Melbourne Water's Response to ESC Staff Discussion Paper - May 2012

State Government Victoria

Melbourne Water

Review of Water Performance Report Indicators

Background

In April 2012, the Essential Services Commission (ESC) released a discussion paper titled Review of Water Performance Report Indicators. The paper is the first stage in the ESC's process to review and refine the performance indicator framework. Specifically it proposes to consider:

- Potential new indicators
- The removal of existing indicators that are no longer useful
- Indicators that could be modified to improve relevance and usefulness.

It also noted the core principles guiding potential changes to the indicators:

- Performance indicators need to be relevant to the nature of the services provided by each business
- Performance indicators need to be meaningful and relate to key issues of concern to both businesses and their customers
- Performance indicators need to be defined and collected on a consistent basis across businesses to provide a valid measure of actual performance and to aid reasonable comparisons
- The accuracy and reliability of information provided by businesses must be verifiable
- It is desirable to identify whether there is scope for greater national consistency in reporting and comparison, to facilitate national assessment of relative performance
- Costs associated with collecting information and data need to be balanced against the benefits of collecting that information.

Melbourne Water's response in relation to the potential new indicators, the removal of existing indicators and indicators that could be modified to improve relevance and usefulness are detailed below. It has focussed on those indicators which currently apply or may apply to its business.

Proposed New Categories and Indicators

Financial information

Proposed approach

A number of stakeholders have noted that introducing financial data to the annual performance report would provide valued contextual information. To this end, the ESC have identified five financial indicators that it currently uses to assess the strength of each water business' financial viability. These include measures such as Funds from Operations, Interest Cover and Internal Financing Ratio.

Melbourne Water's Response

The five proposed new financial indicators appear relevant, appropriate and workable. They should be relatively straightforward to calculate, as long as clear definitions are provided and there is consistency with their definitions as used in other contexts. The following general points are noted:

- *Timing* – The majority of data used to calculate the five indicators will be available by the end of July (once the financial year end is closed off), with the exception of the Regulatory Asset Value (RAV). The RAV doesn't get officially calculated until the Regulatory Accounts are prepared in October. If the indicator using the RAV was required earlier then it would have to be based on a forecast RAV figure.
- *Efficiency and duplication* –There is some duplication of the new proposed financial indicators with what is already reported in the annual report (mandated by Department of Treasury and Finance). The preference would be to minimise duplication.

Resource security

Proposed approach

The ESC has proposed three potential measures of resource security noting that resource security has been considered for inclusion in the performance framework previously but not incorporated given a lack of refined and uniform measures. The potential measures proposed include: SEC 1 – Supply volume available to meet demand volume (ML), SEC 2 – Demand versus sustainable yield and SEC 3 – Independent supply systems. Variations of these performance measures have been proposed in a range of different forms and contexts in the past, but never adopted due to the associated unresolvable technical challenges.

Melbourne Water's Response

Background

The issue of defining and providing water security is a complex issue, and Melbourne Water would welcome the opportunity to assist the ESC with further considerations of this important area.

If the ESC aims to identify appropriate measures of resource security that can be used consistently across Victoria, and to resolve the associated complex technical issues, Melbourne Water considers that a technical review or study would be required. This technical study would need to be undertaken taking into account the DSE Guidelines for the Development of a Water Supply Demand Strategy, and a range of site specific contextual information. This would be drawn from Water Supply Demand Strategies, regional sustainable water strategies prepared by DSE, and, in the case of Melbourne, the Water Outlook, desalinated water ordering process, and the emergence of Integrated Water Management. Similar studies on water planning methods, such as the WSAA Occasional Paper No 14 (June 2005) Framework for Urban Water Resource Planning, could potentially provide the framework for the technical study, and for defining appropriate performance measures.

Melbourne Water supports the proposal made at the recent meeting of the ESC's Performance Indicator Review Discussion Paper Working Group to progress the issue through DSE's Performance Reporting Working Group.

Recommendations 8, 9 and 10 of the Ministerial Advisory Council Implementation Plan refer to a "security of supply framework" and "security of supply values," and suggest that the ESC should monitor and report on individual water business performance as measured by these mechanisms. These concepts and actions are not referred to specifically in the Government Response to the Ministerial Advisory Council Implementation Plan. Hence, it remains unclear which, if any elements of recommendations 8, 9, and 10 may become government policy.

There are two interdependent issues at play, namely the methodology (i.e. the method used to calculate the level of security required involving data, climate assumptions etc) and then the actual performance measure (i.e. the metric used to calculate system performance and potentially enabling measurement of compliance or non compliance if that is the intent). This response is focused on the methodology, however specific comments are included on the metrics also.

With respect to the methodology, the issues associated with defining appropriate levels of security of supply and an appropriate framework need to be considered

with respect to both the evolution of water security planning (e.g. the new water security framework in Melbourne) and in the context of supply system characteristics and hydrology. Defining appropriate levels of security of supply has been a consideration of water planners for many decades and there are no accepted standards given the variability of systems and hydrology.

Instead, the intent has been to develop appropriate system specific measures that define reliable supplies, and have appropriate response in place to deal with extreme hydrologic events. These approaches have proved less robust when events occur outside the planned range, for example, as occurred in Melbourne during the period 1997-2009 when streamflow conditions were approximately 40% lower than those expected under expected climate conditions.

To offset this, a new Water Outlook process has been developed for the metropolitan Melbourne water businesses to undertake a continual 5 year planning outlook to identify actions necessary to maintain supplies over the outlook period. Such methods, however, mean that traditional measures of water security (e.g. severity, duration and frequency of restriction periods) are less meaningful.

Locally and overseas, various methods have been proposed previously to provide for uncertainty in planning and may be considered, for example;

- The 2006 Central Region Sustainable Water Strategy recommended a supply of contingency water (equivalent to seven years of growth in demand). The buffer was intended to provide sufficient time for system augmentation and variability in climate conditions. However the measure required further definition as to how the seven years was defined (e.g. growth or volume equivalent in water use) and the Government's response to the 2006 recommendation saw this buffer not being considered further.
- The Metropolitan Water District of Southern California allows a buffer of 10% of annual demand for their buffer
- United Kingdom Water Industry Research (UKWIR) has proposed an approach which aims to provide a buffer between demand and supply for various points in time, reflecting that uncertainty over planning assumptions shifts over time depending on the levels of uncertainty in a range of factors. UKWIR suggests two alternative methods that might be adopted to apply this approach:
    - a simple method based on scoring for difference factors and
    - a more complex method requiring considerable input and in particular consideration of the extent of uncertainties and statistical modelling of factors including climate change. The net result of this analysis is that greater headroom is provided where the uncertainty is greater and the

buffer will vary depending on the system characteristics and uncertainty.

As noted above, the ESC has proposed three potential measures and some of the technical issues associated with these are outlined below.

SEC 1 – Supply volume available to meet demand

This is the number of days of potable water supply that is available to the business based on average demand over the reporting year, and what immediate activities a water business is undertaking to mitigate the risk of supply shortages. Supply volume is the amount of potable water from all sources available on the final date of the annual reporting period.

A challenge associated with this measure is the difficulty of quantifying the supply volume available in the short term to meet demand, since this would require forecasting of future inflows from the catchments. Given the observed variability of historical inflows, it is not possible to identify a single most likely or expected set of future inflows, so it is necessary to consider a wide range of possible sets of future inflows.

Related to this, different water supply systems across Victoria are designed to work in different ways, depending on the demands they have to support and the site specific characteristics of the available sources of water. For example, some water supply systems are designed to have a large storage capacity relative to the average inflows. This can work well when the reliability of inflows is low, since it is possible to use the water "carried over" in storage from wetter years to make up the deficit during drier years. In contrast, some water supply systems have a lower storage capacity, but more reliable inflows. Taking the reliability of inflows into account in calculating the supply volume available in the short term to meet demand is not straightforward.

In summary, it is extremely problematic to determine "the number of days of potable water that is available" for even one water supply system. Determining it in a consistent and transparent way for all water supply systems across Victoria for comparison purposes would be even more difficult.

Another challenge associated with this measure is the limited scope to make comparisons between Victorian water businesses using this measure, because the consequences of running out of water vary widely across the state, depending on, among other factors, the population served by each water supply system. For example, if a water supply system serving 100 households can supply potable water for 250 days, and it runs out after 250 days, it would be physically possible, although expensive, to truck water to all of those customers.

On the other hand, if a water supply system serving 1 million households can supply potable water for 250 days, and it runs out after 250 days, it would not be physically possible to truck water to all of those customers, so the consequence is much greater. Hence, despite the two systems having 250 days of available potable water supply, comparing them on this basis does not really reveal anything useful about their performance.

SEC 2 – Demand versus sustainable yield

This indicator is proposed to allow the ESC to determine whether demand can be supplied from potable sources over the longer term without risking the supply source, and long term activities undertaken to mitigate supply risks. The ESC proposes to adopt a definition of sustainable yield from a PricewaterhouseCoopers report as follows:

The long term capacity of a water system to deliver a particular volume of water each year, subject to the environmental and infrastructure constraints of the system… which include manufactured sources of water.

A challenge associated with this measure is the uncertainty surrounding the yield of a particular water supply system, which is driven primarily by the uncertainty surrounding the future impacts of climate change. The DSE Guidelines for the Development of a Water Supply Demand Strategy require water businesses to consider at least four climate change scenarios, without assigning probabilities or likelihoods to any particular scenario. The yield estimates associated with each of the four scenarios are very different.

Additionally, the determination of the yield of a water supply system requires the level of service objective to be defined. Level of service objectives necessarily vary across Victoria, since many of the considerations that need to be taken into account when determining them, such as local climate conditions, population served, urban density, ratio of residential to industrial demand, specific social and community assets, environmental obligations, and willingness to pay, are site specific.

According to the Water Services Association of Australia Occasional Paper No. 14 (June 2005), titled Framework for Urban Water Resource Planning, “There is no formula or prescriptive solution to setting a level of service objective.” Hence, it is not possible to develop a complete fixed definition of yield that can be applied consistently to all Victorian water businesses, nor is it possible to identify a single expected or most likely yield estimate for a particular system.

Another challenge associated with this measure is the uncertainty surrounding long-term projections of future demand, which is much greater than the uncertainty surrounding the short-term projections of future demand that would be required for SEC 1. Long-term projections of future demand are dependent on a range of highly uncertain factors, such as population growth, changes in the characteristics of water consuming appliances, changes in customer behavioural patterns, changes in urban density, etc. Hence, similarly to yield, it is possible, and necessary to construct a range of plausible scenarios of long-term demand, which can vary widely.

The uncertainty associated with estimates of future demand and yield means that it is not possible to identify "how long a water business can continue to supply potable water to customers." Even if it was possible, it is unclear what value there would be in comparing water businesses on this basis.

SEC 3 – Independent supply systems

The ESC proposes to monitor the number and type of independent potable water sources. Each discrete supply system is counted, including surface water supply systems, groundwater systems or recycling systems.

It is unclear whether some of the potable water supply systems referred to are truly independent. For example, the ESC suggests that "there may be several surface water supply systems, … and each of these would be counted as an independent supply source" when clearly, even if the different surface water systems source water from different catchments, it is likely that the availability of water from each of these sources will be correlated to some extent, due to large-scale climate and weather patterns. It would be necessary to understand this correlation between sources, which could also be driven by other factors, such as downstream infrastructure constraints that might affect the availability of water from multiple, otherwise independent sources in the same way.

It would also be necessary to understand the relative contribution, or relative potential contribution of each source, since the number of "independent" sources alone will not necessarily provide any useful information. For example, if 5% of the total capacity of a system was provided by 99 "independent" sources, with the remaining 95% of capacity provided by a single source, the fact that there were 100 different sources would suggest valuable diversity, when in fact the system would be almost entirely reliant on a single source. This type of analysis would not be straightforward, and would be very difficult to apply consistently across the very different water supply systems across Victoria.

Productivity

Proposed approach

The ESC has proposed for consideration the inclusion of productivity measures to enable better understanding of the drivers of efficiency within and across water businesses. The ESC notes that in the water sector, productivity is influenced significantly by external factors. It considers two potential productivity measures to be: PRO 1 – Operation maintenance and administration (OMA) costs per customer and PRO 2 – Costs to serve ($ per customer).

Melbourne Water's Response

For the purpose of comparing the productivity performance of water businesses, Melbourne Water agrees that partial factor productivity measure would be more useful than total factor productivity measure.

From Melbourne Water's perspective:

- The two proposed approaches may be problematic to implement as it considers the retail water businesses as its customers (only 6 customers in total) for water and sewerage services. Although this could be overcome by developing customer numbers based on retail water businesses customer numbers.
- Another potential issue is the fact Melbourne Water provides a waterways and drainage service, meaning if a comparison is made to the other water business this service would need to be removed from Melbourne Water's measure.
- Comparing Melbourne Water's productivity to other retail water businesses is unlikely to be informative. A comparison to other water and sewerage wholesalers with a similar market structure would be useful (e.g Wellington and Auckland wholesale markets).

Innovation

Proposed approach

The ESC has raised the potential for the inclusion of an innovation measure as part of the performance monitoring framework in an effort to promote the development and realisation of new ways of operating.

The ESC defines innovation as the turning of ideas, whether formed through a formal Research and Development process or not, into actions that result in efficiency and/or effectiveness gains, either through radical or incremental changes to business as usual. Innovation must also deliver direct and demonstrable benefits.

The ESC has sought the views of all stakeholders on potential measures of innovation that meet the core principles on which the performance indicators have been established.

Melbourne Water's Response

Melbourne Water has had a corporate Key Performance Indicator (KPI) for innovation in place since 2011/12 (set in 2010). The KPI measures how effectively innovation contributes to Melbourne Water's business performance. It is based on a self-assessment survey (all sites) which scored our existing innovation capability at 6 (out of 10 being the best score).

Melbourne Water believes that measurement of innovation is important and Research and Development expenditure is only one of many indicators of measuring it. Innovation, according to the Melbourne Water's 2010 Innovation Blueprint is:

> "*Good ideas can be big or small and they can lead to radical change or incremental change (known as continuous improvement) .....*
>
> *..... The outcomes of innovation can take various forms that may lead to cost savings or increased value for our customers and stakeholders.*

The vision for innovation at Melbourne Water is 'good ideas implemented'. In Melbourne Water's 2010 Innovation Blueprint good ideas could:

- Result from applying a new idea or by adapting an idea or concept used elsewhere
- Be big or small
- Lead to radical (known as transformational change) or incremental change (known as continuous improvement)

Innovation should add value to the organisation either across the Triple Bottom Line (TBL) or parts of the TBL (financial, social, environmental) and can be tangible or intangible across these three dimensions. Measurement of value-adding would be strongly supported, however, the innovation capability of an organisation is often strongly linked to organisational culture and acts as an enabler for culture/organisational change.

Measurement of innovation is difficult, particularly due to the often unmeasured nature of many accumulated incremental ideas ('do what we do better'), while transformational innovation - due to the often long-term nature of its implementation – often becomes business-as-usual once implemented and has

hence become unrecognisable over a period of time of planning and implementation.

For these reasons outlined above, Melbourne Water is currently developing an Innovation Strategy, which entails development of a capability assessment, innovation needs analysis and associated capability improvement plan which will amongst other things address more measureable organisational improvements that have resulted from the innovation program.

Proposed Indicators for Removal

Baseline explanatory data

Proposed approach

In relation to BED 13 – Water treatment plants: Disinfection, unfiltered; Further treatment, the ESC is proposing to:

- Maintain the 'Full treatment' aspect to remain aligned with the reporting requirements of the NWC framework (A1).
- Change the "performance indicator' descriptor.
- Remove from the 'Split' disinfection, unfiltered and further treatment categories.
- Change the definition to recognise the removal of the 'Split' categories.

Melbourne Water's Response

Melbourne Water has no objections to these changes as there is a significant difference between full and partial treatment when comparing performance of treatment processes.

Water network reliability and efficiency

Proposed approach

The REW 12 – Water Pressure (bulk supplier) indicator was developed to measure the performance of Melbourne Water regarding wholesale-retail interfaces that did not met pressure requirement for more than 30 continuous minutes. On review, the ESC has concluded that the results of water pressure tests are an intra-industry issue and are therefore proposing to remove this indicator.

Melbourne Water's Response

Melbourne Water has no objections with the ESC removing the pressure KPI as it is currently only measured for Melbourne Water. Melbourne Water has Bulk Water Supply Agreements that specify the pressure requirements that must be met with each retail water businesses (if relevant to the BWSA). Pressure results are reported internally, to our customers in any instances where we do not meet them, and as a part of Water Plans. As a result, removal of the indicator will not result in any loss of transparency on our performance.

Water conservation, reuse and recycling

Proposed approach

The ESC is proposing to remove CRR 8 – Trade wastes priority parameter.

Melbourne Water's Response

Melbourne Water has no objections to the removal of this indicator as the ESC now collects this trade waste data from water businesses. This data is for a set of standard parameters – Total Dissolved Solids, Biological Oxygen Demand, Suspended Solids and Nitrogen.

Drinking water quality

Proposed approach

In relation to DWQ 1 – Standards for drinking water quality the ESC is proposing to

- Remove reference to Melbourne Water from 'Coverage' and implement associated changes to 'Performance measure' and 'Definition'
- Remove reference to 'Disinfection by-products means trihalomethanes, monochloroacetic acid, dichloroacetic acid and trichloroacetic acid' and 'disinfection' contained within the 'Definition'.

Melbourne Water's Response

Melbourne Water has no objections with the ESC removing Melbourne Water from coverage as performance reporting for turbidity, soluble aluminium and disinfection by-products is based on BWSAs with retail water businesses developed from historical data at individual interface sites. The standards developed with the retail water businesses have no real relevance to the drinking water guidelines that all other water businesses report against and are not measured at consumers taps. E.Coil is also measured at interface points with the retail water businesses with

compliance requirements similar to the ADWG but these are also not measured at consumer taps. Melbourne Water would support its removal from the coverage.

Proposed Indicators Modification

Water conservation, reuse and recycling

Proposed approach

In relation to CRR 3 – Volume of sewage spilt from emergency relief structures (ERS) and pumping stations (ML) the ESC is proposing to add the number of events to the volume of sewerage split.

Melbourne Water's Response

Melbourne Water has no objections to what is being proposed (i.e. reporting spill events and volume by category: Blockage, Hydraulic, Extreme Wet Weather and System Failure) as this information readily available and already reported to the EPA. Further, we agree with intent outlined in that reporting of this information may also serve to focus attention on the contribution of infiltration and other factors to sewer spills.