Planning and Environment







# Acknowledgement of Country

The Department of Planning and Environment acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

Published by NSW Department of Planning and Environment dpie.nsw.gov.au NSW Water Efficiency Framework First published: August 2022 Department reference number: PUB22/814

## Copyright and disclaimer

© State of New South Wales through Department of Planning and Environment 2022. Information contained in this publication is based on knowledge and understanding at the time of writing, August 2022, and is subject to change. For more information, please visit <a href="mailto:dpie.nsw.gov.au/copyright">dpie.nsw.gov.au/copyright</a>

TMP-MC-R-LC-V1.2

# Contents

Acknowledgement of Country	4
Overview of the NSW Water Efficiency Framework	6
The structure of the framework	6
Using the framework	8
The Framework	9
Establish context	10
Analyse situation	13
Develop response	15
Design and deliver options	18
Monitor, report and adapt	21
Frequently asked questions about the framework	23

# Overview of the NSW Water Efficiency Framework

The NSW Water Efficiency Framework is a best-practice guide to developing and delivering water efficiency in your local context. It provides clear steps to design, deliver and review water efficiency programs.

Government, water utilities, councils and large businesses will find guidance on implementing water efficiency initiatives no matter what their level of maturity.

# The structure of the framework

The framework consists of 3 overarching phases: plan, implement, and review. Refer to Figure 1.

It has 5 elements:

- establishing the water efficiency context
- analysing the current situation
- develop a water efficiency response
- applying the water efficiency response and adapting it.

Each element in the framework consists of 2 to 3 steps.

The elements are also supported by 3 enabling factors:

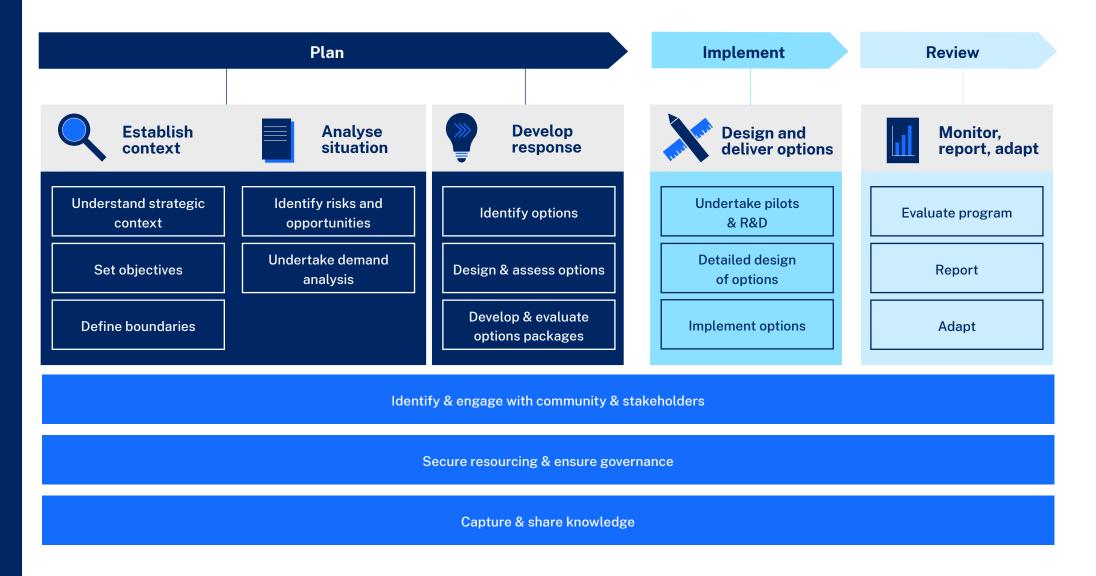
- stakeholder engagement
- · resourcing and governance
- capturing and sharing knowledge.

Water efficiency is a core component of supply and demand planning and integrated water cycle management (IWCM). However, the framework recognises that water efficiency programs are sometimes conducted in parallel with or independently of supply planning or IWCM.

This framework identifies the common elements of water efficiency strategies and supply and demand planning or IWCM, specifically in:

- setting the objectives
- identifying risks and opportunities
- developing and evaluating options packages
- program evaluation and review.

Figure 1: Overview of the NSW Water Efficiency Framework



# Using the framework

The framework covers all potential aspects of a water efficiency strategy and program at full maturity. When starting out, an organisation would not attempt everything covered in the framework. Having an idea of the 'full picture' of activities should, however, be useful for a program at any stage of maturity. This allows organisations to decide which elements to take on now and which ones they might leave for the future.

# What each element of the framework requires

For each of the elements in the framework, we have developed a series of guiding questions. The questions give practical prompts to guide what needs to happen at each step.

# How you will know if you are achieving best practice

For each of the elements in the framework, we have developed evaluation criteria. The criteria and associated evaluation have multiple purposes.

At an individual utility or organisational level, these help to identify:

- progress towards water efficiency best practice
- where more support or resources may be required.

At a statewide level, these help to:

- identify best-practice examples from individual utilities or organisations to share and improve capacity and capability across the state
- identify specific regions where centralised support or additional resources would help broader progress towards best practice
- assess statewide performance against the framework to help develop statewide water efficiency or support programs.

You can self-rate the criteria qualitatively on a 5-point scale based on these descriptors:

- Best practice Organisation is meeting all requirements and is leading and innovating in this area.
- Good practice Organisation satisfies close to all requirements in this area. The organisation has considered what it will take to meet best practice.
- Emerging practice Organisation has made some start towards developing this area. The organisation has given some consideration to what meeting good practice will take.
- Not done Element not currently addressed.
- **Not applicable** Element not required for particular context.

The Framework

Q
---

# **Establish context**

Define the purpose, form and scope of the water efficiency program

Steps	Guidance	Evaluative criteria
Understand strategic context Why is the program being developed?	Drivers: What are the drivers for water efficiency? For example, prepare for drought; address supply-demand imbalance; support resilient, prosperous and livable cities and towns; meet regulatory requirements.  Strategic alignment: What broader internal and external strategies, plans and policies support a water efficiency program? For example, a carbon-neutral plan, sustainability goals, community strategic plan, supply-demand planning strategy.	<ul> <li>The drivers for water efficiency are clearly identified.</li> <li>Internal guiding strategies and plans are identified and the links to water efficiency are clear.</li> <li>External links to broader NSW Government objectives are clear.</li> </ul>
Set objectives  What will the program achieve?	<b>Goals, objectives and outcomes:</b> What are the water efficiency goals, objectives and outcomes? Is a target appropriate? If so, what? If not, what else will drive efficiency investment?	<ul> <li>The water efficiency goals are broad and represent both immediate needs and a long-term vision and include relevant input from stakeholders and/or community.</li> <li>The objectives and outcomes are realistic, specific and can be evaluated.</li> </ul>
Define boundaries  Who, what and where does the program cover?	Scope: What is the scope of the program? For example, all water-saving opportunities either side of the meter, from water source to water use; all potable or non-potable water uses or losses; all customers types or utility/council water use and losses only.  Geographical boundary: What is the geographical boundary of the program? For example, state, city or town, supply system, suburb.  Timeframe: What period does the water efficiency program cover? For example, 5, 15 or 30 years. Does the timeframe align with the broader strategies identified above?	<ul> <li>The scope of the water efficiency program is clear.</li> <li>The geographical boundaries are defined.</li> <li>The period for the water efficiency program aligns with strategic drivers for example, strategy, plans and regulation.</li> <li>Each step of the framework is considered. The steps, responsible parties and resources required are clear. There is clear justification for omitting any steps from the framework.</li> </ul>
	<b>Process:</b> What steps of the water efficiency framework will you do at this time and why? What will you not do this time?	

Steps	Guidance	Evaluative criteria
Community and stakeholders	Stakeholders: Who are the key stakeholders? Consider government departments, utilities and their divisions, local councils, community, customers and industry groups. Who within your organisation is responsible for engaging them? How and when during the process you engage them? How will you engage water users who are not direct customers? Have you made the case for water efficiency to internal stakeholders and decision-makers? Have you explained risks, benefits and costs?  Community expectations: What are community/stakeholder values/ expectations for water efficiency? How will they benefit? What are their drivers for water efficiency?	<ul> <li>Stakeholders and the community are identified and a stakeholder engagement plan is developed. Stakeholders are appropriately engaged throughout the process.</li> <li>Stakeholder and community expectations for water efficiency are understood.</li> <li>Internal stakeholders and decision-makers support water efficiency and understand the risks, costs and benefits.</li> </ul>
Resourcing and governance	Governance: Who is responsible for water efficiency within your organisation? How will you include a range of views and diversity of backgrounds in decisions? Are there clear lines of authority, reporting requirements and resourcing? Is there clear oversight of the funding? How is funding allocated and reviewed?  Funding: Are there funding mechanisms? Are they enough to support all aspects of water efficiency? Who has access to funding? Does the funding timeframe align with the overall program?  Resourcing: What resources will you need to undertake the water efficiency program? Is it clear who is responsible for each step? If multiple parties are responsible, is it clear who has the lead? Are there enough people, time and money allocated for each step? Who will ensure each step is adequately funded and resourced?  Is there a diverse steering group for the process that has appropriate expertise and knowledge?	<ul> <li>A clear governance structure gives oversight with balanced representation, ensuring:         <ul> <li>process is conducted robustly</li> <li>outcomes are achieved</li> <li>funding is allocated and used.</li> </ul> </li> <li>Resources are available to deliver all appropriate elements of the framework - not just options delivery. This includes funding, capacity and capability.</li> <li>Roles and responsibilities are clear.</li> <li>Technical steering group is established that can provide appropriate expertise and knowledge.</li> </ul>

Steps	Guidance	Evaluative criteria
Knowledge sharing	Knowledge capture and dissemination: How can you build the capacity of your organisation and the water industry? What data and information will the program capture? How and where will information be captured and stored and for how long? How will you address any privacy issues in the capture, storage and sharing of information? Who will be responsible for building and maintaining the knowledge repository from this and future programs?  Water literacy: How can you foster water literacy? What information do customers need about water use? What elements fo water efficiency do they need to understand?	<ul> <li>Knowledge is captured, securely stored and shared to build internal and broader industry capacity and capability.</li> <li>Key elements of water efficiency are communicated in an appropriate form to all sectors of the community.</li> <li>The community is engaged in water efficiency and understands their contribution.</li> </ul>



## **Analyse situation**

Understand the current situation and how it supports or constrains water efficiency

#### **Steps**

# Identify risks and opportunities

What could limit or support water efficiency outcomes?

#### Guidance

**Metering and monitoring:** Is demand measured (metering/by end use)? Can data be extracted easily and broken down into appropriate segments?

**Data driven decision making:** Is there enough information and resources to do analysis at the level required? For example, is the system well understood (supply-demand balance, water quality, ecosystem, cost structures, future constraints and limitations)? Are the drivers of change (demographics, climate, economy) understood? Are customer and stakeholder preferences understood? Is the information available for different time (now, future) and spatial (differences across service area) scales? Can it be broken down in other ways?

**Effects of water efficiency:** What are the financial and economic implications of water efficiency across all sectors? Does the customer pricing regime encourage or hinder water efficiency? Have you considered the opportunity for hardship programs to be a driver?

**Lessons learnt:** What can you learn from past experience (past programs, other jurisdictions, research and development - R&D, pilots)?

#### **Evaluative criteria**

- · Risks and opportunities have been assessed.
- Metering and end use data is accessible.
- · Data requirements and gaps are identified.

Steps	Guidance	Evaluative criteria
Analyse demand  How and where is water used?	Baseline demand: When do you begin measuring savings? How will you consider the effects of seasonal and annual weather variations (wet vs dry years), population growth or loss of large users?  Disaggregation: Do you have data for all customers (including utility demand, losses from dams and distribution)? Can the data be segmented by customer type and/or broken down by end uses (toilet/taps) and end users (residential, hospital)? Do you have data for all water sources (potable and non-potable systems)?	<ul> <li>There is an agreed baseline for current demand and growth.</li> <li>Demand data has been analysed and broken down to understand water use and target water savings opportunities.</li> </ul>
	<b>Savings opportunities:</b> What value does water efficiency have? How does the water demand compare to supply availability, system capacity, other similar areas, benchmarks? What are the opportunities by customer type, by end use?	
Community and stakeholders	Are a diverse group from across the organisation included in the assessment of risks and opportunities (community, strategic planners, demand forecasters, operations, communications, IT, regulatory, customer service, government stakeholders)?	An appropriately diverse and knowledgeable group of stakeholders and community representatives are included in identifying risk and opportunity.
		Customer segmentation has identified, refined and targeted programs and messaging.
Resourcing and governance	Are there enough resources – including funding, capacity and capability – for the necessary level of analysis? Is it possible to analyse data when needed?	Sufficient capacity and capability is available to interrogate data and to model current and future (disaggregated) demand.
Knowledge sharing	Is there information on end uses and appliance/fixture stock surveys for the local area, or can information from elsewhere be adapted?	Information is available for program analysis including potential savings, costs, lessons learnt, end use data and stock information.



## **Develop response**

Design what you will deliver to best meet goals and objectives

•		
STA	n	c
JLC	v	

### **Identify options**

What options are available?

#### Guidance

**Learning from the past:** What options have been tried in the past? What worked well, what could be improved, what opportunities remain? What opportunities have not been adopted and why? What would need to change to make the option useful? What is happening in other jurisdictions and could be adopted or tested?

**Emerging options:** What have you learnt from pilots or R&D? What new options and technologies have emerged? What technologies have become more effective/efficient since last the scan?

**Addressing risks and opportunities:** What options can address each segment of demand, specific end uses, specific quick tasks? What are customers preferences? What options could address identified risks or opportunities?

**Coverage:** What end uses and end users are covered by the options? What delivery models are available for options (rebate, service provision)?

#### **Evaluative criteria**

- Past options are reviewed for new opportunities.
- Regular scans of options in other jurisdictions and emerging opportunities are undertaken.
- Pilots and R&D are done to identify new options for your context.
- Current programs gather data to identify more options and opportunities.

Steps	Guidance	Evaluative criteria
Design & assess options  How do the options compare and how do they align with the intended program outcomes?	Coverage of potential options: What is the longlist of options (from above) and how do they map with goals, objectives, the full range of end users, end uses, risks and opportunities? For example, foundational capacity; ability enlarge the program, collect data for future programs, engage customers and support market transformation.  Data: What data is available as the basis for assessing cost and water savings for options? How robust are the cost and savings estimates? What is not known? How could you fill these gaps? Are more pilots or R&D needed? What is the longevity of savings do they grow or decay over time? How does this align with goals/objectives and risks and opportunities?	<ul> <li>Maps the longlist of options to end use, end user, goals, objectives, risks and opportunities to develop a shortlist of viable options and R&amp;D/pilot needs.</li> <li>Ranks viable options using a consistent and robust economic assessment framework (from a whole-of-society perspective).</li> <li>Considers trade-offs and other consistent criteria beyond costs and savings.</li> </ul>
	Feasibility: How easy are the options to implement? How acceptable are the options to customers? Are there other ways to carry them out? How do they compare?  Economic evaluation: What assessment framework will you use (cost-benefit	
	analysis, cost-effectiveness analysis using levelised cost)? What is your comparison baseline or sample set and do they vary in time or spatially? Does the option have extra benefits such as social equity, liveability, energy or wastewater reduction, ease of implementation? What is the distribution of the costs and benefits (between customers and the utility)?	

Steps	Guidance	Evaluative criteria
Develop and evaluate options packages  What group of options best meets program goals and objectives?	Scale of savings: Will the scale of water savings from your proposed options package meet your strategic goals?  Coverage and overlap: How can viable options be combined to avoid overlap? How does the program meet different objective? For example, delays the need to replace supply from another source; or provides drought-readiness; or lessens the effects of restrictions; or provides foundational capacity, community engagement, relationship-building. How well does the package of options cover the range of end uses and end users? How well does the total package address risks and opportunities? Does it make sense to do slightly more expensive options that have better water savings and lower risks (for example, retrofits	<ul> <li>Packages of options are evaluated for overall savings, overall cost and other objectives as appropriate.</li> <li>Packages of options have broad coverage (all customers, whole system, education, relationship-building, capacity building etc.).</li> </ul>
Community and stakeholders	over a showerhead swap)?  What stakeholders and community groups are involved in identifying options (for example, industry experts and associations, government)?  What representatives from across the business are involved (for example, communications, education, operations, customer service)?  What stakeholders and community groups are involved in options design (for example, communications, education, operations, industry experts)?	<ul> <li>Diverse groups are included in identifying options.</li> <li>Targeted stakeholder and community engagement has been done when designing the relevant options.</li> </ul>
Resourcing and governance	Governance: Has the package of options been approved to go on to the detailed design?  Resourcing: Is there capacity and capability to identify and assess the full range of options? What gaps are there? How will you fill them?  Funding: Is the funding secure and enough to deliver all of the options in the final package? Is separate funding available to cover R&D? Has collaborative funding been explored?	<ul> <li>Package of options approved.</li> <li>Sufficient capacity and capability to identify and assess options.</li> <li>Enough funding (including collaborative funding) has been secured to design, deliver, evaluate and report on all options, including R&amp;D.</li> </ul>
Knowledge sharing	Is information available for past and emerging options? Is information on emerging options available? Where/how will you get the data to assess the options (costs, water savings, feasibility)?	Options are designed to generate and capture knowledge on the individual option and the effect on customer water demand.



# **Design and deliver options**

Deliver water saving initiatives

Steps	Guidance	Evaluative criteria
Complete pilots and R&D  How can pilots and R&D be used to fill gaps and develop more robust water efficiency options?	Viability of new options: What are the emerging technologies or approaches that could be tested? With whom can collaborate? For example, can you co-fund a pilot with another utility or the private sector? What emerging methods from other sectors could you test or adopt? What do you need to know to decide if an option is worth pursuing further?  Pilots: What are the data gaps? What do you need to know before rolling out the option at scale? What are the implementation issues – technical, delivery mechanisms? Are there different delivery mechanisms that need testing? Are there different products you could offer (for example, basic and premium products)?.	Pilots or R&D are designed to fill data gaps and test customer response. They include an evaluation process.
Detailed design of options  How will each option be delivered?	Detailed design: Who are you targeting? Who do you need to involve in the planning/rollout? What is the scale (budget/ time/ customers reached/ water savings) of the program? What are the procurement options? What are the delivery risks and how will they be managed? How will you know when the option has reached saturation? How long will the option run for? How will it be wrapped up? Can it be extended or expanded?  Evaluation information: What criteria will the options be evaluated against (including costs and savings, uptake, customer feedback)? What is the baseline? How long will it be before the program can be evaluated? How will you evaluate it and how often? What data do you need to evaluate? How will this feed into the option reporting and review process? What approvals do you need to use and share the data (for example, customer approval to use their data to evaluate savings)?  Reporting: How will information be shared and with whom?	<ul> <li>A detailed implementation plan for each option is developed, including procurement, governance, milestones, how and when to expand/extend/exit, and how to collect, store and use data for evaluation and reporting.</li> <li>A robust evaluation methodology is developed for each option, including a clearly defined baseline.</li> </ul>

Steps	Guidance	Evaluative criteria
Implement options  How will you manage implementation?	Delivery: Are you meeting your milestones? How is the budget tracking? Is the product/service meeting quality requirements? How is the uptake/acceptance trending? How are you tracking and escalating risks? How are you reporting on the project to your governance group? Is proactive communications and media reaching target audiences? How are you responding to reactive communications and media?  Real time review: Are you capturing the information you need to review the project?  Adaptation: How are you addressing stakeholder feedback? How are you refining your delivery based off your performance metrics? How are you adapting your program to make sure it's still achieving planned objectives, outcomes and benefits?	<ul> <li>Delivery team's roles and responsibilities are clear.</li> <li>Processes are in place to capture lessons learned and consider them.</li> <li>Option is tracked and evaluated in real time against anticipated outcomes and adapted as needed.</li> </ul>
Community and stakeholders	Detailed options design: What stakeholders do you need to engage in the detailed options design (for example, community groups, business groups, education, operations, industry experts)? Have opportunities for program collaboration across boundaries been explored?  Pilot and R&D: What stakeholders do you need to engage in the detailed options design (for example, communications, education, operations, industry experts)?  Communications: What is the communications strategy for maximising the value of the strategy? How are water users that are not direct customers engaged?	<ul> <li>Stakeholder and community input has been sought for detailed options and pilots design.</li> <li>Communication plan has been developed for water efficiency options and program.</li> <li>Processes are in place to explore collaboration and partnership opportunities for R&amp;D, pilots and options delivery, and/or programs across boundaries.</li> </ul>

Steps	Guidance	Evaluative criteria
Resourcing and governance	Governance: Has approval been sought to implement the option/program? Have success/review criteria been agreed for options and pilots/R&D?  Resourcing: What skills do you need to deliver the program overall? What skills do you need to deliver each particular option (for example, IT, communications, billing, project delivery, data analytics)? What is your delivery method? What resources do you have available? What is missing and how can you fill the gaps? What training (capacity building) is required?  Funding: What will each program cost (project management, contract management, procurement, evaluation and review, piloting, communications and marketing)? How will it be funded? What happens if uptake is greater/less than expected for costs and funding?	<ul> <li>Detailed delivery of options/R&amp;D endorsed including implementation, review, expansion, end of options.</li> <li>Multi-disciplinary team is established with the capacity and capability to deliver the full program, and clearly assigned roles and responsibilities.</li> <li>Enough funding is secured to design, deliver, evaluate and report on all options, including R&amp;D or pilots.</li> </ul>
Knowledge sharing	Implementation: How will options insights (water savings, uptake, stock data) and program implementation insights (issues with equipment, buy-in, reaching customers, sampling/evaluation) be documented and shared?  Pilot and R&D: What are the outcomes of the pilots? How can they be adapted for broader rollout?	Option and program implementation insights are documented and shared.



# Monitor, report and adapt

Establish ongoing improvement, share knowledge

Steps	Guidance	Evaluative criteria
Evaluate program  How have the options and program met their intended outcomes overall?	Options evaluation: How have individual options performed (for example, costs, savings, uptake, feedback)? Is the option meeting expected outcomes? What were the gaps? What were the key lessons learnt?  Program evaluation: How has the program as a whole performed (for example, costs, savings, feedback, meeting goals and objectives)? What were the gaps? What were the key lessons learnt?  Process evaluation: Was the governance adequate? Were roles and responsibilities clear? Were there sufficient resources and capability? What could be done differently next time?  Were any new risks or opportunities identified?	<ul> <li>Robust evaluations are completed for all options using interim data collection where possible.</li> <li>Program as a whole has been evaluated and reassessed in relation to objectives.</li> <li>Gap analysis on options, program and process is completed.</li> </ul>
Report  How and what will you report?	<b>Reporting:</b> How will you report? What will you report (for example, costs, savings, lessons learnt, other benefits)? To whom will you report? How often will you report?	<ul> <li>Regular reports giving information on all water efficiency initiatives are undertaken.</li> <li>Options and program performance is compared against expected outcomes, including implications for water planning.</li> <li>A program for the future is identified.</li> </ul>

Steps	Guidance	Evaluative criteria
Adapt What lessons have been learnt?	Adapting from options and program lessons learnt: What has been learnt? What options should be continued, expanded, discontinued or modified?  Adapting to changed context: What has changed? Are the objectives and drivers still relevant? Are they driving the right outcomes? What needs to change?  Refining the program: Are there new options that should be added/ considered? What new R&D/pilots are required? What additional capacity/capability is required? What else is needed to support the program?	Individual options, the program overall and process are all adapted using lessons learnt.
Community and stakeholders	Which stakeholders and community groups should you include in the program review to gain reflections on programs (for example, experience and improvement opportunities)?  With whom will you share the lessons learnt? How effective was the stakeholder engagement during the process? What could be done differently next time?	<ul> <li>Stakeholders and community groups are included in evaluation process as appropriate.</li> <li>Stakeholder and community engagement considers proposed program refinement and lessons learnt.</li> </ul>
Resourcing and governance	Governance: Have reporting, adaptations and the forward program been approved?  Resourcing: Is there capacity and capability to appropriately evaluate the program as a whole and individual options? How was the program delivered overall? What resourcing or funding gaps were there? What is required to improve capability?	<ul> <li>Program reporting, proposed adaptations and forward program are all endorsed.</li> <li>The efficacy of resourcing and funding to achieve overall program objectives, accounting for lessons learnt, has been reviewed.</li> <li>Capacity and capability to do evaluation for options, program and process.</li> </ul>
Knowledge sharing	Capturing and sharing knowledge: What have you learnt, how can it be shared, with whom? What would you like to know in the future? How can that be built into the future program?  Have you shared your evaluated project or program savings and costeffectiveness via publications or conferences?	<ul> <li>Information is kept up to date and easily accessible.</li> <li>Knowledge and experiences have been shared with the water industry.</li> </ul>

# Frequently asked questions about the framework

### Is this a linear process?

The framework is not designed to be a linear process. The purpose of the framework is to display the necessary steps towards achieving a consistent and robust approach to water efficiency.

### Is this a reactive or proactive approach?

In times of drought, water efficiency responses must be reactive. However, we urge decision-makers to consider the benefits of starting a water efficiency response before an extreme event happens. This framework is designed to aid in the development of a proactive and thorough approach to developing a water efficiency plan or program.

## Is the framework about more than water efficiency?

The framework focuses on developing an approach to water efficiency, which covers improving end-use efficiency and reducing leakage or non-revenue water. The elements do, however, touch on water conservation and mechanisms for water-savings schemes in general, such as through education or rainwater tanks. These sit within the umbrella of the framework's considerations.

#### Is it only about water efficiency?

Water efficiency forms an important part of ensuring a secure and resilient balance of supply and demand. Water efficiency should be part of an IWCM approach including potable supply, rainwater, wastewater recycling, and stormwater management. It does not replace these other approaches. When planning for water efficiency using the framework, some of these other approaches may form part of the response.

## Is this a prescriptive or outcomes-focused approach?

We have designed the guiding questions and criteria of the framework to prompt councils and water utilities to strive for best-practice approaches that are relevant to their context and situation. Instead of laying down rules, they focus on outcomes that address unique circumstances for every city, town, and village across NSW.

## Is it for every utility?

Ideally, every utility should be working towards developing best-practice water efficiency using the guidance in the framework. In practice, constraints on resourcing, funding, and capability mean that decision-makers, particularly at smaller councils, must choose where best to act.

