
Icon Water Limited

Statement of changes

1 December 2014

Information return to the Independent Competition and Regulatory Commission biennial recalibration of prices for water and sewerage services



Icon Water Limited is an unlisted public company that owns and operates the water and sewerage assets and business in the ACT. The company is owned by the ACT Government and has two voting shareholders: the Chief Minister and Deputy Chief Minister of the ACT.

Until 30 October 2014, Icon Water Limited was known as ACTEW Corporation Limited. Supporting documentation produced prior to that day will refer to ACTEW Corporation Limited or ACTEW Water. Icon Water Limited will continue to use the brand name “ACTEW Water” until further notice.

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Glossary

ACT	Australian Capital Territory
ACTEW Water	Icon Water Limited
ADWG	Australian Drinking Water Guidelines
AMP	Asset management plan
ANU	Australian National University
Capex	Capital expenditure
CDS	Concept description statement
CEG	Competition Economists Group
CGBT	Cotter to Googong bulk transfer
Commission	Independent Competition and Regulatory Commission
CSA	Corporate services agreement
CSS	Commonwealth Superannuation Scheme
ECD	Enlarged Cotter Dam
EIM&C	Electrical, instrumentation, monitoring & control
EGW	Electricity, gas and water
GL	Gigalitres
ICRC	Independent Competition and Regulatory Commission
ICT	Information and communication technology
IPaD	Investment planning and development
IRC	Investment Review Committee
IT	Information technology
LMWQCC	Lower Molonglo Water Quality Control Centre
M2G	Murrumbidgee to Googong
ML	Megalitres
MM	Major maintenance
MVIS	Molonglo Valley Interceptor Sewer
Opex	Operating expenditure
PAC	Powdered activated carbon
PRV	Pressure reducing valve
QCC	Queanbeyan City Council
REALM	Resource Allocation Model
SPS	Sewer pump station
STP	Sewage treatment plant
UNFT	Utilities Network Facilities Tax
WAC	Water Abstraction Charge
WPS	Water pump station
WTP	Water treatment plant

1 Introduction

In accordance with the Price Direction, the Independent Competition and Regulatory Commission (Commission) provided ACTEW Water with an information request on 30 October 2014. The Commission has requested that ACTEW Water complete an Excel information template and provide specific ACTEW Water-generated files, a statement of changes, and a statement by the ACTEW Water Board. This document is the statement of changes requested by the Commission. As required under the Price Direction, it outlines:

1. an account of any numbers (for the categories in the Excel information template) that have varied from what was previously provided to the Commission and the reasons for those changes;
2. the basis for any changes to estimated and forecast numbers; and
3. the basis for any forecast being provided for the first time.

In accordance with the further guidance provided in the Commission's information return manual, explanations are generally only provided for significant variations of more than 10 per cent or \pm \$1 million per year, whichever is the higher, for total expenditure or project expenditure.¹

1.1 Changes to the forecasting approach

ACTEW Water is adopting an asset management strategy that aligns with ISO5500X

The recent re-alignment of ACTEW Water's structure and priorities, which coincided with the release of the ISO5500X suite of standards in Asset Management, has refocused attention on Asset Management within ACTEW Water. ACTEW Water has commenced a major medium-term improvement program to embed an integrated asset management system within ACTEW Water's business practices.

This alignment was critical in developing the expenditure forecasts included in this submission, as it allows for a consistent balancing of cost, risk and performance across the business.

Asset management - "the coordinated activities of an organisation to realise value from assets²" – is fundamental to ensuring that an organisation can achieve their required performance objectives while minimising the cost and risk to the organisation and community. Therefore, aligning ACTEW Water's asset management principles with the AS ISO 55000 framework was critical to developing the expenditure forecasts included in this submission. Integrating asset management principles across the business allows ACTEW Water to appropriately and consistently balance cost, risk and performance to achieve the organisational objectives and desired outcomes.

As a result of this change in business direction, some business processes have changed. This has changed some of the expenditure forecasts.

The initial phases of this asset management improvement plan have been used to inform the development of the expenditure forecasts included in this submission. This includes changes to the capital expenditure governance process, reprioritizing the capital expenditure program and identifying renewals based on condition and the criticality to the business. However, the reprioritization may shift

¹ ICRC 2014, Template instructions, October, p4.

² AS ISO 55000 definition

some costs from capital expenditure to operational expenditure as the most efficient risk mitigation method. Consequently, forecasts for capital and operational expenditure have been modified.

The progressive adoption of an Asset Management framework will influence expenditure forecasts in future submissions.

Expenditure forecasts in future submissions – including for any biennial recalibration in 2017/18 and for the subsequent regulatory period – will be influenced by the Asset Management Improvement Plan.

These improvements include:

- continued modification of capital works planning and approval processes;
- an improved method for estimating risks for each project and driver;
- internal restructuring to align with the Asset Management Capability model;
- systematic optimisation of operations and maintenance programs across the business groups;
- the likely upgrade to the end-of-life Asset Management Maintenance Computer System.

These improvements will support the continued efficient and prudent operation of the business. This will mean, however, that current projects may not continue in the same form, but will be reorganised to better align with the asset management framework.

1.2 Rebranding

ACTEW Corporation Limited (using the business name ACTEW Water) registered its change of name to Icon Water Limited (Icon Water) on 28 October 2014. One of the reasons for this change is to clarify the ongoing brand confusion between ACTEW Corporation and ActewAGL. Further, given significant organisational changes over recent years, the name ACTEW Water no longer reflects the organisation's service and product offerings, in particular the provision of electricity ('ACTEW' arose from the former ACT Electricity and Water).

The brand 'Icon Water' is being implemented in stages from November 2014, with the business name ACTEW Water continuing to be utilised into the first half of 2015 while the logistics of the change are pragmatically and prudently addressed. As a result, the names 'ACTEW Water', 'ACTEW Corporation' and 'ACTEW' are still used throughout this document (and other supplementary reports and documents), particularly those produced prior to 31 October 2014. In all instances they should be read as equivalent to Icon Water.

2 Capital expenditure

2.1 Improvements in capital expenditure governance and planning

ACTEW Water's capital works governance process has been further refined and enhanced in the period since April 2013. At that time, the capital expenditure process update was relatively new. There has been substantial improvement in implementation and subsequent revision of the process since then.

The capital expenditure planning and approval process described in the April 2013 submission forms the foundation of ACTEW Water's current governance arrangements, the Investment Planning and Development (IPaD) process. The IPaD process defines the procedures which are followed within ACTEW Water for the initiation and approval of all significant investment projects. This includes projects funded from both capital expenditure and operational expenditure. Significant operating expenditure projects include major maintenance projects and at this point in time selected other high value or high complexity investments.

In line with the inclusion of non-capital expenditure in the process, ACTEW Water's governing body is now termed the Investment Review Committee (IRC). This group consists of ACTEW Water's General Managers Asset Management; Project Delivery Operations and Maintenance; Finance; and Safety and Business Solutions, as well as a representative for safety and one for technical advice and standards.

The IRC applies substantial rigour to the assessment of proposed projects. Scrutiny is applied at key decision points in a project's lifecycle. The focus of the IRC is on ensuring that capital expenditure and other solutions are prudent and in line with ACTEW Water's regulatory obligations and the strategic objectives defined in the Statement of Corporate Intent. All capital expenditure projects are subject to the IPaD process.

The shifts in focus and nomenclature are enhancements that have been undertaken since April 2013. Other key milestones in the process change are listed below.

- August 2013: templates and procedures for capex initiation phase documents finalised and rolled out with training and briefing sessions.
- August 2013: Integration of a formal sustainability assessment in the form of a Sustainability Scorecard which is prepared in collaboration with ACTEW Water's subject matter experts
- April 2014: Update to the Project Change Request and Change Management Procedure to increase requirement for asset manager involvement
- June 2014: Established short form problem statement and business case documents to be used for projects of small scale or where delivery is not required for some period of time.
- July 2014: Revision of templates and work instructions to include changes based on the first year of implementation and to align with organisational restructure in June 2014
- August 2014: Full revision of manual to support suite of changes in July 2014 and to accommodate changes in approval processes and organisational structure changes

All of these changes build on the foundation documented in the Capital Expenditure Initiation and Approval Manual (December 2012), included as Attachment 3.1 to the April 2013 submission. The current document, the Investment Project Initiation and Approval Manual (August 2014), is attached to this submission.

The August 2014 update of the manual has:

- communicated the asset ownership responsibilities within ACTEW Water, identifying specific members of the Executive who act as owners of the assets;
- updated the timeframe and requirements for development of the capex program in line with current business planning schedules;
- reinforced the requirement for additional rigour around the initiation of projects by including a requirement to address during the approvals process the presumption that the project was not included previous forecasts because it was not sufficiently prudent;
- reworked the investment drivers to reduce the overlap and lack of clarity between regulatory and efficiency projects;
- included the process for development, endorsement and approval of project scope changes; and
- aligned the description of the role and charter of the Investment Review Committee with the organisational restructure of July 2014.

Future changes to the IPaD process will occur. The first of these will be an update to the prioritisation method used to rank projects. An enhanced risk based process was drafted to enable development of a robust capital works program for 2015/16 – 2020/21. This process has been validated during the assessment of the program and the refined prioritisation method will be integrated into the IPaD manual in coming months.

Also planned for 2014/15 is an update to the risk and hazard assessment which forms part of the process. The focus will be on increasing the alignment of risk assessment with the AS/NZS ISO 31000 Risk Management standard. There are some changes foreshadowed to the financial analysis tool to enable better consideration of lifecycle operational and maintenance costs. The IPaD process will be further reviewed and adapted to suit the changes that occur with ACTEW Water's business context over the coming years.

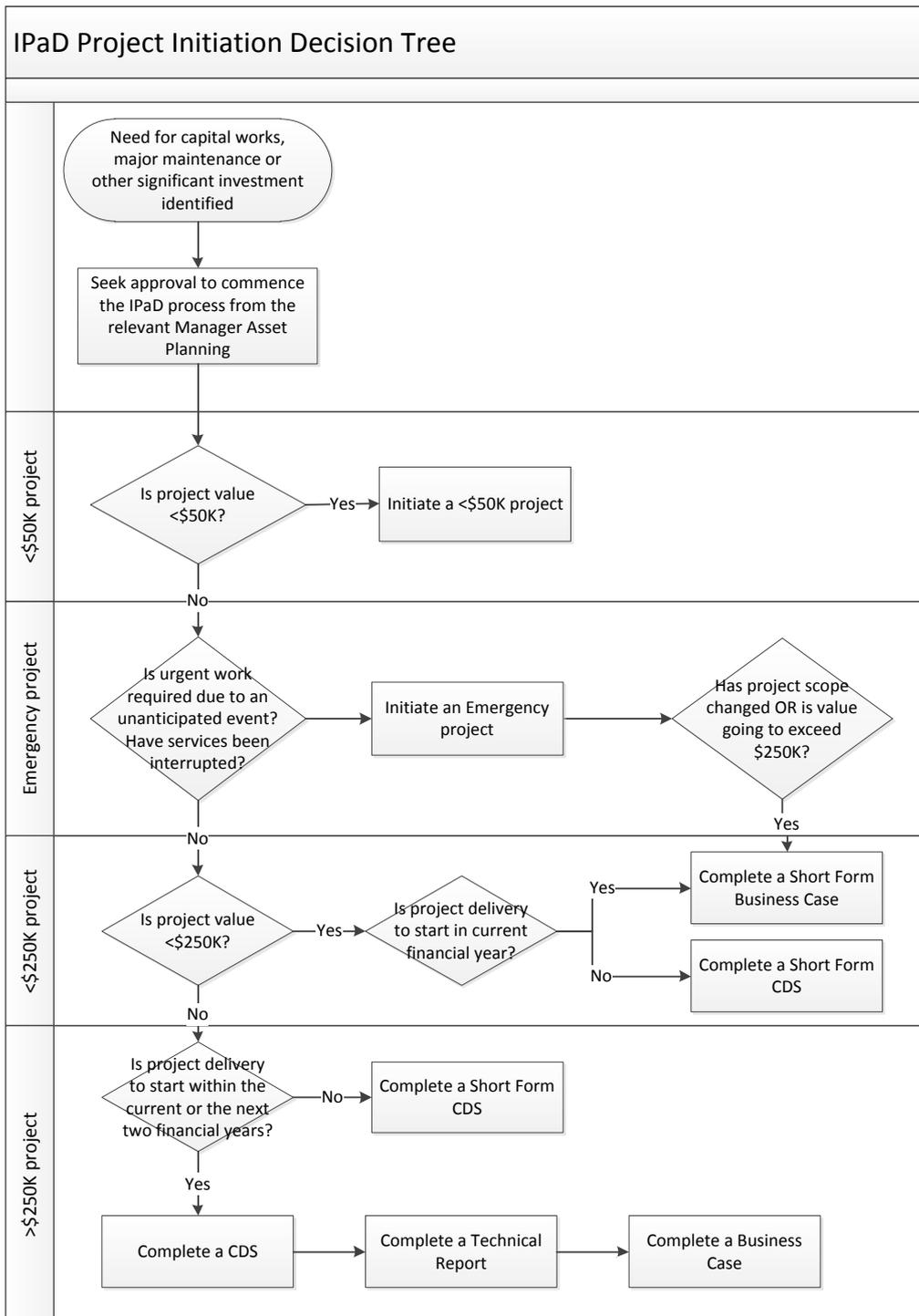
2.1.1 Implementation of the IPaD process

The IPaD process includes several stages.

1. Definition of the problem and the impact that it has on the community and the business (concept description statement (CDS))
2. Identification and comparison of options to solve the problem (technical report)
3. Seeking funding to implement an endorsed solution (business case)

Projects of differing scale and delivery timing are assessed through differing pathways. The project initiation decision tree is as shown in the following diagram:

Figure 2.1: IPaD project initiation decision tree



A full initiation flowchart for each type of project is set out in Appendix B of Attachment B. This flowchart identifies the process, stakeholders, endorsement and approval requirements for each type of project.

Early and ongoing business-wide consultation throughout the project is a core element of the IPaD process. This element has been well embedded in the period since implementation. There is a requirement that both the project initiator and the project manager present their project to the IRC when seeking endorsement at each stage. The technical briefing thus made available to the IRC has substantially contributed to the ability of the committee to assess projects on their strategic benefit and value for money.

Risk assessment is at the core of the IPaD process. Risks to the business and the community are assessed in the problem definition stage, options are compared using a risk framework and risks of delivery are analysed as a project enters design and construction.

The risk assessment in the options comparison phase has been a focus of improvement. Alignment is established between ACTEW Water's strategic objectives and the objectives of the project. The risk assessment then requires that each option be assessed against the risk of not meeting the project objectives, and thus the high level strategic goals. This process has benefited from increased involvement of ACTEW Water's risk and fraud management experts.

ACTEW Water continues to utilise a financial analysis tool to assess the lifecycle costs of options on a net present value basis. This analysis is carried out by the Finance Group and it is one of several requirements for internal stakeholder consultation and review within the IPaD process.

In the period since implementation of the IPaD process, a number of projects have been rejected or changed substantially as they were deemed not to be prudent. In most cases, these projects were rejected before they reached the IRC. This is evidence of the increased maturity of assessment within the organisation as a whole. Some projects which were in the April 2013 capital works program have since been deferred or removed, including the following:

- CX10855 Mains Relocation has been deferred. A thorough risk assessment will be undertaken to refine the project scope and ensure value for the community can be achieved.
- CX10818 Googong Stage 1 filter plenum access has been removed from the capital works program. A more efficient operational approach has been implemented and ACTEW Water is accepting some risk of asset failure based on an assessment that the failure would have a low impact on the ability to provide service to customers.
- CX10844 Lake Tuggeranong sewer pump station (SPS) Storage Augmentation has been removed from the program. Engagement with the environmental regulator has enabled operational controls to be established which mitigate the risk that would have otherwise been addressed by a capital solution.

2.1.2 Development of the 2015/16 – 2020/21 capital expenditure program

There is a program of capital works underway and many of these projects will carry over into future years. Identification of proposed new projects was a key outcome of a substantial asset management planning project undertaken by ACTEW Water in 2014. Asset management plans (AMPs) have been developed for all of ACTEW Water's asset classes and these AMPs form the basis for the program.

Renewal of aging assets is a significant and increasing driver for capital works. As ACTEW Water's networks and treatment plants age, it is essential to review their condition and criticality to ensure that service provision obligations can be met.

Condition and criticality assessment were used across ACTEW Water's asset base to define a robust program of renewals. The condition of more than 12,000 non-linear assets was assessed. The assessments were prioritised to ensure assets of greater age and suspected poorer condition were considered.

The asset condition assessments have been carried out recognising the different levels of assessment defined by the Institute of Public Works Engineering Australasia in their Practice Note 7 for Water Supply and Sewerage, as follows:

Condition and performance assessment is undertaken at three levels:

- **Level 1 Routine operation and maintenance data assessment:** *Relevant data captured as part of the on-going operation and maintenance process is analysed to gain an understanding of asset condition and performance;*
- **Level 2 Formalised asset inspection/condition assessment:** *This will include a planned and structured inspection of the asset portfolio which should include a representative sample and a risk-based sample of the portfolio; and*
- **Level 3 Detailed investigation:** *Undertaken as required and where shown to be cost-effective.*

The majority of assets were assessed to levels one or two. A level zero was adopted to utilise asset age information based on desktop analysis

The condition assessments resulted in a condition grading for each asset or asset component which measures the likelihood that the equipment will fail to meet its required service level.

In parallel, the functional criticality of assets was defined. For each facility, the criticality was assessed in terms of the impact that failure would have on ACTEW Water's ability to delivery against the organisation's objectives. Utilising the strong understanding of the function of assets throughout the organisation, a criticality score was identified for each facility. These were validated to ensure consistency across the asset base.

The criticality and condition assessments were combined and applied to ACTEW Water's risk assessment matrix to derive a risk rating for each item. For assets with a listed remaining life of less than ten years, the risk ratings are used to develop prioritised asset renewal projects. Mitigating risk to align to the minimal acceptable level of residual risk, as articulated in ACTEW's corporate risk policy, is a key consideration of prioritisation for asset renewal projects.

Condition and criticality information on the non-linear assets was drawn from ACTEW Water's ongoing assessment programs for the extensive pipe networks and associated assets. This information has been used to develop prioritised renewal programs for the water and sewerage reticulation networks.

The development of the AMPs included an assessment of the capital works which may be needed to accommodate growth in Canberra as well as consideration of the changed regulatory requirements to which ACTEW Water needs to respond. A number of projects were proposed to meet these drivers and these were assessed using the nascent prioritisation process which ACTEW Water has recently established.

For projects which are not driven by a need to renew existing assets, the prioritisation process considers a variety of factors. For projects driven by regulation, the criteria include:

- Regulatory certainty
- Impact of non-compliance
- Availability of non-capital options

For growth projects, the process considers:

- Certainty of capacity increase requirements
- Timing of capacity requirement
- Influence of external factors

Ratings drawn from the assessment of these criteria are expressed in terms of a risk rating consistent with ACTEW Water's risk matrix. This approach enables a risk based prioritisation of projects with differing drivers.

A small number of new growth and regulatory projects have been assessed as priorities for the 2015/16 – 2020/21 capex program. A larger number of potential projects have not been placed on the program as the prioritisation revealed that there was not enough certainty that they would be required within the period.

Assumptions have been made about the required timing of response to growth and regulatory drivers. Specific evaluation of each proposed project has defined some extrinsic influences which affect the need to undertake capital works. ACTEW Water has chosen to exclude a number of projects from the capital works program on the basis of a set of assumptions around these externalities. In particular:

- Changes to the treatment processes and other elements of the drinking water supply system may be required in response to the upcoming inclusion of health-based targets in the Australian Drinking Water Guidelines (ADWG). The revisions to the ADWG have not been finalised and, when released, they will not be prescriptive. Negotiation with the health regulator will be important to define the appropriate response to the revised ADWG. No associated capital works are included in the program for the period 2015/16 – 2020/21.
- New bulk infrastructure may be required to support development in the Molonglo Valley. On the basis that the development plans remain as is and are not changed to include significant high density development, ACTEW Water has assumed that existing infrastructure can supply demand for the next seven or more years.
- There is the potential for increase in the levels of blue-green algae metabolites and other organic contaminants in the raw water sources. This is likely to be caused by external factors such as climate change and development in the catchment areas. It is assumed that the current management and treatment processes will be able to treat the raw waters to the required standards and that process changes and upgrades will not be required in 2015/16 – 2020/21.
- In the sewer network, works to expand the network and duplicate the Turner Tank storage facility are linked to the City to the Lake project and to development in the city. It is assumed that works on the sewer network to accommodate this growth will not be required in the next seven years.
- There is a large amount of uncertainty in population projections, demand and timing estimates for infill development in the areas of Constitution Ave, Northbourne Ave Corridor and the City to the Lake project that are currently being developed by the ACT government. Furthermore, the timing for the new developments (greenfield) in Molonglo 3, West Belconnen and Gungahlin growth areas is uncertain and will be largely driven by demand uptake within the developments.

Moreover, ACTEW Water is currently in discussion with ACT Government Departments regarding the responsibilities, including funding protocols, for infill (brownfield) and new development releases (greenfield). Given the level of uncertainty around the requirement to undertake infrastructure upgrades, including the associated funding responsibility, no associated capital works for the above identified brownfield and greenfield development areas are included in the program for the period 2015/16 – 2020/21.

- ACTEW Water is currently negotiating with Capital Metro regarding the responsibilities, including funding responsibility, for relocation of any water and sewerage infrastructure. Consequently, no associated works relating to Capital Metro impacts on water and sewerage infrastructure are included in the program for the period 2015/16 – 2020/21.
- The *Canberra Sewerage Strategy 2010-2060: Fyshwick Sewage Treatment Plant* identified the potential for substantial capital works at that plant. The strategic direction for the facility will be affected by extrinsic factors including the future plans for recycled water provision in Canberra and potential links between the Canberra and Queanbeyan sewage treatment systems. It is assumed that substantial capital works will not be undertaken in the period 2015/16 – 2020/21, noting that minor renewals will continue to be undertaken.

ACTEW Water is initiating all of the new projects through the IPaD governance process. Cost estimates have been prepared by an independent party (WT Partnership) for the top ten capital works projects. These top ten projects include some of the new projects along with several carryover projects.

2.1.3 Future development of capital expenditure governance and planning

As noted above, future changes to the IPaD process will include the integration of the new project prioritisation method into the manual and other process elements. In addition, greater alignment will be established between the assessment of risks and hazards in IPaD and the ISO 31000 Risk Management standard.

The implementation of broad scale condition and criticality assessments in capital works planning will continue. These activities will be expanded and refined to ensure that decision making is founded on a robust understanding of the impacts that failure of individual asset will have on the ability of ACTEW Water to meet required levels of service.

In 2014 ACTEW Water initiated a five year business-wide program to improve asset management, in line with the corporate strategic objective “to excel at Asset Management”. The program recognises the asset-intensive nature of ACTEW Water’s business and the impact that asset management has on the financial performance of the organisation. Through this program ACTEW Water will be working to achieve alignment with the AS ISO 5500X Asset Management standards.

Many elements of the Asset Management Improvement Program will affect capital works planning and approval processes over the five year term of the program and beyond. In the early phases of the program ACTEW Water is defining a set of cascading asset management objectives. These objectives cover the three elements of cost, risk and performance that need to be balanced in asset management decisions. The objectives will be defined at increasing levels of specificity through five asset tiers. They serve to translate the value proposition required by legislation, shareholder and customer expectations into guidance for day to day activities such as capital works identification and planning.

It is anticipated that these objectives will be one of the earliest outcomes of the asset management improvement program to be incorporated into capital works governance. This will be part of the rolling

revision and update of the governance process to ensure that ACTEW Water's capital works planning and approvals are robust and prudent.

2.2 Actual capital expenditure

2.2.1 Actual capital expenditure in 2012-13

The following table compares actual capital expenditure in 2012-13 with forecasts provided by ACTEW Water in its April 2013 revised submission.

Table 2.1: Actual and forecast net capital expenditure in 2012-13

<i>\$'000s (real \$2012-13)</i>	<i>Actual</i>	<i>Forecast April 2013³</i>	<i>Variance</i>
Water			
Asset renewal / replacement	10,824	10,915	-92
Growth	93,716	90,235	3,482
Improvement	3,963	4,055	-92
Non-system assets	2,747	3,214	-467
Total net capital expenditure, water	111,250	108,419	2,831
Sewerage			
Asset renewal / replacement	15,580	16,250	-670
Growth	3,393	3,638	-245
Improvement	2,474	3,099	-625
Non-system assets	3,358	2,630	728
Total net capital expenditure, sewerage	24,804	25,616	-812
Total net capital expenditure	136,054	134,036	2,018

Total capital expenditure in 2012-13 was around \$2 million greater than the estimates provided in April 2013. The material variances in 2012-13 at a project level were as follows:

- Molonglo Valley Bulk Mains (\$1.23 million below forecast): Construction for this project had been envisioned for the fourth quarter of 2012-13, however delays during design pushed the commencement of construction to the beginning of 2013-14.

³ The forecasts provided under 'capital contributions' in April 2013 were forecast values of gifted assets, as distinct from revenue received from customers or developers as reimbursement for capital expenditure. ACTEW Water does not receive such revenue. These forecasts of gifted assets were added to capital expenditure forecasts under the growth driver and subtracted under the capital contributions category. Since gifted assets are not strictly capital contributions and since the Commission appears to utilise only net capital expenditure (excluding gifted assets), ACTEW Water has not recorded gifted assets under either the growth or capital contributions categories in the actual and forecast capital expenditure provided in this submission. This change in approach does not affect the total net capital expenditure. To allow like-with-like comparison, gifted assets have been excluded from the April 2013 forecast presented in Table 2.1.

- Cotter Precinct (\$1.3 million above forecast): There was no forecast for this project included for 2012-13 in the April 2013 submission. These costs relate to flood rectification works (following the 2010 and 2012 floods), primarily for the Cotter Avenue Upgrade, the Discovery Trail and the Cotter Avenue recreational area.
- Cotter Pump Station Suction Discharge Main Upgrade (\$2.0 million above forecast): There was no forecast for this project included for 2012-13 in the April 2013 submission. These costs were primarily reallocations due to the finalisation of the painshare/gainshare settlement.

2.2.2 Actual capital expenditure in 2013-14

The following table compares actual capital expenditure in 2013-14 with forecasts provided by ACTEW Water in its April 2013 revised submission.

Table 2.2: Actual and forecast net capital expenditure in 2013-14

<i>\$2012-13 (\$'000s)</i>	<i>Actual</i>	<i>Forecast April 2013⁴</i>	<i>Variance</i>
Water			
Asset renewal / replacement	7,550	16,939	-9,389
Growth	27,145	3,717	23,428
Improvement	3,424	1,346	2,078
Non-system assets	1,443	1,740	-297
Total net capital expenditure, water	39,563	23,743	15,820
Sewerage			
Asset renewal / replacement	6,899	17,085	-10,186
Growth	4,640	6,555	-1,914
Improvement	4,364	5,253	-889
Non-system assets	1,734	2,295	-561
Total net capital expenditure, sewerage	17,637	31,188	-13,550
Total net capital expenditure	57,200	54,931	2,270

In 2013-14, water capital expenditure was above forecast by around \$16 million and sewerage capital expenditure was below forecast by around \$14 million, resulting in total capital expenditure within around \$2 million or 4 per cent of the forecast provided in April 2013.

⁴ The forecasts provided under 'capital contributions' in April 2013 were forecast values of gifted assets, as distinct from revenue received from customers or developers as reimbursement for capital expenditure. ACTEW Water does not receive such revenue. These forecasts of gifted assets were added to capital expenditure forecasts under the growth driver and subtracted under the capital contributions category. Since gifted assets are not strictly capital contributions and since the Commission appears to utilise only net capital expenditure (excluding gifted assets), ACTEW Water has not recorded gifted assets under either the growth or capital contributions categories in the actual and forecast capital expenditure provided in this submission. This change in approach does not affect the total net capital expenditure. To allow like-with-like comparison, gifted assets have been excluded from the April 2013 forecast presented in Table 2.2.

The main reason for the increased expenditure in water was the cost of finalising the water security major projects. ACTEW Water had forecast that expenditure on these projects would be completed by the end of 2012-13, but delays caused by the 2010 and 2012 floods have meant that some expenditure was delayed to 2013-14 and a small amount to 2014-15. This expenditure includes:

- completion of commissioning activities for electrical and mechanical elements of the Enlarged Cotter Dam (ECD);
- rehabilitation of the construction areas;
- finalisation of operational access roads and riverbank revetment works downstream of the stilling basin
- demobilisation of site sheds;
- rectification works under the defect liability period; and
- production of technical documentation/manuals.

The estimated cost of the ECD is expected to be in the order of \$410.3 million, which includes an estimated \$2.9 million of costs relating to rectification of the March 2012 flood damage, deemed unrecoverable by insurers. This is \$5.6 million (1.4 per cent) above project budget.

Other material variances at a project level are:

- Sewer Mains Rehabilitation 2013-18 (\$7.0 million below forecast) – The program of works was rescheduled from a consistent annual expenditure forecast over the 5 year program to a program that allowed for mobilisation (ramp up) and demobilisation (ramp down) in the first and final years. This meant only 4 km of mains were included in 2013-14, with the remainder to be delivered by 2017/18.
- Lower Molonglo Water Quality Control Centre (LMWQCC) Solids Handling (\$3.2 million above forecast) – Due to the deteriorating condition of the LMWQCC solids handling system and excessive air emission licence limit exceedences the preliminary design phase was brought forward from the final year of the regulatory period to 2013-14 and 2014-15 to allow a solution to be generated.
- Lake Tuggeranong Precinct SPS Augmentation (\$2.0 million below forecast) – As discussed in section 2.1.1, this project was cancelled following the technical report and discussions with the ACT Environment Protection Authority, with risks instead managed through operational procedures.
- Water Meter Replacement Program (\$2.3 million below forecast) – Demand for reactive meter replacements was lower than forecast.
- Molonglo Valley Reservoir (\$4.2 million above forecast) – Sequencing changes associated with when infrastructure was expected to be delivered to facilitate this development.
- Molonglo Valley Bulk Mains (\$4.8 million above forecast) – This project was delayed due to protracted contractor negotiations and expenditure previously expected in 2012-13 was pushed into 2013-14.
- MVIS North Odour Control System (\$1.0 million below forecast) – This project was placed on hold following discussions with several ACT government agencies around land release dates and also the number and location of the odour units. Further investigation works are commencing in order to agree a new solution within the revised land release dates.
- North Weston Odour and Ventilation Improvements (\$1.8 million below forecast) – This project was delayed due to a lengthy approvals process and several re-designs following discussions with

ACT government agencies. The project had been forecast to be into construction in 2013-14, but it is still in the design phase.

- Liquid Waste Receiving Point Relocation (\$1.6 million below forecast) – Following a 60% design review, this project was placed on hold due to a proposed change to ACTEW Water’s liquid waste management policy, which could change the scope of the project significantly. This project is dependent upon final Liquid Waste Acceptance Policy current under development.
- LMWQCC Primary Sludge and Scum Removal Equipment Renewal (\$1.1 million above forecast) – The schedule of the project was delayed following the April 2013 forecast due to operational requirements precluding access to these items.
- LMWQCC Aeration System Renewal (\$1.4 million below forecast) – The design costs associated with this project have been combined with CX10534 (LMWQCC Tertiary System Upgrade and Associated Works) to enable efficiencies through engagement of design consultants, however the overall design is behind schedule.
- Fyshwick sewage treatment plant (STP) Lagoons Remedial Works (\$1.1 million above forecast) – This project was an emergency project that had not been included in the April 2013 forecast. The project was created because of the very high risk of failure to the storage lagoon embankments and hence direct discharge into the river system leading to Lake Burley Griffin. Additional work was included in the scope based upon Geotechnical reports following commencement of construction.
- Mains replacement program (\$1.1 million below forecast) – Latent conditions including ground contamination, environmental concerns and service locations pushed renewals for Torrens St and the Australian National University (ANU) into 2014-15.
- Service Reservoirs Roof Repairs (\$1.0 million below forecast) – This project is currently under review in accordance with new planning guidelines. Further scope definition and location prioritisation are currently under review.
- Googong water treatment plant (WTP) Fluoride System Upgrade (\$1.6 million below forecast) – The majority of expenditure on this project was deferred to 2014-15. This program is currently under construction.
- Mitchell Accommodation Upgrade (\$3.3 million below forecast) – A change in the scope of the project has resulted in construction being delayed to July 2015.
- Minor Assets Acquisition (\$1.15 million above forecast): No forecast was included in the April 2013 submission for minor assets.

2.3 Forecast capital expenditure in 2014-15 to 2020-21

2.3.1 Forecasts provided in April 2013

In its April 2013 submission, ACTEW Water provided the following forecasts of capital expenditure in 2014-15 to 2017-18.

Table 2.3: Forecast net capital expenditure in ACTEW Water's April 2013 revised submission⁵

<i>\$12/13 (million)</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>	<i>2017-18</i>
Asset renewal/replacement	13.95	19.66	22.54	19.70
Growth	13.79	6.23	1.79	3.51
Improvement	4.90	14.52	7.23	5.77
Other	3.50	0.00	0.00	0.00
Total net capital expenditure, water	36.13	40.42	31.55	28.98
Asset renewal/replacement	27.58	21.70	18.98	16.09
Growth	15.02	49.72	44.03	21.02
Improvement	14.74	10.64	11.68	16.63
Other	4.87	0.00	0.00	0.00
Total net capital expenditure, sewerage	62.21	82.06	74.69	53.75
Total net capital expenditure, water and sewerage	98.34	122.47	106.24	82.72

2.3.2 Revised forecasts

In this submission, ACTEW Water has provided revised forecasts for these years and, in accordance with the Commission's information request, a further three years to 2020-21. These forecasts are set out in the following table.

⁵ Excludes gifted assets as per the tables in Section 2.2.

Table 2.4: Forecast net capital expenditure

\$2012-13 (\$'000s)	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*	2020-21*
Asset renewal/replacement	8,394	13,525	12,020	7,073	6,849	5,008	3,094
Growth	7,302	3,724	215	23	1,372	4,884	3,514
Improvement	8,619	8,743	8,559	8,214	11,388	6,930	4,407
Other	1,348	5,349	6,843	2,998	944	1,252	0
Total net capital expenditure, water	25,663	31,341	27,638	18,308	20,554	18,073	11,015
Asset renewal/replacement	22,237	28,905	33,419	24,047	14,284	13,773	13,787
Growth	4,171	12,457	42,527	40,746	33,905	12,702	14,501
Improvement	1,181	2,485	2,102	3,865	676	97	0
Other	1,619	6,426	8,221	3,601	1,135	1,504	0
Total net capital expenditure, sewerage	29,208	50,272	86,268	72,259	50,000	28,075	28,288
Total net capital expenditure, water and sewerage	54,872	81,613	113,906	90,566	70,554	46,148	39,303

* Capital expenditure forecasts beyond 2018-19 are highly uncertain. Capital expenditure in those years may need to be significantly higher than the forecasts in this submission, since the forecasts do not include expenditure that could result from:

- changes to the ADWG,
- additional renewals based on unforeseen asset failures or higher than predicted asset condition deterioration
- accelerated greenfield or brownfield development in areas such as Molonglo Valley, West Belconnen, City to the Lake, Northbourne Avenue, Constitution Avenue and Capital Metro projects (see Section 2.1.2).

2.3.3 Reasons for variance

Capital expenditure in 2014-15 is expected to be around \$43 million (or 44 per cent) less than the forecast provided in April 2013. The material variances in 2014-15 at a project level are:

- Sewer Mains Rehabilitation (\$7.4 million increase): The expenditure is higher than forecast because it includes a remainder of the 2013-14 scope (note section 2.2.2) and because work on an additional 15km of mains has been brought forward from 2015-16 due to the identified poor condition of these sewer mains.
- Minor Sewer Mains Augmentation (2012/13) (\$1.2 million increase): This project was delayed due to additional planning approvals requests and also availability of resources, this delay pushed the design phase and construction phase from 2013-14 into 2014-15. The need for this project is under assessment due to new information on the proposed West Belconnen land development that may change the long term plan for the sewer network in the area.
- East Tuggeranong SPS Pump Replacement (\$1.3 million increase): This project was delayed and this has led to underspend in 2013-14, with the majority of the spend now in 2014-15. The project has now commenced construction phase.
- Belconnen Trunk Sewer Augmentation Stage 1 (\$2.1 million decrease): This project was delayed due to additional option analysis requested by the IRC and further discussions required with government agencies regarding feasibility of options. The project is still in the inception phase. It is anticipated that a preliminary design business case will be submitted to the IRC for consideration late this financial year.

- Corin Dam - Outlet Valves and Mains Relocation Stage 1 (\$2.7 million decrease): This project has been put on hold pending a detailed needs analysis investigation.
- Water Mains Renewals Program (\$1.4 million increase): Latent conditions (ground contamination, environmental concerns and service locations) pushed renewals for Torrens St and the ANU into 2014-15 and for delivery efficiency the Mains Replacement Programme works (see below) was added to this project.
- Mains Replacement Programme (\$2.6 million decrease): To achieve delivery efficiencies, the identified water mains requiring renewal in the ANU have been combined with the above Water Mains Renewals program. Future water main renewals have been identified and combined as a separate project number.
- Meter Replacement Programme 2013/18 (meter replacement only) (\$2.6 million decrease): These works are reactive and the demand has been lower than forecast.
- Molonglo Valley Reservoirs - Reservoir 1 (\$6.9 million decrease): Expenditure originally forecast for 2014-15 was bought forward to the 2013-14 year to meet ACT Government development timelines.
- MVIS North Odour Control System (\$5.4 million decrease): This project was delayed due to delays in land release on the new Molonglo development.
- Odour Scrubbers - Western Broadacre Stage 1 (\$1.3 million decrease): This project was delayed due to planning issues and construction is not set to commence in 2014-15.
- Odour Control & Ventilation Improvements 2012/13 (\$8.2 million decrease): This project is still in the inception phase and is not going to commence in 2014-15. The delay has occurred because this project is linked to work on Belconnen Trunk Sewer Augmentation Stage 1, which is delayed (as discussed above). Additional studies are to be undertaken to inform option analysis.
- LMWQCC - Additional Effluent Filters (2) (\$6.6 million decrease): The preliminary design phase of this project is behind schedule. The detailed design and some installation that were originally forecast for 2014-15 are now delayed until 2015-16.
- LMWQCC Biosolids Management Process Improvement (\$1.3 million increase): This project was brought forward from 2017-18 to 2013-14 and 2014-15 due to concerns over the condition of assets and excessive licence exceedences.
- Bulk Supply Electric Actuators Replacement (\$1.9 million increase): Project design delays pushed expenditure from 2013-14 into 2014-15.
- Stromlo WTP EIM&C Replacement Programme 2009-11 (\$1.4 million decrease): This project was completed earlier than anticipated.
- Service Reservoirs Roof Repairs (\$3.2 million decrease): This project has been classified as major maintenance and will be deleted from the capital expenditure program.
- Mitchell Building Extension and Refurbishment (\$7.8 million decrease): This project was placed on hold until re-evaluation of the scope and financial analysis was undertaken. Subsequently, capital investment in this property was delayed and will recommence in 2015-16 based on staffing levels and requirements.
- Googong WTP Fluoridation Upgrade (\$5.7 million increase): To gain construction efficiencies, the Googong PAC and inlet channel mixing project was combined with this project. This project was delayed as a result.
- LMWQCC Aeration System Renewal (\$13.4 million decrease): The project design phase is behind schedule. Installation of equipment planned to be undertaken in 2014-15 has now been delayed until 2015-16.

- Oakey Hill Reservoir Replacement (\$1.2 million decrease): This project has been delayed as it is undergoing a value analysis and being rescoped.
- Stromlo WTP Post filtration concrete repair (\$2.9 million decrease): Further condition assessment was undertaken and the results indicate that repair is not required in the short to medium term. Consequently, this project has been removed from the capital expenditure program.
- Stromlo WTP air system and filter valve upgrade (\$1.2 million decrease): This project has been removed from the program. Maintenance activities and minor asset upgrades are providing an acceptable solution.
- Googong WTP washwater system & sludge dewatering stage 1 (\$1.1 million increase): Whilst the project scope has not changed, project costings are higher than anticipated.
- Googong PAC and inlet channel mixing (\$2.8 million decrease): This project has been combined with and delivered under the Googong WTP Fluoridation Upgrade project.
- Lake Tuggeranong Precinct SPS Augmentation (\$5.4 million decrease): This project was cancelled following discussions with the Environment Protection Authority, with risks instead managed through operational procedures
- Molonglo - Mains and PRVs Construction (\$1.6 million increase): Project costings are higher than anticipated in the regulatory submission. This is a key project for the ACT Government and is being delivered to meet development timelines.
- Water Main Failure reduction renewals 2014-15 (\$1.8 million increase): This is a new project initiated to reduce the impact on customers of water main bursts. These works were previously forecast under the Mains Replacement Programme project.
- [REDACTED]

As discussed in Section 2.1, ACTEW Water has undertaken a substantial asset management planning project in 2014. AMPs have been developed for all of ACTEW Water’s asset classes and these AMPs form the basis for the program. Identification of proposed new projects was a key outcome of this process, with renewal of aging assets found to be a significant and increasing driver for capital works. Further, ACTEW Water has reviewed its information and communication technology (ICT) landscape and plans to invest in the replacement of out-dated and obsolete assets, invest in core operational systems and establish new business capabilities in line with its ICT Strategy 2014-17. As a result, the set of projects included in forecast capital expenditure from 2015-16 are significantly different from the projects provided to the Commission in April 2013.

3 Operating expenditure

3.1 Actual operating expenditure in 2012-13

Overall, operating and maintenance expenditure in 2012-13 was very close to the April 2013 forecast, with expenditure exceeding the forecast by just \$0.3 million. The water component was \$1.7 million below forecast, while the sewerage component was above forecast by \$2.0 million.

Table 3.1: Forecast and actual operating expenditure in 2012-13

<i>\$2012-13 (\$'000s)</i>	<i>Actual</i>	<i>Forecast April 2013</i>	<i>Variance</i>
Water			
Operations and maintenance	46,608	42,321	4,288
Major Maintenance	2,053	1,148	905
Directions	3,138	6,259	-3,121
Contractor management and strategic directions	3,549	6,429	-2,880
Water Security Costs	5,003	5,871	-868
Total operating expenditure, water	60,351	62,028	-1,679
Sewerage			
Operations and maintenance	57,588	50,726	6,858
Major Maintenance	1,682	2,526	-844
Directions	1,344	3,034	-1,690
Contractor management and strategic directions	5,177	7,486	-2,309
Total operating expenditure, sewerage	65,791	63,771	2,011
Total Operating Expenditure	126,142	125,800	332

3.1.1 Variance in 2012-13 water operating expenditure

Operational and maintenance costs for 2012/13 were \$4.3 million greater than forecast. This was driven by higher operational costs of \$1.4 million due to higher asset acceptance costs. Support services (included as part of operational and maintenance costs) were \$1.7 million higher than forecast due to higher regulatory submission costs, business transformation costs and costs associated with the development of a new asset management information system. Directions and contractor management costs rolled into operations and maintenance projects were \$1.2 million and are explained below. Maintenance costs were in line with forecast.

Directions costs were below budget by \$3.1 million. This was in part due to some costs being charged directly to operational projects following the integration of the former ActewAGL Water Division into ACTEW Corporation (now ACTEW Water). Delays in the signing of the agreement between ACTEW Water and the Snowy Mountains Authority regarding the release of water from Tantangara Dam also contributed to the variance.

Contractor management and strategic directions were under budget by \$2.9 million as some costs were transferred to the operational and maintenance area and expenditure was below forecast on some planning work.

3.1.2 Variance in 2012-13 sewerage operating expenditure

Operational and maintenance costs for 2012/13 were \$6.9 million higher than forecast. This was in part driven by higher operating costs at LMWQCC of \$1.0 million. Support services (included as part of operational and maintenance costs) were \$2.1 million higher than forecast due to higher regulatory submission costs, business transformation costs and costs associated with the development of a new asset management information technology (IT) system. The remainder of the increase was due to directions and contractor management costs being rolled into the operational and maintenance projects.

Direction costs were below budget by \$1.7 million and contractor management costs were \$2.3 million under budget. This was mainly due to actual costs being charged to the operational and maintenance projects following the integration of the former ActewAGL Water Division into ACTEW Corporation Limited (now trading as ACTEW Water).

3.2 Actual operating expenditure in 2013-14

Overall, operating and maintenance expenditure in 2013-14 was below the April 2013 forecast by around \$2.2 million. The water component was \$1.4 million below forecast, while the sewerage component was below forecast by \$0.8 million.

Table 3.2: Forecast and actual operating expenditure in 2013-14

<i>\$2012-13 (\$'000s)</i>	<i>Actual</i>	<i>Forecast April 2013</i>	<i>Variance</i>
Maintenance (incl. major maintenance)	14,886	17,641	-2,755
Operations	16,379	16,269	110
Planning & strategic management	5,038	3,286	1,751
Corporate services	22,914	23,406	-492
Total operating expenditure, water	59,217	60,603	-1,386
Maintenance (incl. major maintenance)	19,180	17,754	1,426
Operations	17,658	17,021	636
Planning & strategic management	5,812	6,755	-943
Corporate services	23,040	24,951	-1,911
Total operating expenditure, sewerage	65,690	66,481	-792
Total operating expenditure	124,907	127,084	-2,177

3.2.1 Variance in 2013-14 water operating expenditure

Water maintenance costs for 2013-14 were \$2.8 million below forecast. This was driven largely by expenditure in reactive water main bursts being \$1.3 million below forecast. Part of this variance was due to there being significantly fewer bursts than in previous years and bursts tending to occur in suburban areas where the cost of repairing water damage is relatively lower. As a result of ACTEW Water's meter replacement program, reactive stopcock repairs were \$0.8 million below forecast.

Planning costs for 2013-14 were \$1.8 million above forecast due to more time being spent on the water reticulation network planning and higher than anticipated licence fees paid to the Snowy Mountains Authority in relation to the right to request releases of water from the Tantangara Dam.

Corporate services costs assigned to water were \$0.5 million below forecast. The underspend in corporate services was primarily due to more project delivery labour being charged to capital projects and a reduction in research and development (R&D) costs.

3.2.2 Variance in 2013-14 sewerage operating expenditure

Sewerage maintenance costs for 2013-14 were \$1.4 million above forecast. This was driven by a change in the timing of major maintenance work associated with the refurbishment of the incinerator at LMWQCC which resulted in costs being greater than forecast by \$1.0 million. Planned maintenance work at LMWQCC was \$0.5 million above forecast which was partially offset by a reduction in reactive maintenance at LMWQCC.

Corporate services costs assigned to sewerage were \$1.9 million below forecast. As outlined above this was due to more project delivery labour being charged to capital projects and a reduction in research and development expenditure (since most corporate costs are not assigned directly to water and sewerage as they are support services provided to the entire business).

3.3 Forecast operating expenditure in 2014-15 to 2020-21

3.3.1 Forecasts provided in April 2013

In its April 2013 submission, ACTEW Water provided the following forecasts of operating expenditure in 2014-15 to 2017-18.

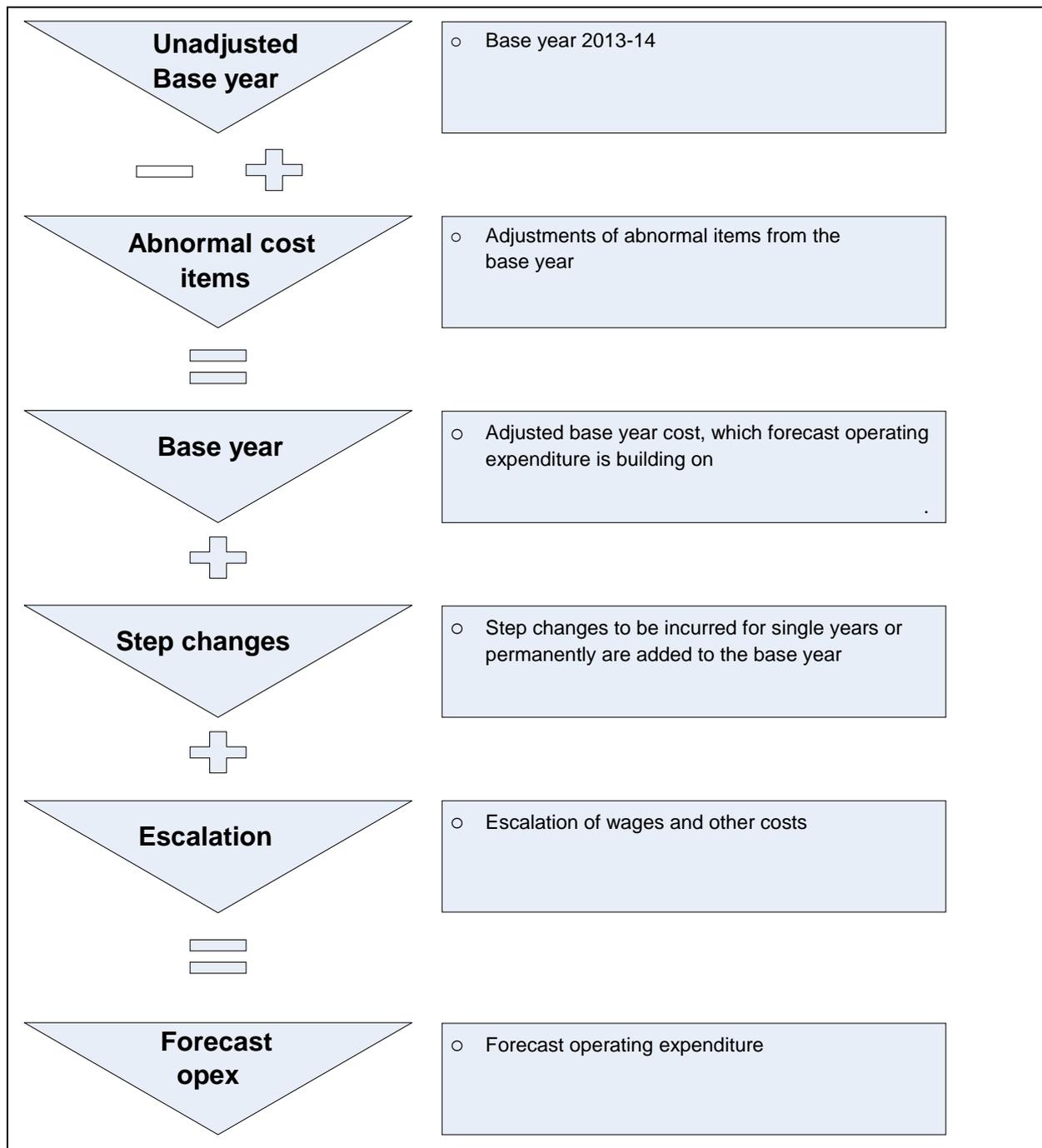
Table 3.3: Forecast operating expenditure in ACTEW Water's April 2013 revised submission

<i>\$ million (2012/13)</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>	<i>2017-18</i>
Maintenance (incl. major maintenance)	19.35	18.38	18.44	17.77
Operations	18.38	18.54	17.95	18.28
Planning and strategic management	5.59	5.81	5.69	5.75
Corporate services	19.64	19.41	19.47	20.36
WAC and UNFT	27.54	27.37	27.01	26.69
Total operating expenditure, water	90.50	89.50	88.57	88.85
Maintenance (incl. major maintenance)	20.64	20.38	20.92	20.64
Operations	16.60	16.71	16.86	17.04
Planning and strategic management	6.95	7.01	7.09	7.18
Corporate services	21.90	21.64	21.70	22.70
UNFT	3.37	3.44	3.51	3.58
Total operating expenditure, sewerage	69.46	69.18	70.08	71.13

3.3.2 Revised forecasts

In this submission, ACTEW Water provides its latest forecasts for 2014-15 to 2017-18 and, in accordance with the Commission’s information request, a further three years to 2020-21. ACTEW Water’s revised forecasts are based on the ‘base plus step change’ approach used in its April 2013 revised proposal (see Figure 3.1). The base used in the revised forecasts in this submission is derived from actual expenditure in 2013-14.

Figure 3.1: Forecasting methodology for operating expenditure



Determining an efficient forecasting base

In its 2013 Final Report, the Commission determined a forecast of efficient operating expenditure for 2013-14 of \$130.5 million (in nominal dollar terms). Actual operating expenditure by ACTEW Water in 2013-14 was slightly below this forecast at around \$128.3 million and therefore represents an efficient base year for the purpose of forecasting.

Adjustments to the base for abnormal items

ACTEW Water has excluded two abnormal items from 2013-14 actual expenditure for the purpose of establishing a base for forecasting:

- ComCare exit fees – ACTEW Water no longer uses ComCare as its workers compensation insurer. To exit from ComCare ACTEW is required to pay actual costs incurred by ComCare in relation to ACTEW employees. In the 2013/14 base year the actual payment made to Comcare was \$1.5 million. This amount has been removed from the base used to develop operating expenditure forecasts.
- Industry Panel review costs – In the 2013/14 base year, ACTEW Water incurred costs associated with the application for review of the Commission’s June 2014 Price Direction. This cost is not ongoing and has been removed from the base used to develop operating expenditure forecasts.

The base for the purpose of forecasting operating expenditure after accounting for these adjustments is \$129.8 million (in 2014-15 dollar terms).

Table 4 Determination of ACTEW Water’s efficient base operating expenditure

Base year opex (\$2013-14)	128,297,006
<i>One off adjustments (\$2013-14)</i>	
ICRC price review appeal	(487,084)
Comcare exit deed pay out	(1,152,984)
Total one off adjustments	(1,640,068)
Adjusted base year opex (\$2013-14)	126,656,938
Base year opex (\$2014-15)	129,823,362
Base year opex (\$2012-13)	123,310,373

Step changes

ACTEW Water has identified several forecast step changes in operating expenditure in 2015-16 to 2020-21 relative to the base described above. These step changes relate to four drivers:

- Asset Optimisation – Changes to ACTEW Water operating costs as a result of implementing strategy to reduce the whole of life costs of its assets.
- Cost Pressure – Increases in ACTEW Water’s operating costs that are either outside of ACTEW Water’s control or relate to assets that were required to be replaced at a higher cost.
- Operating Efficiency – Includes improvements in the way that ACTEW Water operates that results in an cost savings and cost savings that have been passed on to ACTEW Water from its suppliers.

- Risk Management – Initiatives that will reduce ACTEW’s Water risk levels in line with target. This will involve reducing the risk of asset failure and being able to adequately respond to emergencies.

Brief descriptions for the specific step changes are as follows.

Asset optimisation step changes

As described in section 1.1, the changes outlined below are based on the recent asset optimisation work undertaken within each Asset Class AMP.

Major maintenance – The forecast annual major maintenance work exceeds the \$2.2 million expenditure included in the 2013-14 base year. This forecast work includes a number of significant projects, including:

- The concrete roof of the LMWQCC filter building requires repair because it is leaking. Water is getting into the electrical switch room, which is a safety hazard for staff and could compromise the operational functionality of the plant.
- The Corin Dam core connection requires repair because a gap has formed between the dam’s core and the spillway wall. In the event of a large flood there is risk that water will enter this gap and cause erosion of the dam’s core. This would compromise its structural integrity and potentially cause failure of the dam.
- Maintenance works are required on building structure and fascia at the LMWQCC operations and electrical substation structures.
- Painting is required for the protection of steel and other associated equipment and structures for the LMWQCC backwash water and backwash air pipework.
- LMWQCC Centrifuges 1, 2 and 3 will require major maintenance works associated with their 8000hr overhaul.
- Returning the LMWQCC furnaces to the 18 month operating routine the next round of major maintenance on furnace 1 will be due in 2016-17. Maintenance works are required for Furnace 2 at LMWQCC, which has just come off an approximate 36 month rotation. The scope of work will be similar to the Furnace 1 major maintenance, which has just been completed.
- Googong Clear Water Storage Maintenance: Failure of some of the roof joints of the Googong clear water storage has been observed. Structural assessments indicate that the roof is likely to fail in a high wind loading situation. Failure of the clear water storage roof and joints would mean that the Googong WTP would be unable to operate until repair was affected. This project will repair the failed roof joints.
- Bendora Right Abutment: Scope of work includes removal of a large rock on the right abutment and restoration of access to survey pillars on the right abutment. Removal of the rock is considered warranted as there is evidence of instability and the rock is located upslope of the Bendora Gravity Main and release valves from the Dam. This project would also enable safe access to survey pillars located on the right abutment that are required to be used for structural deformation surveys of the dam.
- Googong Dam spillway anchors: Post-tensioning anchors were installed in the Googong Dam spillway in 1991. As per the regulations which govern safety of the dam structures, these anchors need to be tested periodically to ensure that they are still functioning. Testing has not

been able to be carried out at Googong due to recent high water levels in the dam. An allowance is made for testing in the medium term, noting that the timing and ability to carry out the activity is dependent on the water level in the dam.

- Cotter precinct environmental stabilisation: The purpose of these works is to reduce the risk of damage to assets following storm events within the vicinity of the Cotter water pump station (WPS), to provide safe pedestrian and vehicle access to the Cotter WPS and to rectify work interface issues arising from the capital works in the precinct since 2005.
- Corin Tower: The scope of work includes maintenance on steelwork, valves and pipes within the Corin Dam offtake tower. Condition assessments have revealed that some equipment in the tower is in need of refurbishment to ensure safe access and continued operability. The identified equipment is used to release water from Corin Dam for eventual treatment at the Stromlo WTP. Failure of this equipment could result in limitations to the ability to utilise this water.
- Service Reservoir Inspections, Roof Repair and Painting: ACTEW Water has 47 treated water service reservoir sites which store drinking water for direct supply to customers across Canberra. Some of the older reservoirs are showing evidence of deterioration of surfaces and signs of failure of some structural components. Internal and external inspections have been carried out over recent years by ACTEW Water staff and specialised consultants to develop a profile of reservoir condition. A set of projects will address the identified issues. To establish a sound understanding of the need for maintenance, a project has been established to undertake detailed inspection of additional reservoirs. A project is established to remediate identified failure of some roof components and a separate project will focus on repainting surfaces at the reservoirs. These activities have been separated into distinct projects to facilitate delivery.

Other asset optimisation changes

Increased Cotter Pump Station exercise – The Cotter Pump Station was operated once for maintenance purposes in the 2013-14 base year. This frequency of operation is not sufficient to ensure that the pumps are maintained in a satisfactory operating condition. In order to minimise lifecycle costs, ACTEW Water intends to run the pumps three times per year.

Increased Murrumbidgee to Googong (M2G) operating costs – The M2G pipeline was operated on two occasions for maintenance purposes in the 2013/14 base year. In 2015/16 it is not expected that the pipeline will be used operationally, however the intention is to run the transfer three times to ensure it is kept in operational condition and to maximise the life of the asset.

Googong WTP sludge dewatering – The augmented sludge dewatering plant at Googong WTP will become operational in early 2015/16. This de-watering plant will remove reliance on the drying beds and enable the plant to operate for longer periods during the year. It will also significantly reduce the risk of environmental discharges from those drying beds. The new plant will however incur additional operating costs such as electricity, chemicals and waste disposal.

Cost pressures step changes

2016/17 biennial recalibration costs – An amount of \$1.0 million has been estimated for the biennial review which is scheduled to occur at the end of 2016/17. It has been assumed that the Commission will invoice ACTEW Water \$0.5 million to cover their cost of the review and a further \$0.5 million will be incurred by ACTEW Water in engaging consultants to assist in the review.

2018/19 regulatory review – At the end of the six-year regulatory period a major submission will need to be prepared in relation to the next regulatory period. These costs have been based on actual costs charged to ACTEW Water by the Commission and external consultants that were engaged by ACTEW Water as part of the 2013 price review.

Corporate services charge (CSA) – ActewAGL Distribution provides ACTEW Water with a range of corporate services such as IT systems and platforms, human resources, facilities management, accounts payable, and warehousing. The step change increase relates to additional licence/maintenance costs associated with the replacement of ActewAGL-owned unsupported legacy IT systems.

Commonwealth Superannuation Scheme (CSS) litigation – ACTEW Water is facing litigation from former employees (of ACTEW Water and its predecessor organisations) who had been incorrectly advised that they were not eligible to take part in the CSS. ACTEW Water paid \$1.7 million in actual claims in the 2013/14 base year and expects \$10.5 million in future claims. The step change amounts reflect the forecast difference between the \$1.7 million in the base and the claims forecast to be paid from 2015/16 to 2020/21.

[REDACTED]

Branding dis-synergy – Following the decision to change the name of ACTEW Corporation Limited to Icon Water Limited there will be additional billing costs associated with sending water invoices separately to the ActewAGL Retail's electricity invoices. The dis-synergy will decline over time as ActewAGL Retail and ACTEW Water transition to paperless invoices.

Operating efficiency step changes

Carbon tax savings – In the 2013/14 base year, ACTEW Water incurred additional electricity costs associated with the carbon tax. This tax has been repealed from July 2014 and a negative adjustment has been made to the forecasts relative to the 2013/14 base.

Orica Ferric Chloride Contract savings – A new contract has been negotiated for the supply of Ferric Chloride used in the sewerage treatment process at LMWQCC. This will see annual savings of \$0.5 million.

ICT Strategy investment costs – There has been an under-investment in operational ICT in recent history. The majority of the investment will look to replace end of useful life assets and take advantage of contemporary proven technology to deliver real business benefits at a reasonable cost. Initially there will be increased licence and maintenance fees associated with bringing the new assets on line.

Realisation of benefits from ICT Strategy – benefits will initially be small in the first two years as the emphasis is on replacing assets which have come to the end of their useful life. Benefits increase progressively in later years as extension projects begin to be implemented which will generate operating expenditure savings due to the elimination of manual functions and the avoidance of maintenance costs associated with ageing infrastructure and supporting obsolete application servers.

Risk management step changes

Emergency response/business continuity – An additional emergency/business continuity officer will need to be engaged to deal with the increase in legislative requirements and additional work created with the transfer of the water business from ActewAGL to ACTEW Water. ACTEW Water must have its own emergency and business continuity plans and cannot use ActewAGL's.

Dam safety inspections – Recent changes in dam safety resource availability mean that five-yearly comprehensive dam studies will need to be undertaken by external consultants rather than by in-house staff. Also, following the completion of the ECD, the consequence associated with failure of the Corin and Cotter Dams has increased. The associated compliance requirements are more comprehensive, requiring daily surveillance and increased safety assessments and reporting.

Heightened security at critical asset infrastructure – with the current heightened security alert around the country security at the LMWQCC and Stromlo WTP, the two main critical water infrastructure sites will be increased. There will now be 24 hour surveillance of these sites by an external security firm.

Escalators

Cost escalators provided in April 2013

In its April 2013 response to the Commission's Draft Report on regulated water and sewerage services, ACTEW Water assumed cost escalators prepared by KPMG, which included escalators for general labour, electricity, gas and water (EGW) labour, electricity and chemicals. These are provided in Table 3.5 below.

Table 3.5: Cost escalators proposed by ACTEW Water in April 2013

	2013-14	2014-15	2015-16	2016-17	2017-18
General labour	2.5%	0.7%	1.0%	1.5%	2.0%
EGW labour	2.5%	1.7%	1.8%	2.2%	2.6%
Electricity	0.5%	3.2%	1.0%	1.4%	1.3%
Chemicals	1.8%	1.4%	1.1%	0.9%	0.8%

Revised escalators

ACTEW Water notes the Commission's expectation for ACTEW Water to rely on its internal planning and supporting documents, with the intention of minimising time and resources required to undertake the biennial recalibration exercise. With this in mind, ACTEW Water has sought publicly available relevant information on forecast cost escalators, rather than commissioning a report to update cost escalators adopted by ACTEW Water in its revised submission of April 2013.

ActewAGL Distribution's June 2014 regulatory proposal to the Australian Energy Regulator for its electricity distribution business included labour cost escalators for general labour and the utilities industry, as well as construction engineering escalators in the ACT.⁶ ACTEW Water considers its labour cost drivers to be comparable to ActewAGL Distribution and therefore considers the cost escalators

⁶ ActewAGL 2014, *Regulatory proposal for 2015-19 subsequent regulatory control period*, June.

reported by ActewAGL Distribution to be appropriate for the purpose of the biennial recalibration exercise.

For the purpose of its regulatory proposal, ActewAGL Distribution used labour cost escalators prepared by Independent Economics in August 2013, but noted that these were to be updated for ActewAGL Distribution's revised regulatory proposal to be submitted to the AER in January 2015. Independent Economics' nominal wage price index forecasts were used by Competition Economists Group (CEG) to develop real labour cost escalators for its December 2013 report, *Escalation factors affecting expenditure forecasts*, prepared for the purposes of preparing expenditure forecasts for ActewAGL Distribution's regulatory proposal. The utilities sector labour cost escalators applied are shown in Table 3.6 below.

Table 3.6: Real labour cost escalators for the ACT utilities sector (engineers)

	2014/15	2015/16	2016/17	2017/18	2018/19
Labour cost escalators	0.6%	1.6%	2.1%	2.1%	2.1%

For the purpose of this biennial recalibration exercise, ACTEW Water has used Independent Economics' nominal wage price index forecasts for utilities (engineers) and general labour and applied the CPI methodology used by the Commission in its final pricing model and as set out in Section 6 of the Price Direction for Regulated Water and Sewerage Services, June 2013. ACTEW Water proposes that the resulting real labour cost escalators are applied to its base operating expenditure. These are set out in Table 3.7 below.

Table 3.7: Revised labour cost escalators

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19*	2019/20*	2020/21*
<i>CPI</i>	2.3%	2.7%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Nominal								
Utilities (engineers)	3.9%	4.6%	5.3%	5.3%	5.1%	5.1%	5.1%	5.1%
General labour	3.5%	4.2%	5.0%	5.1%	4.9%	4.9%	4.9%	4.9%
Real								
Utilities (engineers)	1.2%	2.0%	2.7%	2.7%	2.5%	2.5%	2.5%	2.5%
General labour	0.8%	1.7%	2.4%	2.5%	2.3%	2.3%	2.3%	2.3%

*Forecast not available - assumes 2017/18 rates

Engineering construction escalators

As part of its report for ActewAGL Distribution, CEG developed real escalation factors for engineering construction in the ACT, based on forecasts developed by ACIL Allen Consulting for the Construction Forecasting Council. ACTEW Water proposes applying these escalators to its capital expenditure forecast for the purposes of this biennial recalibration exercise. These are set out in Table 3.8.

Table 3.8: Engineering construction real escalators

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20*	2020/21*
Engineering construction	0.5%	0.5%	0.7%	0.5%	0.4%	0.1%	0.1%	0.1%

*Forecast not available - assumes 2018/19 rates

Both the Independent Economics report and the CEG report are provided at Attachment D.

Operating expenditure forecasts

ACTEW Water's revised forecasts are set out in the following tables, by step change and escalation (in Table 3.9) and by driver (in Table 3.10). The mapping of step changes to drivers is demonstrated in Attachment C3.

Table 3.9: Forecasts by step change and escalation

\$ million (2012/13)	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Base opex	123.31	123.31	123.31	123.31	123.31	123.31
Step changes	2.97	3.74	0.38	1.56	-2.74	-3.19
Increased Cotter pump station exercise	0.28	0.28	0.28	0.28	0.28	0.28
Increased M2G operating costs	0.12	0.12	0.12	0.12	0.12	0.12
Googong WTP sludge dewatering	0.11	0.11	0.11	0.11	0.11	0.11
Consolidated MM program	1.59	2.00	1.42	0.95	0.59	0.14
CSA and CSCSA charges	0.34	0.34	0.34	0.34	0.34	0.34
ICRC regulatory costs internal	0.00	0.47	0.00	2.42	0.00	0.00
ICRC external consultants	0.00	0.47	0.00	1.52	0.00	0.00
CSS superannuation claims pay outs variance	-0.30	-0.30	-0.29	-0.29	-0.29	-0.29
Branding dis-synergy costs and additional postage associated with Icon Water Ltd bills	0.26	0.26	0.26	0.26	0.26	0.26
	0.84	0.11	0.07	-0.07	-0.07	-0.08
Carbon tax savings	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66
Orica ferric chloride contract savings	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47
ICT strategy investment costs	0.72	1.27	1.48	1.70	1.70	1.70
Realisation of benefits from ICT strategy	-0.50	-0.92	-2.93	-5.30	-5.30	-5.30
Emergency response/business continuity	0.14	0.14	0.14	0.14	0.14	0.14
Heightened security at critical asset infrastructure	0.28	0.28	0.28	0.28	0.28	0.28
5 yearly dam safety inspections	0.24	0.24	0.24	0.24	0.24	0.24
Real escalation	2.67	4.23	5.53	6.71	8.17	8.17
Total	128.95	131.28	129.22	131.59	128.75	128.29

Table 3.10: Forecast operating expenditure by driver

<i>\$ million (2012/13)</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>	<i>2017-18</i>	<i>2018-19</i>	<i>2019-20</i>	<i>2020-21</i>
Maintenance (incl. major maintenance)	14.00	16.14	16.89	16.52	15.84	16.01	16.11
Operations	13.95	17.34	17.49	17.64	17.79	17.94	17.94
Planning and strategic management	6.77	5.11	5.16	5.20	5.25	5.29	5.29
Corporate services	23.86	23.57	24.06	23.04	23.95	22.47	22.46
Total operating expenditure, water	58.58	62.16	63.61	62.41	62.84	61.71	61.81
Maintenance (incl. major maintenance)	19.43	20.20	20.28	20.46	21.07	20.95	20.40
Operations	16.79	16.80	16.94	17.07	17.21	17.35	17.35
Planning and strategic management	6.10	6.00	6.12	6.23	6.34	6.45	6.45
Corporate services	29.16	23.77	24.34	23.05	24.13	22.27	22.27
Total operating expenditure, sewerage	71.48	66.78	67.68	66.82	68.75	67.03	66.48
Total operating expenditure, water and sewerage	130.06	128.95	131.28	129.22	131.59	128.75	128.29

3.3.3 Reasons for variance

Relative to the April 2013 submission, operating expenditure forecasts for 2015-16 are roughly unchanged for water and increased by \$1.0 million for sewerage. Operating expenditure forecasts for 2016-17 are \$2.1 million higher than the April 2013 forecast for water and \$1.1 million higher for sewerage. Part of this increase is due to the forecast cost of the second biennial review, which was not accounted for in the April 2013 forecast. In 2017-18, operating expenditure forecasts fall below the April 2013 forecast.

The reasons for this variance are outlined in Section 3.2, which discusses the variance for the 2013-14 expenditure that was used as the base for forecasts, and Section 3.3.2, which discusses the adjustments for abnormal items and step changes made to that base in the forecasts. The calculation of these adjustments and step changes are set out in Attachment C3.

4 Demand data

4.1 Water production volumes

4.1.1 Actual water volumes in 2013-14

In its April 2013 submission, ACTEW Water provided the following forecasts of water production volumes for the purpose of forecasting operating costs in 2013-14.

Table 4.1: Releases assumption used for the operating expenditure forecast for 2013-14 in ACTEW Water's April 2013 submission (GL)

<i>Year</i>	<i>Bendora</i>	<i>Cotter</i>	<i>Murrumbidgee to Stromlo</i>	<i>Googong</i>	<i>Total</i>	<i>CGBT</i>	<i>M2G</i>
2013-14	40.4	0.0	0.2	7.0	47.6	0.0	0.0

Actual water production by source in 2013-14 is set out in the following table.

Table 4.2: Actual releases in 2013-14 (GL)

<i>Year</i>	<i>Bendora</i>	<i>Cotter</i>	<i>Murrumbidgee to Stromlo</i>	<i>Googong</i>	<i>Total</i>	<i>CGBT</i>	<i>M2G</i>
2013-14	38.8	0.5	0.0	9.4	48.7	0.0	0.1

The actual total production figures for 2013-14 were very close to the forecast production figures, consistent with the fact that 2013-14 weather conditions were similar to the long-term average (annual rainfall at Canberra airport was 620 mm, exceeding the average by 4 mm). A more detailed examination of the weather reveals that the 2013-14 summer was unusually dry and hot (December and January rainfall totalled 28 mm – well below the long term average of 112 mm). This, combined with the fact that demand is influenced more by summer weather than by winter weather, explains why actual consumption slightly exceeded the forecast. The model used to produce a forecast of 47.6 GL produces a prediction of 49.3 GL when 2013-14 climate data is supplied to the model.

In relation to the individual sources:

- Bendora Dam supplied slightly less water than anticipated because more water was supplied from Googong Dam and Cotter Dam than forecast.
- Cotter Dam supplied 0.5 GL in order to commission the dam and perform maintenance runs on the Cotter Pump Station. The water was supplied for infrastructure management purposes rather than to maintain water security.
- It was not necessary to source water from the Murrumbidgee to Stromlo because drought conditions did not eventuate.
- Googong supplied a little more water than forecast because the Cotter River sources were unavailable from 16/08/2013 to 28/10/2013 due to essential planned maintenance work on the Stromlo Water Treatment Plant and the Bendora Gravity Main. While some maintenance work is

performed on the treatment plant every year, a number of projects were completed in 2013/14 and a longer than normal shutdown was required.

- A small amount of water was transferred from the Murrumbidgee to Googong in order to maintain the infrastructure. The water was not supplied for water security purposes.

4.1.2 Forecast water volumes for 2014-15 to 2020-21

In its April 2013 submission, ACTEW Water provided the following forecasts of water production volumes for the purpose of forecasting operating costs in 2014-15 to 2017-18.

Table 4.3: Releases assumption used for the operating expenditure forecast in ACTEW Water’s April 2013 submission (GL)

<i>Year</i>	<i>Bendora</i>	<i>Cotter</i>	<i>Murrumbidgee to Stromlo</i>	<i>Googong</i>	<i>Total</i>	<i>CGBT</i>	<i>M2G</i>
2014-15	43.7	0.3	0.3	4.0	48.3	0.0	0.0
2015-16	43.1	1.4	0.5	3.9	48.9	0.0	0.0
2016-17	43.8	1.9	0.5	3.2	49.4	0.0	0.0
2017-18	44.0	2.3	0.3	3.0	49.6	0.0	0.0

ACTEW Water’s revised forecast is shown below for the period to 2020-21.

Table 4.4: ACTEW Water’s revised releases forecast (GL)

<i>Year</i>	<i>Bendora</i>	<i>Cotter</i>	<i>Murrumbidgee to Stromlo</i>	<i>Googong</i>	<i>Total</i>	<i>CGBT</i>	<i>M2G</i>
2014-15	40.6	0.4	0.0	6.3	47.3	0.0	0.2
2015-16	39.2	0.4	0.0	7.8	47.4	0.0	0.2
2016-17	39.8	0.8	0.0	6.8	47.4	0.0	0.2
2017-18	39.3	1.8	0.0	6.4	47.4	0.0	0.2
2018-19	39.6	1.9	0.0	5.9	47.4	0.0	0.2
2019-20	39.5	2.5	0.0	5.4	47.4	0.0	0.2
2020-21	39.3	2.7	0.0	5.5	47.4	0.0	0.2

The forecast total releases have been reduced relative to the forecasts submitted in April 2013. This change is predominantly due to changes in the forecasting method, particularly the change in the period over which the model is estimated. The Breusch-Ward demand forecasting model proposed in ACTEW

Water's April 2013 submission remains ACTEW Water's preferred forecasting model.⁷ However, given this model was not accepted by the Commission in its Final Decision, ACTEW Water has prepared a different model for the purpose of the biennial recalibration to meet the Commission's requirements. The demand model has been recalibrated to the period since the removal of temporary water restrictions in November 2010, since the Commission's view is that a forecast based on historical levels of water demand is inappropriate because there has been a structural break in the data from the period before and after water restrictions.⁸ A detailed description of the demand model is provided in Attachment E.

The total demand is distributed to individual sources using ACTEW Water's REALM⁹ water resources model. The model uses inflows and modelled demands from the past 49 years of observed climate data to forecast future supply from each source. Each model run begins from current storage conditions and sources water on the basis of operating rules developed in order to balance the competing objectives of maximising water security and minimising operating expenditure. This process produces 49 different scenario outputs of supply from each source based on the 49 years of input climate. These 49 scenarios are then averaged to produce the forecast shown in Table 4.4.

There is considerable variation in these supply volumes due to the climate conditions experienced. In a drought, it is necessary to supply more water from the more expensive sources. For example, the model indicates that it may be necessary to supply as much as 30-40 GL/year from Googong Dam in severe drought years.

There have been some minor changes in the forecast supply from individual sources relative to the forecasts submitted in April 2013:

- The volumes supplied from Bendora are reduced because the volumes from Googong have increased.
- The volumes supplied from Cotter are reduced to reflect the increase in total water in storage since April 2013. Cotter is now less likely to be required than in earlier forecasts. However, the forecast is based on the average of many climate scenarios and in droughts considerably more water will be required from Cotter than forecast here, while in normal or wet conditions less water will be required than forecast.
- Given the increase in storage levels, it is now anticipated that it will only be necessary to supply water from the Murrumbidgee in this period if an extremely severe drought eventuates.
- The volumes from Googong have been increased to a more sustainable level. While it may be desirable to supply 3-4 GL/year of water from Googong in wet periods, a larger volume must be supplied as a long term average. Analysis shows that 5-8 GL/year is required on average across the past 49 years of observed climate in order to prevent Corin and Bendora Dams from dropping to unacceptably low levels. Googong has produced an average of 10.0 GL/year over the past 30 years.

⁷ ACTEW Water notes however that application of this model requires modification for missing evaporation data and scaling of consumption in the sample of unit record data, as discussed in its submission of demand forecasts to the Industry Panel in August 2014.

⁸ ICRC, [Final Report: Regulated Water and Sewerage Services](#), June 2013, p112, p117.

⁹ Resource ALlocation Model: This is a non-linear programming model produced by the Victorian Department of Sustainability and Environment.

- A small amount of water is supplied from M2G in order to maintain the infrastructure required to transfer water from the Murrumbidgee to Googong Dam. It is not anticipated that this source will be needed to meet water security objectives unless an extremely severe drought eventuates.

4.2 Water billing volumes

4.2.1 Actual water volumes in 2013-14

In its April 2013 submission, ACTEW Water provided the following forecast of water billing volumes for 2013-14.

Table 4.5: ACTEW Water forecast of billed consumption for 2013-14

	<i>Volume (ML)</i>
Tier 1 (50 kL per quarter)	21,200
Tier 2	19,665
Total	40,864

The actual billed consumption in 2013-14 is set out in the following table.

Table 4.6: Actual billed consumption in 2013-14

	<i>Volume (ML)</i>
Tier 1 (50 kL per quarter)	23,759
Tier 2	18,169
Total	41,928

The reasons for the difference between actual and forecast 2013-14 volumes are provided in Section 4.1.1 above. Although total billed consumption was above forecast, tier 2 consumption was below forecast. Analysis by ACTEW Water has found that too great a proportion of the total forecast was allocated to tier 1 because the customer consumption levels in the sample of unit record data used in the forecasting model exceeded those of the full population.

4.2.2 Forecast water volumes for 2014-15 to 2020-21

ACTEW Water's revised billed consumption forecast is set out in Table 4.7.

Table 4.7: ACTEW Water's revised billed consumption forecast (ML)

<i>Year</i>	<i>Tier 1</i>	<i>Tier 2</i>	<i>Total</i>
2014-15	23,745	16,558	40,302
2015-16	24,238	16,064	40,302
2016-17	24,683	15,619	40,302
2017-18	25,086	15,216	40,302

The total forecast is based on the forecast releases in Section 4.1.2, multiplied by 85 per cent – the observed ratio of ACT billings to releases volumes in the historical data. The proportion of consumption

charged at tier 1 prices was estimated based on the observed relationship with average consumption per customer in the historical data. ACTEW Water estimated this relationship as:

$$\text{Propn tier 1} = 0.75264 - 0.00811 e^{0.012254 \times \text{total consumption (ML)} / \text{number of supply charges}}$$

Detailed calculations are provided in Attachment E.

4.3 Sewage volumes

In its April 2013 submission, ACTEW Water provided the following forecast trend in sewage volumes.

Table 4.8: Estimated trend in LMWQCC volumes in ACTEW Water’s April 2013 submission

Year	ADV (GL/year)
2012	33.0
2015	33.3
2018	33.7

ACTEW Water’s revised forecast is provided in Table 4.9.

Table 4.9: Actual sewage volumes in 2012-13 and 2013-14 and revised forecast volumes for 2014-15 to 2020-21

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
LMWQCC volume (GL p.a.)	31.78	32.06	33.94	34.31	34.49	34.67	35.04	35.40	35.77

Actual sewage volumes in 2013-14 were similar to the estimated trend in ACTEW Water’s April 2013 submission, which is consistent with the fact that rainfall in 2013-14 was close to the long-term average. The slightly higher forecasted volumes for future years reflect changes in the climate and rainfall received in recent years as well as population increases in the ACT. ACTEW Water has also changed its forecasting model from calendar years to financial years for these predictions.

While water and sewer volumes are related, there are many reasons why the growth rates may differ over a six year forecast window. Water and sewer forecasts are both influenced by internal water use, but each also contains a significant component that is not related to the other forecast. The water forecast includes outdoor water usage, while the sewer forecast contains wet weather inflow and infiltration. Therefore, common drivers, such as climate and population growth, will have different impacts on water and sewer volumes. Generally water use increases with extended periods of dry weather, while under the same weather conditions, sewer volumes may decrease. The continuation of infill development (increased housing densities) in the ACT decrease outdoor water use for each household, but have little influence on sewer volumes.

Over the next six years, sewer volumes have been estimated by allowing for increases with population as well as reductions in per capita internal water use. For water, the forecast population increase has implicitly been offset by predicted reductions in household water use, with total consumption not projected to change across the forecast period.

4.4 Supply charge quantities

4.4.1 Actual supply charges in 2013-14

The following table compares the estimated number of actual supply charges in 2013-14 with the forecast provided by ACTEW Water in its April 2013 submission.

Table 4.10: Actual and forecast supply charge quantities for 2013-14

	<i>2013-14 forecast</i>	<i>2013-14 actual</i>
Water customer numbers	159,750	162,951
Sewerage customer numbers	154,254	162,609

There is a significant difference between the forecast and actual number of supply charges. The difference is partly due to growth being higher than anticipated (3.0 per cent rather than the forecast of 2.8 per cent) and partly due to errors in the process ACTEW Water used to derive historical supply charge quantities from consumer count data for its April 2013 submission (and the earlier July 2012 submission). These historical quantities excluded the additional sewerage supply charges paid by flats and dual occupancy customers for multiple dwellings and the water and sewerage supply charges paid by some unmetered properties. Table 4.11 provides corrected estimates of the number of water and sewerage supply charges paid each financial year historically. These figures differ from the number of customers, since some customers pay no supply charge (for example, standpipes) and others pay multiple supply charges (for example, flats and dual occupancies).

Table 4.11: Corrected historical data on supply charge quantities

	<i>2008-09</i>	<i>2009-10</i>	<i>2010-11</i>	<i>2011-12</i>	<i>2012-13</i>	<i>2013-14</i>
Water	144,165	146,853	149,794	153,256	158,258	162,951
Sewerage	143,707	146,397	149,406	152,870	157,922	162,609

4.4.2 Forecast supply charges for 2014-15 to 2020-21

ACTEW Water notes the method for determining forecasts of the number of supply charges is set in the ICRC Pricing model at Attachment 2 to the Price Direction. Applying this method to the revised historical data leads to forecast growth rates of 2.63 per cent for water and 2.66 per cent for sewerage. Forecasts over the period to 2020-21 are set out in the following table.

Table 4.12: Revised forecast of supply charge quantities

	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>	<i>2017-18</i>	<i>2018-19</i>	<i>2019-20</i>	<i>2020-21</i>
Water	167,244	171,650	176,172	180,814	185,577	190,466	195,484
Sewerage	166,935	171,376	175,936	180,616	185,421	190,355	195,419

4.5 Fixtures charge quantities

4.5.1 Actual fixtures charges in 2013-14

The following table compares actual fixtures charge quantities in 2013-14 with the forecast provided by ACTEW Water in its April 2013 submission.

Table 4.13: Actual and forecast fixtures charge quantities for 2013-14

	<i>2013-14 forecast</i>	<i>2013-14 actual</i>
Fixtures charge quantities	63,312	60,274

The average annual growth in fixtures, at 0.86 per cent between 2011-12 and 2013-14, has been significantly lower than the growth rate assumed in forecasts submitted in April 2013 of 3.37 per cent.

4.5.2 Forecast fixtures charges for 2014-15 to 2020-21

ACTEW Water notes the method for determining forecasts of the number of fixtures charges is set in the ICRC Pricing model at Attachment 2 to the Price Direction. Applying this method to the historical data to 2013-14 leads to a forecast annual growth rate of 1.50 per cent. Forecasts over the period to 2020-21 are set out in the following table.

Table 4.14: Forecasts of fixtures charge quantities

	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>	<i>2017-18</i>	<i>2018-19</i>	<i>2019-20</i>	<i>2020-21</i>
Number of fixtures charges (p.a.)	61,178	62,096	63,028	63,973	64,933	65,908	66,897

5 Other data

5.1 Actual outcomes in 2013-14

The actual outcomes for 'other data' in 2013-14 are compared to the forecasts provided in April 2013 in Table 5.1. There were no material variances in 'other data' in 2013-14.

Table 5.1: Forecasts of other data for 2013-14 included in ACTEW Water's April 2013 submission

<i>\$'000s (2012/13)</i>	<i>April 2013 forecast</i>	<i>Actual</i>	<i>Variance</i>
WAC	23,715	24,214	499
UNFT– water	4,002	3,939	-63
UNFT– sewerage	3,307	3,228	-79
Subvention payment – water	1,059	940	-119
Subvention payment – sewerage	9,528	9,395	-133
Misc charges and other revenue – water	1,952	2,272	320
Misc charges and other revenue – sewerage	571	571	0
QCC bulk water sales revenue	11,091	10,324	-767

5.2 Revised forecasts for 2014-15 to 2020-21

ACTEW Water's revised forecasts for 'other data' in 2014-15 to 2020-21 are presented in Table 5.3. There are no material variances in the revised forecasts of 'other data' when compared to the forecasts in the April 2013 submission. However, ACTEW Water notes that the revised forecasts account for:

- the ACT Government announcement that the Utilities Network Facilities Tax (UNFT) rate will increase by five per cent over the forward estimates;¹⁰
- its recent pricing agreement with Queanbeyan City Council (QCC); and
- the demand forecasts set out in Section 4.

Table 5.2: Forecasts of other data included in ACTEW Water's April 2013 submission

<i>\$'000s (2012/13)</i>	<i>2014–15</i>	<i>2015–16</i>	<i>2016–17</i>	<i>2017–18</i>
WAC	23,454	23,204	22,761	22,359
UNFT– water	4,082	4,164	4,247	4,332
UNFT– sewerage	3,373	3,441	3,510	3,580
Subvention payment – water	1,059	1,059	1,059	1,059
Subvention payment – sewerage	9,528	9,528	9,528	9,528
Misc charges and other revenue – water	1,953	1,954	1,954	1,955
Misc charges and other revenue – sewerage	573	575	577	579

¹⁰ ACT Budget 2014-15, Budget Paper 3, p153.

Table 5.3: Revised forecasts of other data

<i>\$'000s (2012/13)</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>	<i>2017-18</i>	<i>2018-19</i>	<i>2019-20</i>	<i>2020-21</i>
WAC	24,251	23,737	23,158	22,593	22,042	21,504	20,980
UNFT- water	4,086	4,240	4,397	4,561	4,505	4,448	4,391
UNFT- sewerage	3,348	3,473	3,601	3,735	3,687	3,639	3,592
Subvention payment – water	940	940	940	940	940	940	940
Subvention payment – sewerage	9,395	9,395	9,395	9,395	9,395	9,395	9,395
Misc charges and other revenue – water	1,901	1,901	1,901	1,901	1,901	1,901	1,901
Misc charges and other revenue – sewerage	571	571	571	571	571	571	571

Attachments

Attachment A: Statement from the Icon Water Board

Attachment B: Investment Project Initiation and Approval Manual (confidential)

Attachment C: Excel expenditure workbooks (confidential)

- Attachment C1: Capex by project.xls
- Attachment C2: Opex by project.xls
- Attachment C3: Opex forecasts.xls

Attachment D: Escalation reports

- Attachment D1: Independent Economics escalation report
- Attachment D2: CEG escalation report

Attachment E: Demand forecasting

- Attachment E1: Water volumes forecasts
- Attachment E2: Water volumes regression.xlsm
- Attachment E3: Water volumes forecast.xlsm
- Attachment E4: Water volumes data monthly.xls

Attachment F: Loan repayment schedules.xls (confidential)

Attachment G: Business cases and technical reports (confidential)