the Environment Portfolio. Also outlined below are known Budget measures that impact on the period of this Plan.

Programme expenses: Programme 1.1 Bureau of Meteorology

	Budget estimate 2015–16	Forward estimate 2016–17	Forward estimate 2017–18	Forward estimate 2018–19
Income				
Appropriation revenue from Government	210,415	216,373	183,642	185,948
Sale of goods and rendering of services	68,893	62,311	58,386	52,189
	279,308	**278,684**	**242,028**	**238,137**
Expenses				
Employee benefits	179,438	179,029	154,506	151,912
Suppliers	95,560	95,335	83,191	81,879
Depreciation and amortisation	71,622	72,519	72,519	72,519
Write down and impairment of assets	1	1	1	1
Other expenses	1,748	1,758	1,769	1,784
	348,369	**348,642**	**311,986**	**308,095**

(All figures $'000)

Budget measures impacting 2015–16 to 2018–19

Initiative	Impact by Financial Year			
	2015–16	2016–17	2017–18	2018–19
Improving Water Information Programme	31,554	36,554		
Tennant Creek radar recommissioning	–			
Targeted budget savings / public service efficiencies (2013–14 budget)	2,042	2,745		
Previous Government Response to the Munro Review (2013–14 budget)	10,801	13,675		
Supercomputer (2014–15 budget, 7 year funding) (Commercial-in-confidence – $ not disclosed)	In-confidence	In-confidence	In-confidence	In-confidence
Targeted budget savings / public service efficiencies (2014–15 budget)	3,961	3,043	2,569	
Seasonal forecasting	977	971	652	659

(All figures $'000)

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