



Independent Pricing and Regulatory Tribunal

Cost benefit analysis of proposed changes to State Water Corporation's operating licence

Water — Draft Report
February 2013



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1 Draft Cost Benefit Analysis Framework

1.1 Introduction

We have conducted a Cost Benefit Analysis (CBA) of proposed changes to State Water Corporation's (State Water) operating licence. This CBA is part of the end of term review of State Water's operating licence and has been conducted in accord with the NSW Government's Guide to Better Regulation.¹ The extent of our analysis is proportionate to the relative significance of each proposed change.

We considered the costs and benefits of each proposed change to State Water's operating licence. The cost and benefits discussed here are incremental to the 'base case' of the current operating licence and current 'business as usual' practices. Costs and benefits are defined broadly to include all identifiable economic costs and benefits (ie, all costs and benefits to State Water, State Water's customers, the environment and other stakeholders).

The timeframe of the CBA is the 5-year period 2013/14 to 2017/18. This period aligns with the expected term of State Water's next operating licence. The decision to limit the time frame for the CBA to 5 years was made in order to simplify the process and data requirements.

1.2 Overview of proposed changes²

On 25 July 2012, as part of end of term review of State Water's operating licence, we released an Issues Paper that identified 15 proposed changes to State Water's operating licence. The proposed changes comprise of a mix of additions of, removals of and revisions to conditions in the licence. The 15 proposed changes (together with the associated options for each proposed change) are outlined below. Our default position is to maintain the existing operating licence conditions unless the CBA clearly demonstrates that a proposed change will likely result in a net benefit to State Water, stakeholders and the environment.

1. Asset Management

- ▼ Simplify asset management requirements in State Water's operating licence.
- ▼ Require State Water to develop and implement an Asset Management System (AMS).

1 The Better Regulation Office, NSW Department of Premier and Cabinet, *Guide to Better Regulation*, November 2009, (http://www.dpc.nsw.gov.au/__data/assets/pdf_file/0009/16848/01_Better_Regulation_eGuide_October_2009.pdf).

2 In this analysis, we address only those issues raised in the Issues Paper. We do not address other issues identified since then, such as quality management for water supply to country towns.

2. Environmental Management

- ▼ Require State Water to develop and implement an Environmental Management System (EMS).

3. Quality Management (business-wide)

- ▼ Require State Water to develop and implement a Quality Management System (QMS).

4. Quality Management of Fish River Drinking Water

- ▼ Defer to *Public Health Act 2010*.
- ▼ Introduce specific requirements to regulate Fish River water quality.

5. Release or Delivery of Water to Customers

- ▼ Restrict State Water responsibility to the release of water.
- ▼ Introduce explicit requirement for State Water to deliver water.

6. Flood Management

- ▼ Remove flood management requirements from the operating licence.
- ▼ Introduce requirements for State Water to develop communication protocols to compliment State Water's ongoing flood management activities.

7. Water Metering

- ▼ Remove existing water metering requirements from operating licence.

8. Conferral of Functions

- ▼ Specify in operating licence how conferred functions are currently split between State Water and the NSW Office of Water (NOW).
- ▼ Require the State Water - NOW Memorandum of Understanding (MoU) to define the split of functions.
- ▼ Require State Water to make public the extent to which it exercises its conferred functions.

9. Environmental Water Releases

- ▼ Introduce requirements in relation to the capture, storage and release of environmental water.
- ▼ Clarify State Water's responsibility to environmental water entitlement holders.

10. Representation on Customer Service Committees (CSC)

- ▼ Require State Water to include the Commonwealth Environment Water Holder (CEWH) as a member of relevant CSC.

11. Community Consultative Committees (CCC)

- ▼ Remove the requirement to maintain a CCC.

12. Operational Audits

- ▼ Remove obligations on IPART that are not required by relevant legislation.

13. Duplicative Regulatory Requirements

- ▼ Remove requirements that duplicate other regulatory requirements outside State Water's operating licence.

14. Reporting Manual

- ▼ Introduce reporting manual which will include all reporting and performance indicators.

15. Memorandums of Understanding

- ▼ Remove requirement for MoUs with the NSW Department of Primary Industries (DPI) and the NSW Office of Environment and Heritage (OEH). Retain requirement for MoU with the NSW Office of Water (NOW).
- ▼ Remove all MoU requirements from State Water's operating licence.

1.3 Preliminary cost benefit analysis findings

Table 1.1 summarises the results of the CBA for each proposed change. These results are discussed in detail in the subsequent sections of this paper.

Recommendations contained in this report are based on an assessment of the likely net benefit of the proposal. Where mutually exclusive options are assessed to have net benefits, we will identify and recommend the option that we assess to offer the largest net benefit.

Table 1.1 Summary of CBA findings

Proposed Changes	Cost	Benefit	Net Benefit	Rec.
Asset management				
▼ Option 1: simplify requirements	Med	Med	No	Not Support
▼ Option 2: Require AMS	Med	High	Yes	Support
Environmental management				
▼ Option: Require EMS	Med	High	Yes	Support
Quality management (business-wide)				
▼ Option: Require QMS	High	Low	No	Not Support
Quality management of Fish River drinking water				
▼ Option 1: Defer to <i>Public Health Act 2010</i>	Med	High	Yes	Support
▼ Option 2: Include specific licence conditions	High	High	No	Not support
Release of water to customers				
▼ Option 1: Require State Water to release water	Low	Low	No	Not Support
▼ Option 2: Require State Water to deliver water	Low	Med	Yes	Support as amended

Proposed Changes	Cost	Benefit	Net Benefit	Rec.
Flood management				
▼ Option 1: Remove flood management requirements	Low	Med	Yes	Support
▼ Option 2: Require new communication protocols	Med	Med	No	Not Support
Water metering				
▼ Option: Remove metering conditions	High	Low	No	Not Support
Conferral of functions				
▼ Option 1: Include conferred function split in State Water's Operating Licence	Med	Med	No	Not Support
▼ Option 2: Require State Water - NOW MoU to define the conferred function split	Med	Med	No	Not Support
▼ Option 3: Require State Water to publicise the extent to which they will exercise conferred functions	Low	High	Yes	Support
Environmental water releases				
▼ Option 1: Introduce environmental water conditions	Med	Low	No	Not Support
▼ Option 2: Clarify responsibility to environmental water entitlement holders	Low	High	Yes	Support
Customer Service Committee (CSC)				
▼ Option: Require environment representatives on CSC	High	Med	No	Not Support
Community Consultative Committee (CCC)				
▼ Option: Remove requirement for CCC	Low	Med	Yes	Support
Operational audits				
▼ Option: Remove obligations on IPART	Low	High	Yes	Support
Duplicative regulatory requirements				
▼ Option: Remove duplicative requirements	Low	High	Yes	Support
Reporting manual				
▼ Option: Introduce reporting manual	Low	High	Yes	Support
Memorandums of Understanding				
▼ Option 1: Remove DPI and OEH MoU requirements	Low	Med	Yes	Not support
▼ Option 2: Remove all MoU requirements	Low	High	Yes	Support

1.4 Structure of this paper

We have grouped the proposed changes to State Water's operating licence into 3 separate chapters:

- ▼ Chapter 2 covers the 4 proposed management systems.
- ▼ Chapter 3 covers other major changes that will likely impact State Water's operating activities.
- ▼ Chapter 4 covers other proposed changes that are designed to improve the functioning of the operating licence but are not likely to significantly impact State Water's operating activities.

2 Management systems

Our Issues Paper identified 4 areas of State Water's operations where a management system could be considered for inclusion as a condition in State Water's next operating licence:

- ▼ asset management
- ▼ environmental management
- ▼ business-wide quality management
- ▼ quality management of Fish River drinking water.

For each of these areas of State Water's operation, we consider the following:

- ▼ The 'base case' including existing operating licence conditions and State Water's current activities in these areas.
- ▼ The proposed options for changing the operating licence as set out in our issues paper.
- ▼ The costs, benefits and recommendations for each proposed option. This includes consideration of the potential to achieve development and implementation cost savings (ie, economies of scope) as a result of the common elements shared across these systems.

2.1 Asset management

Base case

The *State Water Corporation Act 2004*, requires the inclusion of asset management conditions in State Water's operating licence. These conditions require State Water to construct, operate, manage and maintain efficient, co-ordinated and commercially viable systems and services to capture, store and release water.³

State Water's current operating licence requires it to comply with asset management obligations which are set out in other instruments including State Water's asset management plan (which is an instrument required and approved by NSW Treasury) and the *Dams Safety Act 1978*.

State Water's current operating licence also includes a number of high level asset management conditions that relate to other objectives such as:

- ▼ achieving the lowest cost of service delivery across the whole life of its assets, and
- ▼ identifying and managing business risks related to its assets.

State Water has already invested resources in the development of an Asset Management System (AMS). While State Water has expressed its intention to further develop its AMS, there is no plan or other mechanism in place to ensure the AMS is developed to a certifiable standard.

Options

We proposed two options in the Issues Paper:

- ▼ **Option 1:** simplify the operating licence by replacing existing general asset management conditions with a list of state water specific asset management requirements.
- ▼ **Option 2:** amend the operating licence conditions to require State Water to develop and implement an asset management system. This involves introducing a requirement that State Water develop and fully implement an asset management system consistent with an industry standard such as ISO 55001: Asset Management. See Appendix B for a description of this standard.

³ *State Water Corporation Act 2004*, section 12(1).

Assessment

Table 2.1 CBA of proposed asset management requirements

Option	Costs	Benefits
Option 1	<p>State Water costs = \$0 (involves no direct development and implementation costs)</p> <p>Could promote a culture of 'compliance' rather than best practice</p> <p>Possibility of regulatory gaps</p> <p>Not flexible (no scope for discretion)</p> <p>Potential for duplication, uncertainty and confusion</p> <p>Does not adapt quickly to changes in environment, objectives and priorities</p>	<p>State Water savings = \$146,000 over 5 years (based on an assumption by State Water that setting out specific requirements would result in a 50% reduction in current auditing and reporting expenses).</p> <p>Represents a more targeted and comprehensive approach compared to base case.</p>
Option 2	<p>State Water costs = \$3,233,000 over 5 years (\$2.99m or 93% of this cost relates to internal staff time which SW expects to manage within its existing resources).</p> <p>Potential to achieve economies of scope which would reduce the cost of this option (i.e. if multiple management systems are adopted).</p>	<p>Unlikely to result in direct savings within the next 5-year operating licence term as existing audit and reporting structures will remain in place until AMS is certified (assumed 2017-18).</p> <p>Once certified, the AMS will replace existing audit and reporting structures, saving \$291,000 (over 5 years).</p> <p>Comprehensive approach – minimises risk of gaps in State Water's AMS.</p> <p>Allows prioritisation of issues.</p> <p>Adapts to changing environment.</p> <p>Efficiency gains</p> <p>Reduced risk of system failure</p> <p>Consistent with recommendations made in SCA and Hunter Water licence reviews.</p>

Note: Dollar figures are real (2012) and cover the 5-year term of the next operating licence 2013-14 to 2017-18.

Source: State Water costs and savings estimates provided by State Water on 21 November 2012.

Option 1

State Water's current operating licence contains general asset management requirements. Option 1 involves replacing these general requirements with tailored requirements designed specifically for State Water. State Water confirmed that if these new conditions are broadly consistent with existing requirements, State Water's existing systems and processes could accommodate Option 1 without any additional development and implementation costs.

If Option 1 is adopted, State Water estimates that its auditing and reporting expenses relating to asset management could be reduced by 50% resulting in a saving of \$146,000 over 5 years.

Although this approach requires no direct development and implementation costs and offers the potential to reduce auditing and reporting expenses, it does involve a number of potential shortcomings, including:

- ▼ It does not adapt to changes in the regulatory and operating environment.
- ▼ It involves a relatively weak link between the licence requirements and the desired outcome.
- ▼ Since it tries to cover all aspects of asset management with specific requirements, it may result in greater risk of regulatory gaps.
- ▼ It does not allow State Water to prioritise issues and focus resources to meet its core objectives.
- ▼ It can result in duplicating other requirements which can lead to an unclear and potentially confusing situation.

Given the shortcomings associated with a prescriptive approach, Option 1 is likely to lead to a sub-optimal regulatory outcome for State Water, its customers and other stakeholders. We do not support Option 1.

Option 2

Compared to the existing operating licence conditions, the inclusion of an AMS requirement in State Water's operating licence is expected to lead to a more comprehensive and informed approach to asset management, consistent with industry best practice. Option 2 will require State Water to design and roll out a series of programs to improve and integrate its existing asset management framework, plan and processes.

In response to our Issues Paper, State Water expressed support for Option 2. State Water's response included commentary from its 2010/11 operating licence audit which reported that State Water had made significant progress in developing a comprehensive and high quality asset management system.

State Water estimates that Option 2 will require development and implementation costs of \$3.23m over 5 years to bring its existing asset management framework in line with the prescribed industry standard.

- ▼ The \$3.23m over 5 years equates to an average of \$0.65m per year or 0.6% of State Water's 2012/13 revenue requirement of \$110m.⁴
- ▼ \$2.99m (93%) of the \$3.23m relates to internal staff time to complete, implement and certify State Water's AMS. Based on input provided by State Water, the \$2.99m over 5 years equates to an average workload of 2.5 full time equivalent (FTE) staff out of State Water's asset management team of 10 FTE over 5 years (ie, 25% of the asset management team's time over the 5-year operating licence term will be devoted to the development and implementation of an AMS). State Water intends to manage these staff expenses within its existing level of resources. Since these expenses are contingent on requiring State Water to complete and certify its AMS, we consider them to be incremental relative to the base case.
- ▼ The remaining \$0.24m (7%) of the \$3.23m relates to consultant fees and certification expenses. These expenses are expected to be in addition to State Water's current level of resourcing.

Under Option 2, it is expected that State Water's current asset management related audit and reporting expenses of \$0.29m over 5 years will continue to be incurred over the next operating licence term, prior to AMS certification which State Water expects to occur in 2017/18. Once the AMS is certified, State Water will no longer be required to satisfy current asset management related audit and reporting requirements, resulting in a potential saving of \$0.29m over 5 years.

Option 2 also offers benefits from operational efficiency gains and reduced risk of asset failure. Although State Water has made significant progress towards the development of an AMS, we consider there to be significant value for State Water, its customers and other stakeholders in requiring State Water to complete its AMS and have it certified. There are a number of wider (unquantified) benefits to a complete and certified AMS, including:

- ▼ Higher level of assurance - an AMS requirement would provide customers and other stakeholders a high level of assurance that State Water's asset management activities are consistent with industry best practice.
- ▼ Operational flexibility - a complete and certified AMS will allow State Water to prioritise its resources to help achieve its key objectives.
- ▼ Adaptability of requirements - an AMS requirement represents a more fluid approach to regulating asset management activities which can evolve over time in response to changes in the regulatory and operating environments.

⁴ IPART, *Review of bulk water charges for State Water Corporation: from 1 July 2010 to 30 June 2014*, June 2010.

Given the high degree of overlap between AMS and the other management systems that we consider in this chapter⁵, there is likely to be an opportunity for State Water to achieve economies of scope (ie, cost savings) if it implements more than one management system.

We consider Option 2 will likely deliver a net benefit to State Water, its customers and other stakeholders. State Water has demonstrated a strong commitment to developing an AMS and there is potential to achieve economies of scope. We therefore recommend Option 2. Our recommendation is consistent with our recommendations in the recent operating licence reviews for the Sydney Catchment Authority and Hunter Water Corporation.

2.2 Environmental management

Base case

The current operating licence requires State Water to manage its environmental obligations by developing an environmental management plan.

State Water's environmental obligations are currently governed by a range of instruments including:

- ▼ general provisions of the *Protection of the Environment Operations Act 1997*
- ▼ water supply works approvals which often contain environmental water quality conditions pertaining to cold water pollution and other environmental conditions.

Option

Our Issues Paper proposed the adoption of a systems based approach to environmental management.

This would involve replacing the existing environmental management requirements contained in State Water's operating licence with a requirement for State Water to implement a certified environmental management system (EMS) consistent with the Australian Standard AS/NZS ISO 14001:2004 Environmental Management Systems – Requirements. See Appendix B for a description of this standard.

⁵ See Appendix A for illustration of the common elements across these systems.

Assessment

Table 2.2 CBA of proposed environmental management system

Option	Costs	Benefits
EMS	State Water costs = \$1.14m Potential to achieve economies of scope which would reduce the cost of this option (i.e. if multiple systems adopted).	State Water savings = \$0.07m Represents best practice. Encourages achievement of outcomes (rather than focusing on complying with requirements). Adapts to changing regulatory and operating environment. Ability to prioritise areas most critical to achievement of State Water objectives. Consistent with recommendations made in SCA and Hunter Water licence reviews.

Note: Dollar figures are real (2012) and cover the 5-year term of the next operating licence 2013/14 to 2017/18.

Source: State Water costs and savings estimates provided by State Water on 21 November 2012.

State Water estimates that the total cost of developing and implementing an EMS is \$1.14m over 5 years.

- ▼ The \$1.14m over 5 years equates to \$0.23m per year or 0.2% of State Water's forecast revenue requirement for 2012/13 of \$110m.
- ▼ \$0.54m (47%) of the \$1.14m cost estimate relates to internal staff time to develop and implement the system. State Water expects to manage this within its existing level of resources. However, we consider this internal staff time to be an incremental cost because it has an opportunity cost - these resources could otherwise be allocated elsewhere.
- ▼ \$0.60m (53%) of the \$1.14m cost estimate relates to consultant fees for development, certification, implementation and audit services. This will be incremental to State Water's current level of resourcing.

State Water's cost estimate for an EMS is significantly higher than the estimate provided by the Sydney Catchment Authority (SCA) as part of our review of its operating licence. SCA estimated that an EMS would cost \$0.50m over 5 years in present value terms (note that State Water's cost estimate has not been discounted to a present value).⁶

Partially offsetting the cost is an estimated saving of \$69,000 over 5 years due to a reduction in auditing requirements.

⁶ IPART, *Cost-benefit analysis of proposed changes to Sydney Catchment Authority's Operating Licence*, March 2012, p 11.

In addition, we expect there to be wider (unquantified) benefits of an EMS including:

- ▼ Improved environmental performance: more comprehensive approach, reduced impact on the environment and stronger focus on resource conservation.⁷
- ▼ Improved operational efficiency: allows prioritisation of competing environmental management obligations; better able to adapt to changing circumstances; capture corporate knowledge held by individuals or independent groups within State Water; minimise the risk of gaps in State Water's environmental management.⁸

Given the high degree of overlap between EMS and the other management systems considered in this chapter (see Appendix A for illustration of the common elements across these systems), there is likely to be an opportunity for State Water to achieve economies of scope (ie, cost savings) if more than one management system is adopted.

We support an EMS requirement in State Water's operating licence. We consider an EMS is likely to deliver ongoing benefits to the environment and State Water's internal operations in excess of the associated development, certification and implementation costs. Our recommendation is consistent with our decisions in the recent operating licence end of term reviews for the Sydney Catchment Authority and Hunter Water Corporation.

2.3 Quality management (business-wide)

Base case

A Quality Management System (QMS) refers to a management framework (and supporting structures and processes) that provide the necessary controls to address risks and monitor and measure performance across a business.⁹

State Water's current operating licence does not contain specific quality management requirements.

⁷ U.S. Environmental Protection Agency website, www.epa.gov/ems/, accessed December 11 2012.

⁸ IPART, *Issues Paper: Review of the operating licence for State Water Corporation*, July 2012, p 68.

⁹ See <http://www.bsigroup.com.au/en-au/Assessment-and-Certification-services/Management-systems/Subject-areas/Quality-Management/>.

Option

Our Issues Paper proposed the introduction of an operating licence condition requiring State Water to develop, certify and implement a Quality Management System (QMS) consistent with the Australian Standard AS/NZS ISO 9001:2008. See Appendix B for a description of this standard.

Assessment

Audits of State Water have identified a number of internal process issues that may be addressed by the introduction of a QMS, including:

- ▼ lack of integrity of data used to credit and debit customer accounts - this led to errors, delays and duplication of effort¹⁰
- ▼ problems with document control and consistency¹¹
- ▼ difficulties integrating systems and data across the organisation.¹²

State Water was not able to estimate the level of work required to bring existing systems and processes in line with the requirements of a QMS. We have used data from our CBA for the Sydney Catchment Authority (SCA) to estimate the cost for State Water to develop, implement and certify a QMS.

State Water and SCA perform similar functions (ie, both are involved in water catchment, storage, release, and delivery). Although both organisations are of similar size in terms of number of employees (State Water and SCA employee expenses for FY2012 were \$31.7m and \$36.1m respectively), State Water controls significantly more assets than SCA (\$754.3m and \$60.9m respectively).¹³ If QMS costs are higher for companies that control more assets, our methodology may under-estimate the potential cost of a QMS for State Water.

In our CBA for the SCA operating licence review, we reported that in order to be certified, SCA's QMS would need to be taken from its current state of 80% complete to 100% complete. SCA estimated that this 20% improvement would cost between \$475,000 and \$489,000 over 5 years.

Based on the higher estimate of \$489,000 for a 20% improvement in SCA's QMS, we have estimated that it would cost up to \$2.4m for State Water to develop, certify and implement a QMS.¹⁴ This estimate assumes State Water does not have any of the required components in place.

¹⁰ Hyder Consulting, *Review of the State Water Corporation Act 2004, Final Report*, May 2010, p 89.

¹¹ t-cAM Consulting, *State Water Corporation Operational Audit 2010/11 Final Report*, November 2011, p 8.

¹² Ibid, pp 18-19.

¹³ State Water Annual Report 2011-12 and SCA Annual Report 2011-12.

¹⁴ That is, \$489,000 / 0.20 = \$2,445,000.

Given the high degree of overlap between QMS and the other management systems considered in this chapter (see Appendix A for illustration of the common elements across these systems), there is likely to be an opportunity for State Water to achieve economies of scope (ie, cost savings) if more than one management system is adopted. However, given the lack of information available regarding State Water's current systems, we are not able to estimate the extent of these potential development and implementation cost savings.

The literature on quality management identifies several benefits associated with organisations that adopt certified QMS. Some of the potential benefits of QMS include better documentation, better customer service and increased operational efficiency.

Due to the relatively high potential cost and general lack of information regarding State Water's requirements and capacity to develop and implement and QMS, we do not support the proposal to include a QMS requirement in State Water's operating licence at this time.

2.4 Quality Management of Fish River drinking water

Base case

The Fish River Water Supply Scheme (FRWSS) supplies both raw and drinking water to customers within the Central Tablelands of NSW. The scheme includes reservoirs, 236 kilometres of pipelines, four pumping stations, a chlorinator and clarification plants for water transfer and reticulation to customers.¹⁵ State Water has been responsible for managing the scheme since 2005.

Under the *State Water Act 2004*, State Water's principle objectives are to capture, store and release water in an efficient, effective, *safe* and financially responsible manner. State Water's operating licence regulates some areas of State Water's FRWSS functions such as customer and asset management, and requires State Water to report on a small number of performance indicators for the scheme. However, the licence does not contain any specific conditions relating to the management of drinking water quality.

State Water's 2010/11 operational audit identified a risk to the quality of drinking water in the FRWSS that "may present a risk to public health if not addressed".¹⁶

¹⁵ <http://www.sca.nsw.gov.au/dams-and-water/major-sca-dams/fish-river-scheme>. Accessed 13 Dec 2012.

¹⁶ IPART, *State Water Corporation Operational Audit 2010/11 - Report to the Minister*, December 2011.

Our Issues Paper presented two options with respect to FRWSS water quality:

- ▼ **Option 1:** Defer to the *Public Health Act 2010*.
- ▼ **Option 2:** Include new conditions in the operating licence regulating the water quality of the FRWSS.

Since the Issues Paper was released, the *Public Health Act 2010* came into effect requiring NSW water utilities to establish and adhere to a quality assurance program for maintaining and monitoring drinking water quality by September 2014. This will require State Water to develop a drinking water management system for the FRWSS.

The *Public Health Act 2010* allows the Chief Health Officer to exempt water utilities from the quality assurance program if other appropriate licencing or other regulatory requirements are in place.¹⁷ Therefore, the proposed options represent different ways of achieving the same outcome. Option 1 has become the base case and Option 2 would involve IPART taking on responsibilities that would otherwise rest with NSW Health. We understand that Options 1 and 2 are equally acceptable to NSW Health.

Assessment

Table 2.3 CBA of options to regulate FRWSS drinking water quality

	Costs	Benefits
Option 1 Defer to <i>Public Health Act 2010</i>	Total costs = \$809,000 State Water direct costs = \$680,000 NSW Health audit costs = \$129,000 (assumed to be same as audit expense under Option 2 but not passed through to State Water) Potential risk of duplicating some auditing processes (ie, risk that NSW health will audit some functions already audited by IPART).	State Water savings = \$0 NSW Health has expertise in this area and will be regulating drinking water quality for all other regional water utilities.
Option 2 Include specific conditions in licence	State Water direct costs = \$809,000 (includes \$129,000 auditing expenses passed on to State Water).	State Water savings = \$0

Note: Dollar figures are real (2012) and cover the 5-year term of the next operating licence 2013/14 to 2017/18.

Source: State Water costs and savings estimates provided by State Water on 21 November 2012.

State Water estimates that both options will require capital expenditure of \$500,000 to develop process automation and real time data collection capacity. Both options will also require internal staffing costs of \$180,000.

¹⁷ We understand that Sydney Water and Hunter Water will be granted exemptions on the basis that their operating licenses already include conditions regulating drinking water quality.

Although the total cost of both Options 1 and 2 are the same, the expected auditing expense of \$129,000 over 5 years is assumed to be allocated differently under the two options. Under Option 1, we assume audit expenses are funded through Health NSW's budget. Under Option 2 we assume that audit expenses incurred by IPART will be passed on to State Water (in line with the current treatment of audit expenses incurred by IPART).

Given the public health benefits are the same for both options, the main consideration is to identify the most administratively efficient option. We consider Option 1 more administratively efficient for the following reasons:

- ▼ Drinking water quality falls within NSW Health's responsibilities.
- ▼ NSW Health is expected to regulate drinking water quality for all other regional drinking water suppliers in NSW.¹⁸ Currently, only major metropolitan water agencies such as Sydney Water and Hunter Water are exempted from the Public Health Act, and regulated by IPART.
- ▼ The Public Health Act exemption clause is intended to apply to utilities that are already required to meet drinking water quality standards (ie, to avoid duplication of existing regulatory requirements). This is not the case for State Water which until the introduction of the Public Health Act, was not subject to drinking water quality standards.

Therefore, we support Option 1 (defer to the *Public Health Act 2010*).

3 Changes to operating activities and responsibilities

Three of the proposed changes to the operating licence related to changes in the way State Water conducts its business operations, or to its responsibilities in doing so. They are:

- ▼ the responsibility to release or deliver water to its customers
- ▼ flood management responsibilities
- ▼ water metering requirements.

¹⁸ This would exclude any schemes covered by the *Water Industry Competition Act 2006* (WICA), which are regulated by IPART.

3.1 Release or delivery of water to customers

Base case

Currently, there are different references in the *State Water Corporations Act 2004* as to whether State Water is responsible for *delivering*¹⁹ water to its customers or simply *releasing*²⁰ water into channels leading to the customer.

State Water’s current operating licence currently includes a clause that implies State Water is responsible for the delivery of water to its customers. Clause 6.2(a) reads:

State Water is accountable for the management and delivery of water allocated to Customers.

Options

We considered the 2 options proposed in the Issues Paper to clarify State Water’s responsibility in its licence:

- ▼ **Option 1:** amend the current operating licence conditions to refer (only) to the *release* of water and the standards for the release of water.
- ▼ **Option 2:** amend the current operating licence conditions to outline an explicit requirement to deliver water and the standards for the delivery of water.

Assessment

A summary of costs and benefits (relative to the status quo) is presented in Table 3.1 below.

Table 3.1 Release vs delivery of water to customers

	Costs	Benefits
Option 1: release water	Possible, but unlikely operational costs associated with the compliance of any new explicit requirements.	Increases clarity of the regulatory link to require State Water to release water to customers.
Option 2: deliver water	Contravention of competing regulations and possible costs associated with the compliance of any new explicit requirements.	Increases clarity of the regulatory link to require State Water to deliver water to customers. Higher level of assurance for customers

¹⁹ *State Water Corporation Act 2004*, section 12(1)(b).

²⁰ *State Water Corporation Act 2004*, sections 5(1) and 6(1) and section 12(1)(a).

State Water's submission supported Option 1:

State Water does not deliver water, with the exception of the Fish River Scheme. It releases water at the behest of its state regulator, the Minister administering *the Water Management Act, 2000*.

Since State Water cannot operate contrary to the provisions of the relevant water sharing plan, it is difficult to see how State Water could be made responsible for the delivery of water to its customers.²¹

After further consultations with State Water, State Water customers and other stakeholders, we recommend that the operating licence should maintain the requirement for State Water to deliver water to its customers. However, in recognition of the concerns which State Water have expressed in their submission, we recommend to revise the wording of the requirement so that it is **subject to any requirements of water sharing plans or water works approvals**. This is a slight variation of **Option 2**. No evidence has been presented to support the introduction of performance standards at this stage.

3.2 Flood management

Base case

The current operating licence references Section 6 of the *State Water Corporation Act 2004* ('State Water Act'), specifying that one of the principal functions of State Water is:

...to capture and store water and to release water for the purposes of flood management.²²

The operating licence specifies that:

When operating its Assets State Water must implement flood planning and other operations instigated by the Dam Safety Committee.²³

However, these flood management conditions duplicate the requirements of other legislative instruments. The current regulatory framework is quite complex with service delivery spread across multiple agencies, representing all three levels of government. For example, the Office of Water includes flood operation rules in the water supply work approvals it issues to State Water.

²¹ State Water Corporation, Review of the Operating License, submission to IPART, 4 September 2012, p 3.

²² State Water Corporation Operating Licence 2008-2013, Section 2.4 (a)(ii).

²³ Ibid, Section 6.1.2 (e).

Options

We considered the 2 options proposed in the Issues Paper to streamline State Water’s flood management responsibilities:

- ▼ **Option 1:** remove obligations in the current licence relating to flood management.
- ▼ **Option 2:** amend the current licence condition to include an obligation requiring State Water to develop communication protocols for flood management activities.

Assessment

A summary of costs and benefits (relative to the status quo) is presented in Table 3.2 below.

Table 3.2 Costs and Benefits: Flood management

	Costs	Benefits
Option 1: remove obligation	Risk of gaps in the current flood management regulatory requirements. Risk of inadequate communication between agencies for the purpose of flood management	Reduce operational audit costs. Reduce regulatory burden due to duplication of regulation. Minimise the risk of including conditions that conflict with other regulatory instruments that address aspects of flood management.
Option 2: include an obligation to develop communication protocols	Purchase or development of software used to manage data communication. Due to duplicated responsibilities of various agencies, State Water may expend considerable effort in with no guarantee of an outcome.	Project would force State Water and agencies to investigate and resolve conflicting responsibilities.

State Water’s submission supported Option 1.²⁴

We recognise that are costs and benefits for both options. On balance, we support Option 1 - to remove the existing obligations specifically relating to flood operations which duplicate other regulatory requirements. This will help untangle duplication of responsibilities, and facilitate a review of the framework which will potentially result in a more efficient framework for flood operations.

²⁴ State Water Corporation, Review of the Operating Licence, submission to IPART, 4 September 2012, p 5.

3.3 Water metering

Base case

State Water's operating licence currently includes a requirement to read customer meters and audit compliance of meters against national or state metering standards.²⁵

Until recently, customers have owned the meters used to measure the amount of water which they take. However, a recent State Water audit found that only a small fraction of meters complied with the interim NSW metering standard.²⁶

Two metering projects are underway to install close to 2,000 meters in NSW²⁷. State Water will own, operate and maintain all these government-installed meters.

Option

Our Issues Paper proposed that current meter obligations were unnecessary and should be removed from the licence.

Assessment

After further investigation, we recognise that the State Water Act (as amended in 2009) states:

The Corporation may, *if the operating licence so provides*, operate, replace, repair, maintain, remove, connect, disconnect or modify metering equipment that the Corporation does not own.²⁸

In other words, under the State Water Act, State Water's powers in relation to customer meters depend on such powers being specified in the operating licence.

²⁵ IPART, *State Water Corporation Operating Licence 2008-2013*, Section 6.5.

²⁶ State Water Corporation, 2010-2011 Report to IPART under the Operating Licence.

²⁷ See <http://www.carmproject.com.au/fs1-metering-the-murrumbidgee.html>.

²⁸ *State Water Corporation Act 2004*, Section 22A(1) (emphasis added).

The purpose of the amendment was to ‘establish the necessary mechanisms to enable the rollout of metering projects totalling approximately \$250 million in the Murray-Darling Basin and in the Hawkesbury Nepean catchment in New South Wales.’²⁹ Furthermore:

... it installs and confers on State Water the same powers in respect of metering equipment that it already has with respect to works under its legislation. This includes installing, operating, repairing and replacing metering equipment...The bill also extends the powers of State Water Corporation in relation to metering equipment to include metering equipment that State Water does not own, *if this is provided for under the State Water Corporation operating licence*.³⁰

We therefore recommend that reference to metering responsibilities should not be removed from the operating licence. On the contrary, metering clauses should more closely reflect the wording of the Act, in order to strengthen State Water’s powers to install new meters.

A summary of costs and benefits (relative to the status quo) is presented in Table 3.3 below.

Table 3.3 Costs and Benefits: Water metering

Option	Costs	Benefits
Remove metering requirements from operating licence.	Risk of loss of significant proportion of revenue from usage charges due to sub-standard or faulty meters not being replaced or repaired.	Saving compliance and audit costs for both IPART and State Water

²⁹ Second Reading Speech, Water Management Amendment Bill 2009 (NSW), Legislative Council, 25 November 2009 (Penny Sharpe, Parliamentary Secretary).

³⁰ Ibid (emphasis added).

4 Other changes to the operating licence

We have summarised our assessment of other minor changes to State Water's operating licence in the following table.

Table 4.1 Summary of CBA assessment for other proposed changes

	Costs	Benefits	Support
Conferred functions			
▼ Include split in operating licence	Inflexible.	Marginal improvement in transparency.	No
▼ Include split in State Water / NOW MoU	Overly prescriptive. Could complicate MoU process.	Marginal improvement in transparency.	No
▼ Require State Water to disclose the extent to which they will exercise the conferred functions.	Will require additional expenditure to capture and report information.	Improved transparency. Flexible to changes in conferred functions / split.	Yes
Environmental water releases			
▼ Introduce environmental water conditions	Duplicates requirements of AMS, EMS and Water Sharing Plans.	No incremental benefit.	No
▼ Clarify State Water's responsibility to environmental water entitlement holders	No cost.	Improves clarity and transparency.	Yes
Customer Service Committee (CSC)			
▼ Require environment representatives on CSC	Overly prescriptive. Increases regulatory burden.	No incremental benefit (over base case where these reps are free to attend).	No
Community Consultative Committee (CCC)			
▼ Remove requirement for CCC	No cost. EMS will require State Water to engage with community.	Allows for a more targeted and efficient approach.	Yes
Operational audits			
▼ Remove obligations on IPART	No cost.	Removal of an unnecessary requirement from licence.	Yes
Duplicative regulatory requirements			
▼ Remove duplicative requirements	No cost.	Improves clarity of regulation / licence.	Yes
Reporting manual			
▼ Introduce reporting manual	Low	Streamlines compliance and audit activity.	Yes
Memoranda of understanding (MoU)			
▼ Remove DPI and OEH MoU requirements	No cost (State Water will continue to maintain these agreements).	Removes unnecessary requirement from licence.	No
▼ Remove all MoU	No cost (State Water will	Removes unnecessary	Yes

	Costs	Benefits	Support
requirements	continue to maintain these agreements).	requirement from licence.	



Schedules

A Common elements of proposed management systems

The following table illustrates the common elements of the four management systems considered in Chapter 2. Elements 1 to 12 require system specific information/processes and therefore offer only partial economies of scope. Elements 13 to 18 do not require system specific information/processes and therefore offer full economies of scope across the four systems.

Table A.1 Common elements across proposed management systems

Elements	AMS	EMS	QMS	FRWQMS
1. General Requirements	✓	✓	✓	✓
2. Policy	✓	✓	✓	✓
3. Environmental Aspects	-	✓	-	-
4. Legal and other Requirements	✓	✓	-	✓
5. Objectives, Targets and Programs	✓	✓	✓	✓
6. Resources, Roles, Responsibility, (Accountability) and Authority	✓	✓	✓	✓
7. Documentation	✓	✓	-	✓
8. Operational Control	✓	✓	✓	✓
9. Emergency Preparedness and Response	-	✓	-	✓
10. Monitoring and Measurement	✓	✓	✓	✓
11. Evaluation of Compliance	✓	✓	-	✓
12. Nonconformity, Corrective Action and Preventive Action	✓	✓	✓	✓
13. Competence, Training and Awareness	✓	✓	✓	✓
14. Communication	✓	✓	✓	✓
15. Control of Documents	✓	✓	✓	✓
16. Control of Records	✓	✓	✓	✓
17. Internal Audit	✓	✓	✓	✓
18. Management Review	✓	✓	✓	✓

AMS: ISO Draft International Standards 55000, 55001, 55002 – Asset Management Systems.

EMS and QMS: Adapted from SAI Global website. Site accessed on 4 December 2012.
<http://www.qmi.com/closer/default.asp?load=common&language=english>.

FRWQMS: NHMRC, NRMCC (2011) Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy. National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra.

The significant overlap between these systems indicates that there could be opportunities for State Water to economise on development, implementation and operating expenses associated with these systems.

B Asset, Environment, Quality and Drinking Water Quality Management Systems

B.1 Asset management standard³¹

ISO 55000 (overview), 55001 (requirements) and 55002 (guidance) are the first set of international standards for asset management. This new family of asset management standards are based on the Publically Available Specification (PAS) 55-2008 standard for best practice in asset management.

Asset management standards provide guidance across all aspects of good asset management, from lifecycle strategy to everyday maintenance. This approach enables the integration of all aspects of the asset lifecycle. This includes the first recognition of a need for the asset, design, acquisition, construction, commissioning, utilisation or operation, maintenance, renewal, modification and/or ultimate disposal.

Asset management standards provide a common language for cross-functional discussion and a framework for understanding how individual parts fit together and how the many mutual interdependencies can be handled and optimised.

B.2 Environmental management standard³²

An Environmental Management System (EMS) is a structured system or management tool designed to help an organisation to reduce its negative impacts on the environment and improve its environmental performance. The system can also provide a methodical approach to planning, implementing and reviewing an organisation's environmental management.

Implementation of an EMS involves an organisation taking the following steps:

- ▼ devise a policy that articulates the organisations environmental commitments
- ▼ appoint an environmental manager or management team responsible for the ongoing coordination of the EMS
- ▼ identify the organisation's significant environmental aspects
- ▼ identify legislative and regulative requirements relevant to the organisations environmental aspects
- ▼ establish environmental objectives and targets
- ▼ implement programs to achieve those objectives and targets

³¹ <http://www.assetmanagementstandards.com/2.html>, accessed 23 January 2013. The Institute of Asset Management, <http://theiam.org/products-and-services/pas-55/what-pas55>, accessed 14 December 2012.

³² <http://www.environment.gov.au/sustainability/government/ems/index.html>

- ▼ monitor and measure progress towards achieving those objectives and targets
- ▼ take steps to continually improve the effectiveness and efficiency of environmental management
- ▼ strategically review the continuing effectiveness of environmental management within the organisation.

Standards Australia adopted the International Standards for Environmental Management Systems (ISO14001 and ISO14004) for use by Australian organisations. These are known within Australia (and New Zealand) as:

- ▼ AS/NZS ISO 14001:2004 Environmental Management Systems - requirements and guidance for use.
- ▼ AS/NZS ISO 14004:2004 Environmental Management Systems - general guidelines on principles, systems and support techniques.

B.3 Quality management standard

ISO 9001:2008 is the internationally recognised standard for Quality Management Systems (QMS). This standard provides organisations a framework and set of principles that ensure a common sense approach to the management of the business.³³

Key requirements of ISO 9001:2008 include:³⁴

- ▼ Well defined business processes: includes simple diagrams showing how work flows through the organisation and who is responsible at each stage.
- ▼ A quality policy: a short “quality slogan” issued by top management signalling the organisation’s commitment to meeting customer requirements and to continual improvement.
- ▼ A set of quality objectives and supporting performance data: measurable targets for improvement and data to show current and past performance.
- ▼ A quality manual: a general description of how the company operates and how it meets ISO 9001 requirements.
- ▼ Administrative procedures: includes document control, control of records, control of nonconforming product, internal auditing, corrective action and preventive action.
- ▼ Employee training in areas including: management responsibilities, job-specific training, quality policy training, administrative procedure training, auditing skills training.

³³ <http://www.nqa.com/en/atozservices/what-is-iso-9001.asp>, accessed 14 December 2012.

³⁴ http://www.9000world.com/index.php?app=ccp0&ns=display&ref=isoguides_required accessed 14 December 2012.

- ▼ Customer feedback: tracking of complaints, compliments and overall satisfaction.
- ▼ Management review: A regular meeting of top management to review the progress of the organisation's QMS and guide further improvements as required.
- ▼ Internal audit: formal process by a team of employees trained to conduct audits.
- ▼ Certification audit: the audit performed by the Registrar that leads to formal certification.

B.4 Australian drinking water guidelines

The Australian Drinking Water Guidelines (ADWG) is designed to provide an authoritative reference to the Australian community and the water supply industry on what defines safe, good quality water, how it can be achieved and how it can be assured.³⁵

The ADWG address 4 general areas:³⁶

- ▼ Commitment to drinking water quality management: successful implementation requires the active participation of senior executive and a supportive organisational philosophy.
- ▼ System analysis and management: involves understanding the entire water supply system, the hazards and events that can compromise drinking water quality, and the preventive measures and operational control necessary for assuring safe and reliable drinking water.
- ▼ Supporting requirements: include the basic elements of good practice such as employee training, community involvement, research and development, validation of process efficacy, and systems for documentation and reporting.
- ▼ Review: includes evaluation and audit processes and their review by senior executives to ensure the management system is functioning satisfactorily and that improvements are made where necessary.

³⁵ <http://www.nhmrc.gov.au/guidelines/publications/eh52>, accessed 14 December 2012.

³⁶ National Health and Medical Research Council, *Australian Drinking Water Guidelines 6*, 2011. http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/eh52_aust_drinking_water_guidelines_111130.pdf, accessed 19 December 2012.

C Management system cost benefit data from State Water

	2013/14	2014/15	2015/16	2016/17	2017/18	TOTAL
Asset Management						
<i>Option 1 – Asset Management Requirements</i>						
Development / Implementation Costs	-	-	-	-	-	-
Direct Savings to State Water						
- Internal staff savings (assumed 50% saving)	\$7,223	-	\$120,242	-	-	\$127,465
- Reduced Audit expenses (assumed 50% saving)	\$9,000	-	\$9,000	-	-	\$18,000
<i>Option 2 – Asset Management System</i>						
Development / Implementation Costs						
- Internal staff costs	\$470,903	\$941,807	\$706,355	\$756,355	\$117,726	\$2,993,146
- Consultants and certification expenses	\$90,000	\$50,000	\$50,000	-	\$50,000	\$240,000
Direct Savings to State Water (note: savings to occur after AMS certification - post 2017/18).	-	-	-	-	-	-
Environmental Management System						
Development / Implementation Costs						
- Internal staff costs	\$85,533	\$85,533	\$186,333	\$100,800	\$76,800	\$535,000
- Consultant expenses	\$98,500	\$98,500	\$180,500	\$144,000	\$82,000	\$603,500
Direct Savings to State Water						
- Internal staff savings	\$16,419	-	-	-	\$16,419	\$32,837
- Reduced non-staff audit expenses	\$18,000	-	-	-	\$18,000	\$36,000
Quality Management System						
Development / Implementation Costs	n/a	n/a	n/a	n/a	n/a	n/a
Direct Savings to State Water	n/a	n/a	n/a	n/a	n/a	n/a
Management of FRWSS Drinking Water Quality						
<i>Option 1 – Defer to Public Health Act 2010</i>						
Costs						
- Capital expenditure requirement	\$300,000	\$200,000	-	-	-	\$500,000

	2013/14	2014/15	2015/16	2016/17	2017/18	TOTAL
- Operating expenses	\$100,000	\$20,000	\$20,000	\$20,000	\$20,000	\$180,000
- NSW Health audit expenses (assumed equal to IPART)	\$64,304	-	-	\$64,304	-	\$128,608
<i>Option 2 – Include specific conditions in licence</i>	-	-	-	-	-	-
Costs						
- Capital expenditure	\$300,000	\$200,000	-	-	-	\$500,000
- Operating expenses (including audit expenses)	\$164,304	\$20,000	\$20,000	\$84,304	\$20,000	\$308,609

Note: All estimates are in (real) 2013/14 dollars.

Source: cost and benefit estimates provided by State Water on 21 November 2012.

