WATER PILOT TECHNOLOGY PROGRAM

Guidelines for Applicants

MARCH 2018

1. Program Purpose

a. The NSW Government has established the Water Reform Action Plan to ensure that NSW has an equitable and transparent approach to the management of our water resources for future generations (the Action Plan can be found here www.industry.nsw.gov.au/water-reform).

The Water Renewal Taskforce within the NSW Department of Industry ('the Department') is supporting the implementation of the Action Plan, including by establishing the Water Pilot Technology Program.

The Water Pilot Technology Program is a one-off program that provides grants to public and private entities to develop pilots or proof of concepts of innovative technologies to improve and assist water regulation, compliance and environmental water protection activities.

2. Funding

a. Funding from the Department will take the form of a cash contribution following the execution of an agreement between the successful applicant and the Department.

b. Funds must be expended on activities related to the Water Pilot Technology Program including developing the concept and technology, conducting feasibility assessments, developing a proof of concept or pilot of the technology, and related activities.

c. The total funding pool is $500,000. Each successful applicant can receive up to $150,000, depending on the requested amount of funding, and the quality and quantity of applications received.

d. The Water Pilot Technology Program is a one-off program. There are not expected to be any future funding rounds.

3. Eligibility Criteria

a. Grants will be available for project activities commenced between the date of execution of the funding agreement and 30 June 2019.

b. The applicant must be based in Australia or be able to operate in Australia.

c. The applicant must be a public or private sector research organisation, university, public or private company, association or consultancy.

d. The applicant's proposed project must respond to the terms of the *Water Pilot Technology Program – Problem Statement* (Attachment A). Applicants may choose to address one of the Defined Challenges, or offer an alternative proposal which addresses the overarching Problem Statement.

e. The proposed technology must be technically feasible, and fall into at least one of the following categories:

    i. Sensors, meters and monitors, including remote sensors

ii. Software and firmware, including monitoring, image processing, reporting or modelling software
iii. Electronic hardware, or
iv. A system combining any of the above systems.

f. The applicant may submit a separate application for each proposed technology. If the technologies proposed are for an integrated system, then a single proposal is welcome.

4. Selection Criteria

a. Applications will be ranked and preference given according to the criteria outlined below. The application form seeks responses to these criteria:

i. The practical benefits of the proposed technology and the value it would add to water regulation, compliance or environmental water protection activities. These benefits will be assessed in terms of providing additional auditable, verifiable and accurate data with time and cost savings
ii. Whether the proposed technology meets the Problem Statement (Attachment A), and the monitoring, compliance or modelling capabilities it offers to the Department, (or what substantial improvement it offers to existing capabilities)
iii. The capability and suitability of the applicant to conduct or direct a pilot or proof of concept of the proposed technology including their level of experience, skillset and resources
iv. Ability for the proposed technology to meet the Technical Considerations (Attachment A) and, if successful, potentially to be implemented operationally for use by the Department and/or stakeholders with whom the Department interacts
v. Whether the proposed technology could cost-effectively be implemented state-wide, and would be practically usable by the appropriate operators, and
vi. A budget which demonstrates the efficient use of funding from the Water Pilot Technology Program and ensures that the applicant will be able to satisfy the requirements of 6(d) below.

b. The responses to these criteria will be used by the Department to determine whether to recommend funding to the applicant, and how much funding to recommend. Other information, such as in 5(k) below, may also be used to determine successful applications.

5. Application and Selection Process

a. Applications close at **9:00AM AEST, MONDAY 23 APRIL 2018.**

b. Submit an electronic version of your completed Water Pilot Technology Program Application Form and any relevant attachments to: water.technology@industry.nsw.gov.au.

c. The Water Pilot Technology Program Application Form is available at: www.industry.nsw.gov.au/water-pilot-tech-program

d. Questions outlined in the Application Form must be answered. If they are not applicable, please indicate.

e. Applicants should clearly identify in their application any information that the applicant requests be treated as confidential.

f. The application must be signed by an authorised officer of the applicant and acknowledge that the application is made with the knowledge and on behalf of all core participants referenced in the application.

g. All eligible applicants will be assessed on merit against the selection criteria. However the Department, in its discretion, may choose not to award or recommend funding to applicants under the Water Pilot Technology Program.

h. The role of the Department is to administer the Water Pilot Technology Program, including:

    i. managing the applications and program process
    ii. supporting the assessment panel
    iii. considering recommendations of the assessment panel and deciding on successful applicants
    iv. entering into funding agreements with successful applicants;
    v. making grant payments, and
    vi. monitoring grant recipients' use of funds. Grant recipients will be required to provide the Department information on how the funding was utilised. (Further details of this are shown at 6(d) below, and will be outlined in the funding agreement).

i. An assessment panel comprising representatives of the Office of the Chief Scientist & Engineer, the Department of Industry, the Natural Resources Access Regulator, the Office of Environment and Heritage and the Murray-Darling Basin Authority will:
    i. assess and rank grant applications according to the Water Pilot Technology Program's eligibility and selection criteria, and
    ii. make recommendations to the Deputy Secretary, Lands and Water, on which applicants, if any, should receive grants and the amount of those grants.

j. The assessment panel members will assess applications on a competitive basis relative to the criteria and other applications.

k. The assessment panel may seek further information or clarification regarding information relevant to the applications.

l. All applicants will be informed of the outcome of the decision on their applications, whether or not they are successful.

m. Successful applicants will be notified in May 2018, and grants will be issued by the end of June 2018.

n. Questions regarding the application and selection process may be submitted to:

    Mr Carlos Bowkett
    NSW Department of Industry
    Email: carlos.bowkett@chiefscientist.nsw.gov.au
    Phone: 02 9338 6785

o. The timetable for the application and selection process is as follows:

Friday 23 March 2018:	Applications open
Monday 23 April 2018:	Applications close
May 2018:	Applicants are notified of outcome
June 2018:	Grants are issued

p. The Department, at its discretion, may vary the timetable of the application and selection process. Should this occur, this information will be provided on the website at: www.industry.nsw.gov.au/water-pilot-tech-program

6. Funding Agreements and Reporting Requirements

a. All applicants that are successful under the Water Pilot Technology Program will accept the offer of a grant by entering into a funding agreement with the Department. The agreement will specify obligations that relate primarily to the recipient's accountability for the grant, including using the grant for activities related to the development, assessment and piloting of the technology as specified in their application, the return of any unspent grant funds, and reporting on the use of the grant. Specific project objectives and deliverables will be specified in the funding agreement.

b. The agreement must be signed by both the applicant and the Department by June 2018. The exact date will be advised to successful applicants closer to the time.

c. The agreement must be signed by an Authorised Officer of the applicant.

d. Grant recipients should provide an interim report on their projects by 3 December 2018; and a final report and a prototype or proof of concept of the technology for use by the Department by 30 June 2019. The final report would include information such as details on technical, operability, scalability, durability, security and cost-benefit characteristics of pilot technology.

e. Regular meetings will be conducted with grant recipients throughout the project for feedback.

7. Intellectual property

a. Rights and ownership of intellectual property in the proposed technology and all project materials will be defined in the funding agreement depending on the nature of the proposed project. However, the default position of the Department will be that IP in the technology and all project material vests in the grant recipient; and that the grant recipient gives the Department a perpetual, transferable, royalty free licence (including a right to sublicence) to use the IP.

8. Discretionary funding

a. The Department reserves the right to support pilot and proof of concept technologies outside of this competitive grants round.

9. Attachments

Attachment A: Water Pilot Technology Program Problem Statement

Attachment A: Water Pilot Technology Program – Problem Statement

Context

The *Water Pilot Technology Program* is an initiative of the NSW Department of Industry that offers grants to develop a pilot or proof of concept of innovative technologies to assist water regulation and compliance, and environmental water protection activities. The NSW Department of Industry seeks auditable, accurate and verifiable information to ensure NSW's water resources are managed sustainably, equitably, cost-effectively and in the public interest.

Applicants should submit a proposal which addresses the Problem Statement and Technical Considerations below. To assist applicants, the Department has identified five Defined Challenges based on areas of specific interest. Applicants can address one, or more Challenges or propose other technologies that address the Problem Statement.

Problem Statement

The Department is seeking proposals to develop a pilot or proof of concept of innovative, user friendly and practical technologies, which can support and enhance compliance and resource management efforts, and be cost-effectively scaled, to:

- enhance NSW's capacity to detect and predict risks of non-compliance with water legislation;
- better target compliance activities, including surveillance and compliance, regulation and response programs;
- enhance the accuracy of hydrological models used to assess annual and long term compliance with diversion limits; and
- improve the protection of environmental water through regulated and unregulated systems.

Proposals could include: remote sensing technologies for measuring, monitoring and modelling water diversion, water storage and water use at a farm scale, overbank and end-of-system flow; and innovations that build on existing systems to improve data gathering, public reporting and assessing the risks of non-compliance. When fully scaled, the technology must offer 'value for money' for all users.

Defined Challenges

(1) Develop and/or apply technologies (including, but not limited to, remote sensing) to accurately monitor, measure, or model:

- on-farm water storage depth and/or volume and changes over time;
- crop type at a paddock level (including developing spectral signature library of different crop types);
- presence and/or change to water-related infrastructure (including on farm dams, levees, channels, block banks, other floodplain works, or pumps);
- volume of water take through floodplain harvesting and/or other forms of unmetered take;
- annual, monthly or daily evapotranspiration levels across a range of irrigated and non-irrigated crop types and plantations at a scale to estimate on-farm water use;
- overbank flow dynamics, commence to flow levels and/or commence to fill levels (specifically, using non-gauging approaches);
- end of system flows during flood conditions to reduce uncertainties in flow volume estimates (specifically, using non-gauging approaches);
- within channel flow attenuation, bathymetry and/or loss rates in different sections, at different flow levels and under different antecedent conditions (specifically, using non-gauging approaches);

- flow rates and/or volumes in open channels such as irrigation offtakes (specifically, using non-gauging approaches); or
- water quality status and/or risks during environmental water events.

(2) Develop technologies or models to interpret existing data (including technical, social or economic data) to identify anomalies in water take information or accurately predict short term and long term risks of non-compliance.

(3) Develop technologies, or novel applications of existing technologies, to allow more cost-effective, practical and tamper-proof methods of telemetry of metering information in non-urban areas. The technologies should allow for automated, electronic and tamper-proof reporting of water take (including the time, volume, rate, and source of the water take) from licensed water users in areas with no (or limited) cellular reception.

(4) Develop technologies to improve the effectiveness, reliability and durability of non-urban water meters and associated maintenance equipment and methods, specifically, to reduce the logistics and costs of water meter installation, maintenance, auditing and calibration.

(5) Develop technologies to enable the public to efficiently provide and/or receive accurate information on water source status and conditions and/or other information (including water user activity, river condition, environmental releases), including automated methods to collate and interpret this information.

Technical Considerations

Applications should describe:

(a) how the proposed technology is auditable, verifiable, accurate, comparable, including where field validation and calibration of remote sensors is necessary, whether it would or could comply with relevant standards (e.g. pattern approved), and how it is secured (e.g. tamper-proof);

(b) the reliability, usability, practicality, and cost-effective scalability of the prospected technology for all stakeholders (the Department, water users, etc.), even in remote areas and harsh environments (e.g. heatwaves, floods etc.); and

(c) the collation, interpretation and reporting of data including integration of the technology with existing systems and operations (where appropriate), and data management and analysis needs with a preference to automate analysis.