

CORRECTED VERSION

STANDING COMMITTEE ON FINANCE AND PUBLIC ADMINISTRATION

Inquiry into the business case for water infrastructure

Shepparton — 21 August 2009

Members

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Mr M. Guy
Mr P. Hall

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Mr D. Stewart, Managing Director,
Mr S. Mills, Chairman,
Mr G. Hannan, Executive Manager Water Resources, and
Mr D. Nabbs, General Manager Modernisation, Goulburn-Murray Water; and
Mr M. Smith, Chief Executive Officer, Northern Victorian Irrigation Renewal Project.

The CHAIR — I welcome representatives from Goulburn-Murray Water — Mr David Stewart, Managing Director; Mr Stephen Mills, Chairman; Mr Graeme Hannan, Executive Manager Water Resources and Mr Darren Nabbs, General Manager Modernisation. I also welcome Mr Murray Smith, Chief Executive Officer from Northern Victorian Irrigation Renewal Project.

This hearing is being conducted pursuant to the Constitution Act 1975 and the standing orders of the Legislative Council, and is protected by parliamentary privilege. Any comments made outside the precincts of this hearing are not protected by privilege. All evidence is being recorded by Hansard staff, and you will be provided with a proof version of the transcript in the next couple of days for any corrections.

I now invite you to make an opening statement. The committee will then proceed to questions.

Mr MILLS — Thanks, Chair, and members of the standing committee. Thank you for the opportunity for Goulburn-Murray Water in partnership with Northern Victoria Irrigation Renewal Project (NVIRP) to present to you this afternoon.

We recognise that since the announcement of the food bowl modernisation project on 19 June 2007 much time has been given to debating the project's merits. We expect this debate will continue long after today's hearing, but we hope that in presenting to you today Goulburn-Murray Water and NVIRP can bring further important understanding to the overall intent and execution of the project.

Chair, you have already identified some of the people who are here today. I would like to stress that we have some very important current industry experts here to present to you and answer your questions today. David Stewart is the managing director of Goulburn-Murray Water; Murray Smith is the CEO of NVIRP; Darren Nabbs is the manager of modernisation at Goulburn-Murray Water, and in that capacity he oversees all modernisation projects taking place on Goulburn-Murray Water assets. Until January this year Darren led our future flow alliance in delivering a range of modernisation programs, including NVIRP's 2008 early works program, and through the alliance Darren has expedited the delivery of Goulburn-Murray Water's existing CG 1-4 and Shepparton modernisation projects. Both of these projects are on track to be delivered by December this year.

Graeme Hannan is the executive manager of water resources for Goulburn-Murray Water. Lindy Nieuwenhuizen is an executive manager of stakeholder relations at Goulburn-Murray Water. We have Harry De Jong from NVIRP, who is the executive manager of corporate governance, Ross Plunkett who is the executive manager of planning for NVIRP, and director Peter McCamish is here from NVIRP as well.

Our aim today is to provide you with a range of important insights that are critical to understanding how the modernisation of irrigation infrastructure will deliver a more secure future for Goulburn-Murray Water customers, our regional communities and the local environment while also boosting water resources for Melbourne. I will now call on David Stewart to deliver our presentation and take you through each of these aspects to demonstrate clearly how we arrived at this understanding.

Overheads shown.

Mr STEWART — Thanks, Stephen, and thanks to you Chair and committee members. As you can see from this slide, we have encapsulated our views on this project into one document. However, each line relies on a number of important understandings, and I will walk through these with you now.

The first point to understand clearly is that Goulburn-Murray Water does not own water on the Murray and Goulburn systems. It does not sell water, and our customers cannot simply turn on a tap to receive water on demand. In northern Victoria, urban water corporations, environmental managers such as DSE and the catchment management authorities and rural and irrigation customers own water entitlements called water shares. The shares are quite literally a share of the storage capacity of the system — for example, a Goulburn system customer who might own 100 megalitres of storage capacity in the Goulburn system, and that includes Lake Eildon. An entitlement does not mean the customer gets that volume of water each year, and we will explain this allocation process in more detail shortly.

It is important to recognise that Victoria has not gifted any water entitlements for nearly four decades. Prior to the 1970s entitlements were issued in acre feet along with a certain acreage of land as part of the then government policy to expand irrigation and economic development for northern Victoria.

Since the 1980s any increases to overall entitlements have been released via options, and since 1994 entitlements on all northern Victorian regulated river systems have been capped in accordance with the Murray-Darling Basin agreement. A further important point is that while Goulburn-Murray Water does not own water, there are specific rules that allow Goulburn-Murray Water to access water resources to operate the rivers and delivery networks and to fulfil mandated environmental and water quality obligations. Our access is strictly spelt out in each system's bulk entitlement. These resources are called system operating requirements and include the channel distribution losses.

We just need to explain that we have a 6300-kilometre-long irrigation network at the moment made up of channels, some with a carrying capacity of as much as 4000 megalitres per day and some as little as 5 megalitres per day. So the biggest has a capacity of more than 10 times the north-south pipeline, and that determines the solution for asset improvement on each of those.

To start with, how much water does Goulburn-Murray Water deliver in a season? Over the past 15 years we have delivered on average about 1.8 million megalitres each year into just the irrigation areas. The volume of water delivered each year varies in line with the seasonal conditions, so across this 15-year period we have delivered as much as 2.7 million megalitres and as little as 587 000 megalitres. Throughout this period entitlement owned by irrigators has been relatively static at around 1.7 million megalitres. The key point is that across this period the losses have dropped below 500 000 megalitres twice but the deliveries have been more variable than the losses.

This slide — 'Delivering more water sooner' — illustrates how water is shared. If you can imagine the big blue bucket is the storages within a regulated river system such as the Murray or the Goulburn, inflows run into the system and the level in the bucket rises. So at the start of the water year, which matches the financial year July to June, the first volumes in storage will be water that is allocated to customers in the previous year that they chose to carry over for use in the new season. This water is not available for allocation in the current year.

The next inflows are put to covering the operating requirements of the storages and rivers that deliver the water from the dams and storages to the irrigation area off those. As I mentioned earlier, these requirements include mandated environmental and water quality obligations. For example, we are required to maintain passing flow rates which are measured at a number of points along the river systems. Once these headworks operation requirements are met, the next inflows are dedicated to covering the anticipated channel distribution losses. This volume represents the amount of water that is measured into the irrigation area but is not recorded on the farm. This is made up of leaks, seeps, evaporation, meter error, a small amount of water theft and unplanned spills or releases that are known as outfalls.

Over the past 16 years, which has included six years of extreme drought, the channel distribution losses have averaged 721 000 megalitres — about double Melbourne's water use last year or around 20 per cent of Lake Eildon's capacity. So once these first requirements are in store, Goulburn-Murray Water is then able to begin making allocations to customers. And just to clarify: if allocations were made before the system operating requirements were met, we would not be able to physically get the water to the customer outlet and ensure the full order was recorded through outlet.

Initially allocations begin at 0 per cent and as inflows accumulate over the course of the season they increase to 100 per cent at which point Goulburn-Murray Water begins making provisions to system operating requirements for the next season. Once the season reserves have been met, Goulburn-Murray Water can then begin allocating against low reliability water shares some may have known as sales water. The last low reliability allocation occurred four years ago on the Murray system.

Graeme and his team review this equation, and Goulburn-Murray Water updates allocations for each of the six regulated systems on the first and fifteenth of each month or next available business day. In a very basic sense the allocation represents the amount of water available for allocation expressed as a percentage of that system's total water entitlement.

The system operating requirements comprise a number of fixed and variable losses. For this reason the system operating requirements will vary with the seasonal conditions. But in a dry year or under climate change, the simple fact is that a larger proportion of our available water resources are needed to operate the current system which means that there will be less water available for allocation both to farmers and to the environment.

As a rule of thumb, about a 1 per cent allocation on the Murray system requires around 15 000 megalitres of allocatable water and around 13 000 megalitres for the Goulburn system. This can vary over the course of the season in response to changing weather patterns.

This slide illustrates how allocations climb over the course of the season: the green being the starting allocations and the orange, the finishing allocations. Last year, 2008–09, was the third consecutive season in which allocation on the Murray system remained below 100 per cent of high reliability water share; on the Goulburn system it was the fourth time in history. In these very difficult conditions Goulburn-Murray Water worked closely with customers to identify and implement ways to reduce our channel distribution operating requirements. This included not running between 20 and 30 per cent of our irrigation network, delaying system fills where possible and tankering in supplies rather than running channels — measures that are simply not viable under anything but extreme drought conditions.

The next slide is ‘Modernisation drives more water sooner’. At this point I would like to leap forward to explain the principles of modernisation and, importantly, the overall system benefits that will come from reducing distribution losses. This slide illustrates two critical benefits of modernisation. By reducing system operating requirements, Goulburn-Murray Water will be able to make allocations earlier than is currently the case and the environment, irrigators and urban communities will receive their starting and subsequent allocations sooner. NVIRP stage 1 water savings will be shared equally between Melbourne, the environment and irrigators. Our customers will have more water entitlement that they can use or they can trade. One megalitre of entitlement is currently trading at around \$2000, so stage 1’s 75 000 megalitres of entitlement represents a \$150 million return for the irrigation area customers investment of around \$100 million in the project. Stage 2 has the potential to increase this tangible return to \$350 million.

As Murray will explain in greater detail, the aim is to achieve savings equal to 225 000 megalitres of water entitlement. As we have shown you, this entitlement will be subject to allocation and will therefore vary from one season to the next in line with seasonal conditions. I also emphasise that the Minister for Water stated at the outset of this project that Melbourne’s share of savings will have the same levels of security as the irrigators and the environment shares. But there is a vital third point illustrated in this diagram. The water savings will come from reducing system operating requirements, which means not one drop of existing customer entitlement will be impacted. Therefore every customer will receive their full, rightful entitlement; they will receive it sooner, and they will also receive a share of the water savings as a secure, tradeable entitlement, which means even more water.

On 26 March 2008 the 50-50 split stage 2 savings were contained in the Murray-Darling Basin reform memorandum of understanding, and I quote from that document:

The commonwealth has agreed in principle to fund 90 per cent of the total project costs, up to \$1 billion, of the stage 2 food bowl project in Victoria, subject to a joint due diligence assessment and the delivery of half the gain in additional flows (around 100 billion litres) to environmental flows in the Murray River. This project will also deliver a volume of water for farmers equivalent to that available for environmental flows, helping ensure the future for Victorian irrigators. Work would commence in 2009–10 with the project providing significant benefits to the economy and the environment.

There are still some steps to go through in defining stage 2 of the NVIRP project. However, on the principles basis, this explains the expected benefits that will flow to irrigators, the environment and with it the ecosecurity of regional communities.

The allocation process is clearly linked to the volume of entitlement in the system. This slide provides an indication of how the modernisation program will impact on the future volume of water entitlements across the region. In this slide we have also sought to illustrate the possible impact of the federal government’s water buyback program. The critical difference between a buyback and a modernisation is that modernisation increases the overall pool of water available for productive use — that is, after system operating requirements are met — whereas a buyback simply changes the ownership of existing entitlements.

I turn now to the next slide, 'More water sooner and cheaper'. Goulburn-Murray Water recently released the findings of a rigorous investigation which provided an understanding of the costs of operating, maintaining and ultimately replacing water delivery assets over the next 20 to 50 years. Goulburn-Murray Water investigated the longer term impact of continuing with business as usual and compared this revenue requirement with the requirements created by national metering standards, Goulburn-Murray Water's Shepparton and Central Goulburn 1-4 modernisation projects, as well as both stages of NVIRP.

You will see on this slide the business as usual is the upper red line and the completion of NVIRP stage 1 and 2 is the lower green line, and they are annual costs. Those calculations include allowances for all asset issues during the life of the system. This includes repairing, replacing and operating all the assets over that time frame, including HDPE lining, clay lining and so on. It is all based on a vast engineering and technical detail and very comprehensive report. This report provided the first objective and comprehensive review of the future costs that will influence the future prices of water delivery services in our irrigation areas. The report has confirmed that under all scenarios the cost of operating, maintaining and replacing assets will require an average annual increase of 1.2 per cent in Goulburn-Murray Water's revenue requirements each year through to 2059. This translates to a 50 per cent increase in revenue requirements for all scenarios, but even more if we continue business as usual. It is a very important understanding for our business and our customers and really underscores the need to rethink and redesign the current asset-intensive network.

Of the scenarios modelled, full modernisation delivered the best outcomes for irrigators. Over the 50-year period modernisation stage 1 and 2's revenue requirement is approximately 35 per cent lower than that required to meet the costs of continuing to operate, maintain and ultimately replace assets in the existing irrigation network in the irrigation areas. This graph indicates the outcomes for the entire Goulburn-Murray Water region. We recognise there will be different pricing impacts for different areas. That reflects their unique soil types, intensity of use and age and, with that, different levels of technology in its construction, but in all cases NVIRP will deliver a more secure and affordable irrigation network with the ability to service the needs of substantial irrigation for decades to come.

At this stage I would like to address further detail of the project currently under way in the region. In 2002 Goulburn-Murray Water undertook the first large-scale research and development trial of channel automation technology. The project took place on the Central Goulburn no. 2 channel, and both Goulburn-Murray Water and our customers were disappointed with the outcomes. However, this trial paved the way for substantial improvements in the technology and especially in how modernisation is rolled out within the region.

In 2004 Goulburn-Murray Water customers and staff commenced the first reconfiguration program that became the future management strategy and paved the way for rationalising redundant and underutilised assets in the Pyramid-Boort irrigation area. The water recovery package was agreed in May 2006, and before the food bowl modernisation project that led to NVIRP was conceived. Unlike the NVIRP, where stage 1 water savings will be shared one-third each to Melbourne, irrigators and the environment, the water recovery package obliged Goulburn-Murray Water to deliver a fixed volume — 25 gegalitres — of water savings. The water recovery package was also part of a much larger suite of improvements. There is further detail below.

The water recovery package was an integral part of the 2004 Our Water Our Future policy document *Securing Our Water Future Together*, which included an agreement between the then minister and irrigators. This agreement was known as the 'sales package', which then became a Living Murray project with some minor changes. In effect irrigators were provided with a package of measures that totalled \$113 million, including \$50 million to help implement reconfiguration plans, in return for farmers handing back to the environment 20 per cent of sales — 120 gegalitres of average long-term-use, low-reliability water shares previously known as sales, hence the name of the deal — in 2007, with a further 25 gegalitres of high-reliability water in mid-2009.

In the same year Goulburn-Murray Water secured funding from the Victorian Water Trust to roll out channel automation on the CG1-4 channels. In 2007 Goulburn-Murray Water secured funding to deliver its Shepparton modernisation project and the final stages of CG1-4. Goulburn-Murray Water established its FutureFlow alliance in early 2008 to deliver this substantial works program.

The next key stage in our presentation is explaining how modernisation will improve Goulburn-Murray Water's customers' ability to access their water where, when and how it is needed. Improving Service levels is a key

focus of the northern Victoria irrigation renewal project, and I will therefore hand over to Murray Smith who will provide further detail on the NVIRP project and its important benefits for our region.

Mr SMITH — Thank you, David. The northern Victoria irrigation renewal project is a Victorian government-owned entity established in December 2007 under the State Owned Enterprises Act 1992 to initially plan, design and deliver stage 1 of the \$2 billion modernisation of the Goulburn-Murray irrigation district supply system. Stage 1, with a budget of approximately \$1 billion, did not include CG1–4 and the Shepparton irrigation area, which were earlier separate modernisation programs, as David has just described, with different investors.

NVIRP is governed by an independent board consisting of seven directors, one of whom is here today. The Minister for Water and the Treasurer are joint shareholder ministers charged with responsibility for NVIRP. The Minister for Water is the primary link between NVIRP and executive government. NVIRP reports directly to the Minister for Water in his capacity as responsible minister, with the Department of Sustainability and Environment operating as the responsible portfolio agency. The Treasurer is responsible for the commercial and financial project risk management and associated conduct of NVIRP, with the Department of Treasury and Finance as the responsible portfolio agency.

In terms of NVIRP's vision, we believe in a strong and vibrant GMID community based on irrigated agriculture; a modern, efficient, real-time/low-energy automated irrigation system — a system that ensures state-of-the-art competitiveness for competitive and future irrigators; improved customer services based around different customer groups; and world-class efficiency, moving from an average of around 70 per cent to 85 per cent — a solid base for a viable irrigation community well into the future by investing \$1 billion in stage 1; and a vibrant and resilient environment.

NVIRP is made up of a team of about 50 staff who are spread across the GMID, with our head office based in Shepparton. Our team works closely with agency partners, including Goulburn-Murray Water, the Department of Sustainability and Environment, the Department of Primary Industries, the Department of Treasury and Finance, the Goulburn Broken and North Central catchment management authorities, Regional Development Victoria and local councils.

NVIRP has engaged Transfield Services Australia as our managing contractor to assist in delivery of the modernisation on-ground works.

The slide you are looking at effectively provides an oversight of the overall project. A key goal of the modernisation project was to achieve water savings totalling 425 gigalitres as a long-term average. This means in some years when irrigation allocations are low savings will be less, while in other years when allocations are higher savings will be more. Stage 1 works will deliver 225 gigalitres long-term average savings to be shared equally between the environment, irrigators and the Melbourne Water. NVIRP will contribute to the 75 gigalitres of water savings to be made available to Melbourne in 2010. Stage 2 works will deliver a further 200 gigalitres of long-term average water savings.

The process of modernisation enables improved water use efficiency and greater productive capacity. It also enables the water savings to contribute to our environment, underpin urban supply and increase water available for productive use.

NVIRP will maximise water available to all customers, including the environment. It will also provide improved customer service through providing timely access to data, reducing ordering times, increased flow rates on the farms and stable flow rates. This will enhance customer viability and improve environmental outcomes.

Through modernisation, regulators on trunks and carriers will be automated to reduce outfalls, provide information on leaks and provide state-of-the-art data transmission. Channels with a capacity of generally around 50 megalitres a day or greater will be the first considered for upgrading. It is worth noting that channels range in size, as David mentioned before, from a capacity of around 5 megalitres a day up to 4000 megalitres a day.

The backbone channels, which are the dominant feeder channels, will ultimately comprise approximately 2400 kilometres of the existing 6300-kilometre network. The NVIRP program is rolling out in such a way that it is capturing quality data which helps guide future investments from the program.

Our program of works can be categorised as three key elements: the backbone, which is automation of the core backbone infrastructure with associated works and remediation; the connections element, which is modernisation of the local distribution and supply from the backbone to the individual farms; and metering — upgrading customer supply points on the backbone and any supply points installed as part of the connections program.

The innovative part of the program is the connections element, which is geared to encourage those customers currently supplied by smaller spur channels to take their supplies from the backbone channels where they can achieve higher levels of service. This will significantly reconfigure the irrigation system as redundant spur channels are removed and losses associated with those spurs are avoided. This will generate water savings and improve customer service levels.

NVIRP investment will see the average distribution efficiency lift from around 70 per cent to 85 per cent — a world-class benchmark. Losses and savings comprise fixed and variable elements, which are highlighted in the variability in the elements on the slide.

If you are looking at the slide, we are assuming that there is 70 per cent distribution efficiency; there is 30 per cent losses, and the break-up on those losses is roughly on those slides you are seeing. Fixed losses and savings components are independent of the customer deliveries or effects such as rainfall, and this includes seepage through the channels. Variable losses and savings of components depend on the variable factors such as water deliveries, which are set by seasonal allocations based on available water in storage dams. As an example, the water lost over outfall structures is generally proportional to the deliveries in any one season.

Outfalls: with a manually operated system water bailiffs may make adjustments to regulating structures twice a day. This is generally carried out by dropping a 4 x 2 hardwood drop bar into a slot in the concrete structure, as you can see on the slide, to either raise or lower the operating levels in the channels. To maintain some level of customer service it is generally the practice to put in slightly more water than is ordered. This results in accidental outfalls from the system. It is also worth noting that manual operation comes with significant OH and S risks.

Total channel control: intelligent technology, known as total channel control, has been designed, developed and manufactured in Victoria, is being used throughout the region and, more recently, is being used more widely around the world. The system enables near-on demand water supply, precise control and loss detections through flow measurement and regulation. TCC is an integrated solution which incorporates hardware such as flume gates — in this overhead — a telemetry system which utilises real-time data and a software package which carries out a range of functions from irrigation scheduling and balancing supplies and demand to billing et cetera. TCC also provides the tools for additional water savings to be generated on farm through automation and building on access to real-time soil moisture data to optimise irrigation scheduling. Once modernised, the system will be of a world-class standard, delivering state-of-the-art technology, allowing the GMID to compete on a global stage as a highly efficient food production region.

As the earlier speakers have talked about, measuring water in a constrained environment is essential to managing a scarce resource. If you cannot measure your water accurately, you cannot manage your water resource. There has been considerable debate about whether meter error is a real saving. There is equally robust debate around how much meter error makes it into productive use compared with the volume that simply leaks through and around and eats at the structural integrity of the meter. There is also debate about whether Dethridge wheels could be made compliant with the proposed national metering standards. It is interesting to note that the national metering standards, as they currently sit, need to be accurate to within plus or minus 2 per cent in the laboratory and to be plus or minus 5 per cent in the field. The Dethridge wheels will not satisfy that metering standard in its current form.

There are some important facts that must be acknowledged in this debate. If there were a standard error for every meter, we could simply recalibrate the meters, but the average, whether it is 15 per cent in favour of the irrigator or 2 per cent against the irrigator, is not consistent. GMW in situ testing has shown the potential for one

meter to deliver nearly 25 per cent more than the neighbouring meter. GMW as the system manager has an obligation to address this inequity. As we have shown today, regardless of anyone's view on this matter, meter error delays allocations to all irrigators, regional communities and the environment. GMW does not own water, so the simple fact is that meter error comes off the volume of water available to the environment and all other irrigators.

It reduces allocations. Meter error is underwritten by those customers who are over-metered and the environment. Seventy-five per cent of GMW's current meter fleet cannot deliver more than 8 megalitres a day. Larger farms, laser grading and evolving on-farm technology mean many of our farmers are looking for bigger, more constant flow rates and volumes in excess of 15 megalitres a day. The largest new electronic meters can deliver as much as 30 megalitres a day and can support more labour and water-efficient automated on-farm irrigation.

Additional water currently accidentally delivered on farms through meter error is not tradeable and is not something you can use to guarantee a loan from the bank. However, the water entitlement which will be delivered through savings generated by the NVIRP will be a bankable product that will add real quantifiable value to the beneficiaries. We have the technology to improve the accuracy of measurement, which means every customer will receive their rightful entitlement.

Seepage and leakage losses: leakage losses comprise both fixed and variable elements and relate to losses through the channel bank. These losses link to allocations. Seepage losses are largely fixed in nature once water enters the channel. These losses relate to water loss — —

Mr DRUM — Chair, can we get through this a bit? We need to ask some questions of the panel.

Mr MILLS — There are two slides to go, Chair.

The CHAIR — Thank you.

Mr SMITH — It has been suggested on occasion that these losses are not real and that they are used elsewhere or by the environment. Today you will have driven past patches of cumbungi between the road and the channel. The fact that water weed is growing in a table drain in the worst drought in recorded history must be seen as strange. It is probable that the cumbungi was also accompanied by dead trees, and it is likely that these trees have died either through water logging or as a result of build up of salt within the soil profile.

The capillary action of soil draws water to the surface if it exists within 2 metres. This creates water logging, and if allowed to continue will create salinity issues as water evaporates leaving behind small deposits of salt, which accumulate over time. Given that we are meeting today in the City of Shepparton's offices, it would be instructive to obtain its view as to the costs associated with maintaining roads where the subgrade remains constantly saturated. We expect that maintenance costs associated with roads that are currently in this situation will reduce as the NVIRP project rolls out. This is an additional, uncosted benefit of the project.

This slide demonstrates one treatment to address seepage and leakage. Leakage and seepage is an extremely inefficient and inequitable way of sharing a precious resource. One given rule of water is that it will run downhill unless it is pumped or the capillary action of soil acts as that pump. It has been suggested on occasion that all seepage and leakage finds its way into a river, stream or wetland. Of course, if this were the case, no aquifer would be below the water level of a stream and certainly no aquifer would be below sea level. We know this is simply not the case.

Jobs stimulus to the region: over 500 workers have engaged during the peak period of the project, and we have had over 1100 workers inducted through our OH and S system. Workers comprise local contractors and staff, and the created flow-on effects — I understand from talking to Greg earlier today that where you were staying last night was virtually full, and that is fairly consistent across the region.

In terms of net savings principles, water savings are the total gross volume saved less the volumes of water required to ensure no net impacts due to a project of high environmental values. NVIRP has established a technical advisory committee, comprising specialists from DPI, DSE, CMAs, GMW and Parks Victoria to assist in identifying priority waterways and wetlands of high environmental values which may be impacted by modernisation works through the reduction in incidental losses and outfalls. Those identified as at risk will have

an environmental watering plan developed to mitigate the impacts of the modernisation works. The mitigation water is also being set aside for this purpose and is in addition to the 75 gigalitres of water that is the environment's share of the water savings generated from stage 1 of NVIRP. Environmental watering plans are then reviewed and advice is provided by an independent expert review panel prior to approval by the Minister for Water.

The slides that are coming up are just in reference to our referral under the EES. Whilst the Minister for Planning decided that no EES was required for the NVIRP, he did implement conditions which would ensure that key regional and environmental assets are protected. The mechanisms for monitoring, public reporting and independent auditing are being put in place, and the environmental management framework has been developed to manage the impacts on native vegetation, flora and fauna species and cultural heritage. I am making up time — those conditions under the minister's advice are available on the website.

If we go to the slide around condition 3, the approach adopted by NVIRP will ensure that priority wetlands and streams receive mitigation water at the appropriate time to maximise environmental benefits. This could never have occurred under the manually operated system, where channel spills were largely unplanned, where timing is counter to achieve positive environmental outcomes.

I will not dwell on those conditions. Under condition 5, managing the environmental resilience requires consideration of all risks associated with new works. The NVIRP process ensures that these risks are appropriately addressed. The reports associated with the outputs, which are referenced in those slides, are available on our website if you follow the links.

Mr BARBER — Gone up, have they?

Mr SMITH — Yes, I think we went live yesterday.

In terms of the environmental watering plans, they have been prepared for Lake Elizabeth, Lake Murphy, Johnson Swamp, the Loddon River downstream of the Kerang Weir and the Campaspe River. As mentioned, these are available on our website. These had to be assessed and approved prior to GMW operating the system this season.

In addition to the Victorian Environment Effects Act, we have been in discussions with DEWHA for some time with regard to referral of the project under the federal EPBC act. We anticipate being in a position to refer the full project to DEWHA within the next few weeks. This project will deliver the biggest single environmental allocation in Victoria.

The CHAIR — Thank you, Mr Smith.

Mr MILLS — Just in closing, Chair, I would like to thank the committee for the opportunity to present today. Perhaps I was remiss at the start when I did all the introductions. I should have introduced myself as a dairy farmer, because I think that is really important; and I probably should have introduced David, who has just been acknowledged as one of the 100 most influential engineers in the country. I think that probably adds a bit of credibility to the statement I made earlier on. We are happy to answer any questions on the issues that Murray and David have addressed.

The CHAIR — Thank you, Mr Mills. The committee has allowed roughly 75 minutes for questions following the presentation, which should take us through to just after 4 o'clock. As with the previous session, I know local members have a lot of interest in this issue and will have a number of questions. I will start with Ms Lovell.

Ms LOVELL — Murray, I have a copy of the connections program monthly report for April. I just note there are three tables down on the lower left-hand side relating to the backbone modernisation connections and the reconfiguration. There seems to be quite a large deficit between the targets and the actual savings, not only for the month of April but also for the program total. I was just wondering if you could explain those, and if you have some more up-to-date figures for us.

Mr SMITH — Thanks, Wendy. Basically the target is worked out as a straight line, so that includes where we need to be at the end of the project and what we need to achieve month by month to actually get there.

In terms of the connections framework and the connections element of the program, there are sections there which are yet to be signed off by the Minister for Planning and the Minister for Water in terms of the physical capacity to deliver those elements of the project as well.

At this stage we are carrying out the consultation with the individual farmers and groups of farmers without carrying out the physical works. That is happening, and we have had to get the systems in place, as you would appreciate — that is, the protocols and things which sit behind this. It will most probably be more of a traditional starting off flat and coming in with a steeper slope — in fact, it is the same as what we delivered in the winter works program. It will not actually be a straight line, even though our target is effectively worked out on a straight line.

Ms LOVELL — Okay. Murray, with the reconfiguration — —

Mr MILLS — Chair, if it is okay with you, we will just get the most appropriate person to answer any question.

Ms LOVELL — Yes, that is okay. With the table that refers to reconfiguration, does that include the reconfiguration works that were transferred across from Goulburn-Murray Water last November, or are these a separate set of works?

Mr NABBS — I am not sure how you use it but they are two separate programs. I would not expect them to be — —

Mr SMITH — They are running side by side effectively in terms of the programs.

Ms LOVELL — So this does not cover any money with that work?

Mr SMITH — No.

Ms LOVELL — I would just like to ask what the warranty period is on the flume gates.

Mr SMITH — I think we would have to take that on notice.

Mr NABBS — So far as the actual works go, there is a 12-month defect liability from that point of view, which covers structural works — that is the major warranty for that.

Ms LOVELL — And who is responsible for any maintenance after that? Who is responsible for the cost of maintenance to the flume gates?

Mr NABBS — Once we have reached practical completion and we have had that 12 months liability, the responsibility comes back to GMW and the assets then pass back to us.

Ms LOVELL — Is that at the completion of the project, or is that 12 months from when it is installed?

Mr NABBS — No, at practical completion, so we will have to inspect to make sure the gate has been put in as per design and as requested. Then there will be a 12-month period of warranty, and then after that 12-month period it will be passed back to Goulburn-Murray Water as an ongoing asset for it to replace and maintain into the future.

Mr STEWART — I might just add that that is no different to any other major contract that we have on supply of any other material or plant or equipment: 12 months is a pretty standard defects liability period.

Ms LOVELL — What is the annual cost of maintenance, or estimated annual cost for maintaining flume gates?

Mr STEWART — For a flume gate, the average cost?

Mr NABBS — About \$800 to \$900.

Ms BROAD — Thanks for the presentation from the team. I have a number of questions if we can work through those. The first one relates to the accounting and auditing of water savings and how those are translated

into entitlements and water shares. The second one relates to the bulk entitlement that was disallowed by the Parliament last week, and the third one is about the cost-benefit analysis decision-making process that goes into piping and channel lining with plastic and rock walling, because we have heard quite a bit about various options without much indication of costs versus benefits. Understanding how these decisions are made to get the best result all round would be helpful.

On the first point I think it would be fair to say, and generous to everyone concerned, that there is a certain amount of confusion around just how the accounting and auditing water savings resulting from investments in infrastructure projects over time is done. I think that has come about because Goulburn-Murray Water in the normal course of events has made investments. The government, which has been doing this for coming up to 10 years, has made a number of investments over time in water savings projects for a range of purposes, including restoring environmental flows to the Snowy River through to the Living Murray and a range of other commitments that involve the Victorian government and other jurisdictions.

My question relates to how these various water savings are accounted for and audited and how they relate to government commitments. I do not think the funds that have been invested have changed and I do not think the nature of the works on the ground has changed, but in some instances the accounting of particular water entitlement savings has changed as various government commitments have been made and new parties have come into the picture with, happily, further funds being invested, particularly in the case of NVIRP.

It would be helpful if the panel could do anything today for the benefit of the committee to clarify these issues which keep being raised in relation to water savings for the Snowy, the Living Murray and a range of other matters so that we are clear that, hopefully, commitments are being kept and the savings are being delivered to the respective beneficiaries, which are the environment, irrigators and urban communities, which include not only the Melbourne urban area but also rural towns which are connected to the Melbourne supply system.

I think the second question is pretty self-evident: what are the consequences of the disallowance of the bulk entitlement orders by the Parliament? I think I have outlined the third question already.

Mr STEWART — I might pass to Graeme for the detail, but just in summary in terms of beneficiaries of water savings projects, the beneficiaries of water savings projects are the individual project investors, be it Water for Rivers, Living Murray, the Victorian government or irrigators. They share proportionally in any beneficial outcome from water savings, and it is up to those investors to determine where they choose to use their water.

Mr HANNAN — In addition to the range of variables that you mentioned, the other variable is the seasonal conditions in the season for which the savings accrue, and that needs to be referenced back to a reference year. The techniques for doing that have been established in the water savings protocols which have been developed by DSE, NVIRP and Goulburn-Murray Water in cooperation. There are a range of project interventions which are described in that protocol and techniques for converting the savings in the most recent season. Those savings will be audited, and there will be techniques to convert those savings to an entitlement which then, as David mentioned, go to the project investor.

Ms BROAD — Is it possible to go through the quantities? There has been a lot of dispute from some sections of the community, particularly in relation to the north–south pipeline, for example, as to whether or not commitments are being honoured in relation to water savings that are translated into entitlements or the respective shares.

Mr MILLS — Perhaps, David, you need to explain what the process is and how the savings become a bulk entitlement, a water share, and how then there is an allocation made against that water share.

Mr STEWART — I think that drifts into the second question. The specific details of how particular water savings are used, particularly in the north–south pipeline instance, is probably better a question for DSE. We could take it on notice, and if we are able to answer it, we will, but I think it is a question for others.

Mr HANNAN — I was just going to mention in relation to specifically the second question — what is the consequence of the bulk entitlement amendments being disallowed — that the disallowance of that aspect of the amendments means that Goulburn-Murray Water must abide by the bulk entitlement as unamended, in which

case we must recognise the definition of commitments and therefore we cannot recognise the proposed commitment to accrue water from the modernisation and water savings projects.

Mr STEWART — That means that the investment which is being made now under the understanding that it will go to new entitlement holders such as the environment cannot be honoured. The result of the disallowance is that water which is being saved and accruing now can only legally be distributed in accordance with the current bulk entitlement to the current bulk entitlement holders, 95 per cent of which are irrigators. Irrigators will get an increased allocation. There will be no additional water for environment, no additional water for rivers and no additional water for wetlands as a result of that disallowance, because it goes back into the current pool and we use the bulk entitlements as a legal instrument which tells us how we must allocate all available water.

Mr MILLS — Does that clarify that?

Ms BROAD — Is there any way of holding that water back?

Mr STEWART — There is no legal mechanism outside the bulk entitlement. We must honour the current legal entitlement framework.

Mr TEE — So unless that is changed quickly, that water will never go to the environment.

Mr STEWART — It is already accruing as savings into Graeme's fortnightly calculations for redistribution under the current BE. It will go primarily into irrigators' pools at the moment.

Ms BROAD — Is there a deadline for that?

Mr STEWART — Excuse me, Graeme. Perhaps you could just explain to the committee the role of the resource manager.

Mr HANNAN — The assessment of allocation against water shares is conducted by Goulburn-Murray Water on a fortnightly basis so that people who own water shares, predominantly irrigators, know how much water they have for the forthcoming season and are able to plan how their enterprise will operate. We do that fortnightly to make frequent updates. In terms of your question, 'What is the deadline?', the water that would otherwise be accruing in accordance with the bulk entitlement amendments will not accrue to the newly defined commitment that that bulk entitlement proposed. As David mentioned, without a defined commitment we must abide by the bulk entitlement and set that water towards the existing entitlement holders — that is, irrigators.

Mr STEWART — We are just trying to bring up a slide which will illustrate the complexity of that process. Without going through the detail of that, there are two things we need to consider. On the left-hand side are the sources of water available in the system, and on the right-hand side are the commitments that we must fulfil in that particular system — in this case it is the Murray system. You can see water fills up on the left — there is no priority implied by the stacking here; that is how water fills up — and on the right is how it must legally be distributed. Interestingly, on the Murray system the two numbers to look at are the river losses to the South Australian border, which are 330 gegalitres, and the flow to South Australia — it is a little hard to read — which is 480, is it, Graeme, that top blue number?

Mr HANNAN — It is hard for me to read too.

Mr STEWART — It is something of that order. A significant entitlement sitting on the Murray system is the South Australian obligation.

Mr MILLS — And that is similar to the Goulburn as well?

Mr STEWART — The Goulburn is similar; not quite as complex on the Goulburn because of the inter-basin issues.

Ms BROAD — There is the Goulburn.

Mr MILLS — Yes. It is very complex, so I just hope that helps the understanding of how we make allocations and who are the drawers on the water that is available before an allocation is made and the shortfall that is there.

Mr STEWART — This is another good explanation of the benefits of modernising the distribution network. We need to have enough water on the left-hand side to meet the commitments on the right-hand side. The higher the bar on the right-hand side the harder it is to deliver water. You will see on the right there is a thing called channel distribution losses of 170 gegalitres. Murray's project, the NVIRP, is to reduce that number, and that will help to reduce the size of the commitments on the right-hand side, which means there is more water available sooner for all our customers.

Mr MILLS — I hope that helps, Mr Chair.

Ms BROAD — There was a third point.

Mr MILLS — I was going to ask Darren to address the third question, if that is okay.

The CHAIR — Just before you do, can we get a copy of those slides for our records?

Mr MILLS — Yes, that is fine.

The CHAIR — Thank you.

Mr NABBS — Just as far as process, when we look at the various asset solutions for modernisation there are, I guess, a number of ways. The first thing we look at is whether a channel is required, so there is rationalisation to remove the channel. After that there is plastic lining, there is clay lining, there is earthen bank remodelling and there is pipe lining. In each case we sit down and do a cost benefit for each of those, but there tend to be horses for courses.

Typically this is what tends to occur: the 70-megalitre-and-below channels tend to be pipelined. It is cost-effective to do that. It is important to understand too that obviously Goulburn Valley is reasonably flat, so we do not have a lot of head that we can work with, which means we have to put in bigger diameter pipes, so the cost benefit is quickly eroded as you get into the bigger sized pipes.

We tend to use the plastic lining — from a cost benefit view, where it actually stacks up — for the 70 to 200 megalitre capacity channels in the lighter soils. The way we actually identify the particular pools that we need to do that for is through doing pondage tests. We look at the high-loss pools, and if it comes up as a high-loss pool, we overlay the soil mat just to confirm it is in lighter soils. And the third thing we tend to do is walk the banks to ensure that there is no obvious leak, because the last thing we would want to do is go through and find that there is actually water being diverted through one major leak. That is how we do it.

What we tend to find after that is with the heavier soils we can just bank remodel. They tend to be the larger capacity channels. Where we have seepage problems in the larger ones that are greater than 200 megalitre, they tend to be clay lining. As Ken pointed out, you cannot always get clay from close by. If we cannot get good clay within 10 kilometres, then we tend to look at alternative solutions.

I guess what I am saying is there is a process we go through. We look at each of the asset solutions and their costs and their benefits to do that. We also look at the whole life cost: will a plastic liner channel last two or three times longer than an earthen remodelled channel? Again we take into account replacing that plastic two or three times in that life cycle to determine if that is a cost benefit. That is the process we do each time. We have rates for each of those, and they are designed on each specific occasion.

Ms BROAD — Just for the record, I presume in doing this cost benefit you are trying to achieve the maximum benefit for the costs involved?

Mr NABBS — Yes; the maximum water saving, because from a pipe you obviously save the evaporation as well as the leakage and seepage from a cost point of view, and also the cheapest cost ongoing to our customer. The most cost-effective solution is what we end up with.

Mr SMITH — It looks at the whole-of-life cost. One of the things as well, in terms of the HDPE lining, that has evolved over time. It has been looked at now for around 25 years. What you are putting in there with HDPE now to line channels is significantly different to what it was 12 years ago in terms of its UV stabilisation. It is the area which is above water which may become brittle and need more maintenance over time. They are now developing treatments whereby that section of plastic which is actually below water you can weld and join in, so it is not as though you have to replace the whole thing when you do a fix over time.

Mr STEWART — Just one final point, which is often missed, is that we run a very low-energy gravity irrigation network — so very low pumping energy input and greenhouse gas costs. Often the premise is put that we should have pumps and pipes everywhere. We have mentioned it is technically not feasible for the large volumes of water we are moving, and we need to recognise the environmental footprint that that delivers. So it is a low-energy gravity system.

Mr MILLS — Just one more comment on the plastic lining: I think Murray has had really good experience in northern Queensland.

Mr SMITH — It has been around the Mareeba–Dimbulah irrigation area, the Emerald irrigation area, for over 25 years, so I have got a bit of a history, having worked my way through a lot of the irrigation areas in Queensland where it was initially developed. It is a good stable product now, it is cost-effective and it has the fencing and the other issues around it to provide it with the safety levels that we expect.

Mr DRUM — Mr Mills, when the state government came out with this plan to spend \$1 billion to upgrade the infrastructure, you were happy with the \$1 billion? That was going to be enough?

Mr MILLS — No, I was not happy with \$1 billion. We need more than \$1 billion.

Mr DRUM — You were fully supportive of the program for six months when there was only \$1 billion on the table.

Mr MILLS — I was happy for that as a stage 1.

Mr DRUM — You were happy for the \$1 billion.

Mr MILLS — I was happy for \$1 billion as stage 1 of the project, bearing in mind that Goulburn-Murray Water had already been funded for the Shepparton modernisation project, for CG 1 to 4 on top of that. There was an indication from the government that with stage 1 and stage 2 there was a high likelihood that it would be funded by the federal government. I think the project was always seen as a \$2.2 billion project, and that is what we needed to complete the works in the food bowl region.

Mr DRUM — As a representative of the irrigators effectively who support Goulburn-Murray Water, would you have been happier if the federal \$1 billion had come up first?

Mr MILLS — I just want to clarify that I am not a representative of the irrigators. I am an irrigator, and at the time I was chair of the Goulburn Broken CMA, and my involvement in the food bowl project was particularly to look after the environmental issues and make sure they were properly addressed. That was my role on the food bowl modernisation steering committee. I subsequently became chair of Goulburn-Murray Water much later on. I just wanted to clarify that.

Mr DRUM — Okay. Now you are representing the irrigators?

Mr MILLS — I do not represent the irrigators; I am an irrigator, and I think I have got the irrigators' interests at my heart because I am one of them. I would like to think that what I am doing on my farm and what other irrigators are doing on their farms is consistent. I get a lot of good, positive feedback from irrigators.

Mr DRUM — In relation to the \$1 billion that was coming from the feds, would you have rather had that first?

Mr MILLS — I do not think it matters.

Mr DRUM — In relation to the distribution of the first \$1 billion, it is simply going to be divided between the irrigators and the environment. If you thought it was coming in, wouldn't it have been best for Goulburn Murray to have effectively taken the federal government's first billion dollars first and then to have used that for infrastructure improvements, which could then be divided and kept within the valley?

Mr MILLS — Perhaps I should ask you what is the point you are trying to make, because I am a bit unsure of that. I do not think it matters which billion dollars we spent first. I think it is quite clear: if we did not have the billion dollars from the Victorian government, we would not have got the second billion dollars for stage 2 from the federal government.

Mr DRUM — You are saying now that you were totally confident that that second billion dollars was going to turn up.

Mr MILLS — No.

Mr DRUM — So you were not confident it was going to turn up? When the first announcement was made did you think the second billion dollars was coming from the feds?

Mr MILLS — Does it really matter?

Mr DRUM — It does matter, because it is the question I am asking you.

Mr MILLS — I am saying we have worked hard to get the right outcomes for the project. It was always —
—

Mr DRUM — I am just asking you about the second billion.

Mr TEE — I am trying to listen to the answer. You have asked him a question; I would not mind catching the answer.

Mr DRUM — I am asking you: did you think that the first billion was all there was — state government money — or did you think that the second billion was always coming?

Mr MILLS — We were very clear in the food bowl project that it was a \$2.2 billion project to modernise that area of Goulburn-Murray Water. It was not a \$1 billion project. We thought that it was really difficult if we only had stage 1. One of the issues that I have had coming to me from irrigators — the biggest issue that I get from irrigators — is they come to me and say, 'Bill Jones down the road jumped the queue over Bill Smith'. That is the problem; they say, 'I want to get in first'. Now we see security of stage 2, and this is why I am wondering: what does it really matter? We have got the security of stage 2. The federal government has agreed to that, so I am just not sure what it means as to what I thought in some other time about whether we were going to be confident of getting stage 1 or stage 2.

Mr DRUM — Quite simply, if there is some dubious question about whether all the savings are going to be there, then effectively if the first billion dollars and the improvements that were garnered out of the first billion dollars were to stay within the valley — to stay within the Murray-Darling Basin — then that takes away a lot of the angst from all the people who see the water going to Melbourne. Then if the state government wants to come on board with a second billion dollars and fix it up from there again, where the fruit is not so low when it is hanging, then you are going to have a situation that is going to be more palatable to the people of the Goulburn Valley.

Mr MILLS — Chair, I think the best way I could answer this is that that was discussed quite openly in the community at the time. There was a choice, because there was a coalition federal government and we could have signed up — if this is what you are alluding to — to the federal government's national plan for water security and we as irrigators would have had to invest 20 per cent of the total project cost in that project. If it was a \$2.2 billion project, and if we took funding from the federal government at the time, the irrigators would have had to put in \$440 million.

Mr DRUM — No, \$1 billion.

Mr MILLS — Four hundred and — —

Mr DRUM — No, \$1 billion.

Mr MILLS — One billion — \$220 million dollars, which was much more than they have contributed to the project.

Mr TEE — Just how much have they contributed to the project? What is the difference?

Mr MILLS — The difference is — —

Mr DRUM — One hundred million.

Mr MILLS — It is \$100 million to stage 1, and if the project 2 — I hope I am right, David?

Mr STEWART — My understanding is that the commonwealth has agreed to pay 90 per cent of the cost of the project up to \$1 billion.

Ms LOVELL — So it is \$100 million for each one, but it is still \$200 million.

Mr STEWART — Up to \$1 billion, and the remainder is still the subject of negotiation between the state and the commonwealth.

Ms LOVELL — I think there needs to be clarification. Everyone keeps saying there is a billion dollars from the state government. There is not a billion dollars from the state government; it is \$600 million.

Mr MILLS — Let us be clear on this. I think the state government, the irrigators and Melbourne are very clear on who is paying what. I think there is \$100 million from the irrigators, and that is quite clear. There is \$300 million from Melbourne Water — let us be very clear on that — and there is \$600 million from the Victorian government. Then there is the further funding for stage 2 from the federal government of another billion dollars. The other projects were funded by Water for Rivers, the Living Murray initiative and other water savings initiatives, and they have been around for a long time.

We need to understand this is the first water savings project that has provided water to other beneficiaries aside from the environment, and that is the turning point in this. There is water for urban requirements, and I think everybody would agree the urban community should and does have to get the water for critical human needs.

Mr DRUM — Okay. We understand that.

Mr MILLS — Nobody is ever going to say that that should not happen.

Mr DRUM — That is fine.

Mr MILLS — I would hate to see Bendigo run out of water.

Mr DRUM — Shepparton wants \$188 million for the 52 gigalitres that was earmarked under the Waters for River program. Are you familiar with that one?

Mr MILLS — Yes.

Mr DRUM — In the initial language it read:

It is estimated that 52 000 ML (a mix of high and low reliability water) will be saved by the project with savings earmarked for the Living Murray Initiative.

Originally it just said:

The Living Murray Initiative provides increased environmental flows to the River Murray and the Snowy River.

That has been changed recently. The government has changed the wording on that. It now says after 'Living Murray Initiative' that it is 30 000 megalitres, Water for Rivers 5000 megalitres and the balance of 17 000 megalitres will be retained by Victoria. When did that change take place?

Mr MILLS — I am not sure. I think that is a question for government. I am not sure that that is a question for us. Darren, do you want to comment on that?

Mr DRUM — It is about the savings that have been derived from the Shepparton project.

The CHAIR — Are you in a position to answer questions about the Living Murray savings?

Mr MILLS — I do not think I am. I think Darren might be.

Mr NABBS — I am aware of the business case. The business case states 30 for LMI, 17 for government and 5 for Water for Rivers. That is as far as I know.

Mr DRUM — All right, but initially there was no mention that the government was going to take 17 000 megalitres, so when was that put in from the original document?

Mr NABBS — I cannot answer that.

Mr MILLS — I do not think that is something for us. We are there to deliver the project. We are there to implement the physical project.

Mr DRUM — But I am saying that when the original project was announced there was no mention that the government was going to take 17 000 megalitres.

The CHAIR — Mr Drum, Mr Mills has indicated that the corporation is not in a position to answer that question. You can put that question to DSE if you wish.

Mr DRUM — I find it staggering. I find it staggering that you people are in a position to run this project —

Mr TEE — It is a government decision.

Mr DRUM — It is clearly marked that 52 000 megalitres was going to be saved for the \$188 million. Where did the \$188 million come from?

Mr MILLS — We are not questioning the savings of 52 gigalitres. Darren, do you want to comment on that?

Mr DRUM — No-one is questioning the saving.

Mr MILLS — That is the issue, Chair.

Mr DRUM — It is what is going to happen to the saving.

Mr MILLS — That is fine, and that is not our choice.

Ms BROAD — That is a first, not questioning the savings.

Mr MILLS — That is not our decision; that is a government decision.

The CHAIR — Okay, thank you.

Mr DRUM — Could I also ask you about TCC,— or total channel control, in the CG2, about which one of the gentlemen — it might have been Mr Hannan — was saying that you were unhappy with the savings or the way that project went. In the URS report to the government it uses the following language:

The uncertainty in flow measurement meant that URS consortium needed to find a different approach to estimate water savings.

Mr BARBER — Ouija board?

Mr DRUM — Before that, if I may, Chair, I need to put the sentence in beforehand, where it says:

Despite a thorough assessment of flow measurements before and after TCCS Pilot, the uncertainty in measurements prior to the implementation of TCC made it difficult to calculate water savings using actual data. The uncertainty in flow measurement meant

that the URS consortium needed to find a different approach to estimate water savings. The decision was made to use the consensus view of the Project Working Group, and to assess the uncertainty associated with these estimates within our probabilistic BCA framework.

What was the consensus view? Were you trying to ascertain how much TCC actually saved and the consortium could not work it out because it is too problematic? They agreed to use a consensus view.

Mr MILLS — David, are you aware of the report?

Mr STEWART — I am not sure what you are quoting from, Mr Drum.

Mr DRUM — I am quoting from the URS.

Mr STEWART — Is there a date on the report?

Mr DRUM — Yes, it is all here. It is about 30 sentences long.

Mr STEWART — What is the date of the report, please?

Mr DRUM — It is 27 July 2004, I think.

Mr STEWART — That project has been running since 2002 as a trial of technology. There has been a huge amount of work done prior to and subsequent to that report. I think you would probably benefit from more recent information on what has happened on CG2. What I can say is that it was a research trial project. There were some things that we encountered during the implementation of that project which have assisted us to use that technology, to grow the technology and to improve the service that that technology delivers.

Mr DRUM — Mr Hannan, I am just asking you: what was the consensus view? How do you work out what a consensus view is?

Mr STEWART — I am not aware of the document.

Mr MILLS — I am not aware of the document either.

The CHAIR — Perhaps, Mr Stewart, you can take up Mr Drum's point and explain how TCC savings are now estimated?

Mr MILLS — We can do that.

Mr DRUM — It also goes on — —

The CHAIR — What is this, Mr Drum?

Mr DRUM — This is a GMW report, a finalising final report, TCC, 27 July 2004. Effectively I am trying to work out the estimates of losses with and without TCC. It is obviously a document that is with G-MW.

Mr MILLS — That is fine.

Mr DRUM — I am happy to submit this to you. Do you want to have a look at it?

Mr MILLS — No, I do not want to look at it now.

Mr DRUM — From another graph, trying to ascertain what sort of savings you are getting with and without TCC — —

Mr TEE — Chair, the witness is at a disadvantage. We have a four-year-old document that — —

Mr STEWART — Five-year-old.

Mr TEE — — a five-year-old document that none of us has, that we are being expected to respond to.

Mr DRUM — I am happy to submit it. It has got the Victorian government logo on it.

Mr TEE — Many documents do.

Mr DRUM — I am happy to submit it. What I am concerned about is that, apart from the consensus view to work out what the savings were in relation to TCC so you could effectively say, 'Look how much was saved', the graph that accompanies it on the reverse page with a 62 per cent success rate all of a sudden does not look great. However, by doctoring the inflow figures with exactly the same amount of water with exactly the same outcome, all of a sudden the success rate or the channel efficiency jumps up to 77 per cent. All that has changed is effectively the inflow figures have been changed to give you a higher efficiency once you have got TCC.

The CHAIR — Mr Drum, would it assist to have Mr Stewart explain how the TCC savings are now estimated? Is that the issue you are seeking — —

Mr DRUM — No. The trouble is that these supposed savings are referred to in the current documents going forward. So when you go back to find out how they are actually quantifying the benefits derived from TCC, they refer to this.

Mr TEE — Why don't you just ask him how the benefits are derived?

Mr SMITH — I think the bottom line in all of this is understanding your water balance, so where water is at any point in time. As I talked about in my presentation, we are rolling out the program so that we are actually informing the investment decision as you go forward. So TCC is giving you real-time data; as water is going past the point at any point in time you can figure out what are your water levels.

Mr DRUM — I understand that. We had a fantastic explanation of how TCC works this morning in a practical sense. But if you were to get me to come and do the audit on the savings associated with TCC or the fact that you have taken out the Dethridge wheels, I am bound to do the audit by this document and this document is clearly wrong.

Mr MILLS — No.

Mr SMITH — There are two elements of it.

Mr DRUM — Excuse me. I am bound to equate 3.2 megalitres per Dethridge wheel in losses. I am bound to do that whether that is right or whether that is wrong. We have other government documents here which prove that 90 per cent of the Dethridge wheels do not leak. But you have equated 3.2 megalitres of unauthorised use, leakage around the service point, leakage through the Dethridge wheel so that when — —

Mr TEE — So what is the question, Damian?

Mr SMITH — I understand your question, Damian. I understand you are meeting with DSE in the near future, and they certainly will be able to explain it much better than I can — it is their province of expertise, and you have the technical manual. But there is a top-down approach which looks at a gross level inflow-outflow and then you have the bottom-up approach which talks about building it up from the bottom, looking at the various elements where those losses occur.

Then the audit process tries to match those and see that you have some similarity and you have a consistent answer across both the top-down approach and the bottom-up approach. Fundamentally that is how it happens; in terms of the detail, I am sure there will be others at DSE who will be able to provide that detail for you.

Mr DRUM — I have one last question in relation to — —

Mr MILLS — I think we should just clarify and all understand that CG 2 was a research project. You really have to understand that. It was part of the work to assess how the research project was going. Subsequent to that event there has been a refit of a lot of the infrastructure in CG 2 because we learnt so much in the findings of that research. That document you have is part of that research. We went back and we were able to refit, get the right-sized outlets and the right-sized gates for the irrigators so that they would get more efficient irrigation.

If you do research, you expect to learn something from it and then you put those learnings in place. That is what we have done. I am very happy to make sure that we can get a detailed document so you can understand how the savings from TCC are calculated. Is it us or DSE, David?

Mr STEWART — It would be contained in the government's water savings manual. It is a technical question for DSE, I believe.

Mr MILLS — I do note, Chair, that Mr Drum has asked a question twice today about metering and the losses from a Dethridge meter wheel.

I think we really need to clarify that for the committee as well so there could be some really good understanding of that. I think we need to say, and Murray alluded to it before, that this is a COAG requirement; this is not a requirement of Goulburn-Murray Water. This is something the Victorian government and the other state governments have signed on to: that we have national metering standards. Dethridge meter wheels did not comply with those standards of plus or minus 5 per cent error in the field, greater than plus or minus 2 per cent error in the laboratory situation. So there was a requirement to go and get new meters.

I can tell you the feedback I have had from irrigators is, 'Bring them on. Bring on the big flow rates because that is what is going to make a difference for us. Give us 15, 20, 25 megalitres a day flow rate — — '

Mr DRUM — How is that going to make a difference?

Mr TEE — Hang on a minute: let him answer the question.

Mr MILLS — 'And we can really maximise the water use efficiency on our farm. We were not able to do that when we had smaller Dethridge wheels delivering 5, 8, 10 megalitres a day'.

Mr DRUM — So for quantity?

Mr MILLS — Yes, pipe flow.

Mr DRUM — They could have had bigger Dethridge wheels?

Mr MILLS — Yes.

Mr DRUM — Can I ask in relation to the accuracy surrounding the testing that you did, you have tested a lot of wheels that were very poorly maintained. I have clearance levels here of over an inch — 30 millimetres in clearance — and that you have included. So effectively when you have gone out to test the efficiency and the accuracy and the ability of a Dethridge wheel to do its job accurately in a testing regime, you have included a whole range of wheels. They were clearly in a horrible state of disrepair so you have all of these losses where, had the wheels been maintained, which is your responsibility, there would not have been losses.

Mr MILLS — I think I will let Darren answer this.

Mr NABBS — The first lot in that report were randomly chosen. There has since been further work done, as Ken pointed out, and we have tried to target ones that provide a good cross-section of well-maintained to poorly maintained to get a better cross-section. Those results will be available at some point in time in the future.

Mr DRUM — But, Darren, why would you have tested something that is clearly in a poor state of repair? If you want to see how accurate a Dethridge wheel is, would you not have tested the Dethridge wheel — —

Mr STEWART — I think the answer is that the sample which was randomly chosen was typical of the installations of nearly 20 000 Dethridge wheels across the region.

Mr DRUM — Sure.

Mr STEWART — If we were to maintain those in a condition where we would be incurring huge cost and not complying with national metering standards because of all the other issues, we would be following that upper red line that we showed you on the whole-of-life costs.

Mr SMITH — I think it is most probably important — —

Mr STEWART — It is not an efficient outcome for irrigators.

Mr SMITH — I think it is most probably important to understand, too, that when you are talking about 30 millimetres with a Dethridge wheel clearance, with a large Dethridge meter wheel the clearance is supposed to be 6 millimetres, and you are supposed to have 380 millimetres in front of the sill, in front of the gate. You are also supposed to have 180 millimetres on the downstream side of the wheel.

Mr DRUM — Sure.

Mr SMITH — If you are irrigating a paddock which is higher in the landscape, which means that your tail water depth is greater than 180 millimetres, your Dethridge wheel is going to become inaccurate. So it has an impact on which paddock you choose and that will change from day to day and hour to hour.

Mr DRUM — How often does that happen, where the water in front of your Dethridge wheel is higher than it should be?

Mr SMITH — Fairly regularly — and lower. If it is lower than the 380 millimetres, then you would be getting less than you are entitled to. I guess all I am trying to highlight is that there is no fixed thing. With a national metering standard it is plus or minus 5 per cent around an average of zero. With a Dethridge wheel it is plus or minus wherever it is and the average is certainly not zero.

Mr DRUM — Can I just leave it on one — —

The CHAIR — Mr Drum, we will have move on.

Mr DRUM — Sure. I can come back to him?

The CHAIR — Yes.

Mr DRUM — Thank you.

Mr BARBER — Just as a follow-up to Ms Broad's question about the accruing of water in the consumptive pool from the savings that you have so far made, how much water would that be as we stand?

Mr MILLS — Can I just ask a question of clarification? Do you mean from water savings projects like the Water for Rivers, the Snowy, or do you just mean — —

Mr BARBER — Ms Broad's question was in relation to BE that we received last week. So the water you were attempting to isolate through that BE came from a number of sources, and you can tell me what they were. How much water will have accrued as we stand?

Ms BROAD — At entitlements, not actual allocations.

Mr BARBER — As entitlements, yes. We have mostly been talking in terms of entitlements.

Mr HANNAN — The volume of water that accrued in respect of the BE change that you are referring to accrued from the time that we made application for that bulk entitlement, and it was influenced by the deliveries that were made in the latter part of the 2008–09 irrigation season.

There has been an estimate made of what that volume is in accordance with the water savings protocols. That estimate is subject to audit before it can be confirmed as volume that is available, or would have been available to Melbourne. That audit is scheduled for next month, and the volumes will be confirmed in October.

Mr BARBER — It is water from savings that you have made over two seasons of works now, I guess?

Mr SMITH — I think the water savings from the previous season have been allocated to irrigators, hasn't it, Graeme?

Mr HANNAN — Goulburn-Murray Water applied for the bulk entitlement amendment in March, and we will honour the accrual for the period from March to the end of the irrigation season in May. Goulburn-Murray Water had no obligation — in fact stronger than that, the bulk entitlement obliges us to make water available for the primary entitlement holders. Up until the bulk entitlement is changed we are not permitted to set aside water

for anyone who does not have an entitlement. Therefore, any accrual prior to the date of application of the bulk entitlement was allocated to the irrigators.

Mr BARBER — In the last irrigation season any savings you had made, and any projects you had run, went to irrigators?

Mr MILLS — Went to the consumptive pool.

Mr BARBER — It is called the consumptive pool? The government put up this proposed bulk entitlement which had within it a little hollow log where the audited savings from your projects were to go to be split three ways. What I am asking you is: how much savings was that in gicalitre terms and in terms of entitlements as we stand?

Mr HANNAN — We need to understand the difference between entitlements and water that is available in the current year, like an allocation.

Mr BARBER — I do understand.

Mr HANNAN — The water savings projects will create entitlements for the investors in those projects. What we are talking about here with the accrual account is a mechanism for making water available to Melbourne prior to those entitlements being created formally. That is the volume of water that would be set aside under the provisions of amended schedule 3.

Mr BARBER — That was the purpose of that — —

Mr HANNAN — Prior to the entitlements being created. They are real megalitres; they are not entitlements which will in future attract a seasonal allocation.

Mr BARBER — There were two bits to it. There was the bit that had to go to Melbourne, which I understand was a megalitre amount. Then there was this other bit whereby we established the one-third, one-third, one-third. Ms Broad asked you how much environmental water will now have to be given to irrigators. How much is that in gicalitre terms? Of course there will be an allocation which could be 0, 20, 40 or 100?

Mr HANNAN — The allocation mechanism will ensure that the water that has been accrued cannot be set aside for Melbourne. In respect of the longer term issue about creating entitlements, the entitlements which will be created have to be audited, and the audit mechanism would not have those entitlements created in the short term — in the here and now. The only component of this which is relevant to allocation decisions right now is the accrual account from savings.

Mr BARBER — There would not have been any water available for the environment this summer?

Mr HANNAN — The water for the environment becomes available when the entitlements are created, and there is an allocation against those entitlements. Those entitlements will be created when projects are audited, and the respective entitlements are established on the basis of the audited confirmation of savings achieved.

Mr BARBER — Are you saying to me that the bulk entitlement that we were asked to vote on last week by itself does not create the entitlement because it had a condition that said the savings must first be audited? Is that what you are saying to me?

Mr HANNAN — Yes.

Mr DRUM — Must first be audited.

Mr BARBER — Thank you.

Mr DRUM — The Water Act says it must first be audited.

Mr BARBER — That is how I read it. Until they are audited you cannot tell me how much water that would have been, that was available to go to the environment. Is that correct?

Mr STEWART — Sorry, I missed that.

Mr BARBER — Until they are audited via your technical manual or your water savings protocol or whatever it is, you cannot tell me how much water would have been available to go to the environment this summer — assuming it could have been audited in time for this summer?

Mr STEWART — That is correct. It is the government's water savings manual.

Mr BARBER — Yes.

Ms BROAD — But the shares are determined — —

Mr BARBER — What I am saying is that it is not real water, it is theoretical water. It has not yet been audited.

Ms BROAD — Once it is audited.

The CHAIR — Order! We do not need a dispute across the table.

Mr BARBER — Let's audit it!

Mr TEE — It is going to be audited by October.

Mr BARBER — I cannot wait to see the audited number.

The CHAIR — Do you have some questions, Mr Barber?

Mr TEE — It does not matter now. It is gone. We have lost it.

Ms BROAD — It does not matter. It all goes to — —

The CHAIR — Order!

Mr BARBER — I think the point has been made.

Mr TEE — I am not sure — —

Mr BARBER — That was just a follow up to Ms Broad's question. The purpose of this inquiry is to establish the business case for this particular piece of infrastructure that has been funded by various people and handed over to you. That therefore goes to your business. Your business is going to operate that infrastructure from hereon in.

I had a look at your submission to the Essential Services Commission which was done earlier this year. The reason why that additional submission was made was because they noted the impacts of NVIRP on your business that were not known at that time, and therefore further changes were to be made. I would like to ask you a bunch of questions that more or less come out of the issues and the considerations that you are addressing with the Essential Services Commission which indicate that the revenue that must be put aside for the return on regulatory assets is obviously increasing quite dramatically because your capital base is now so much bigger.

You also note in the submission that:

The continuing drought has highlighted G-MW's largely fixed cost structures. Reliance on variable revenues to recover fixed costs has caused significant revenue shortfalls and, where costs could not be reduced to match revenue losses, the transfer of liability for recovery to future customers.

A review of G-MW's revenue mix is planned and will include consultation with stakeholders.

Is it fair to say as a result of making this investment that the fixed component of your revenue needs has got a lot larger?

Mr STEWART — No, I do not think that is a fair statement. I think with the way our tariff structures are set up that our fixed costs account for about 85 per cent and our variable costs are 15 per cent on top of that. The work that that refers to is the whole-of-life report that we have spoken about today.

Mr BARBER — For the purposes of the ESC some of your costs include the return on the RAB — the regulatory asset base?

Mr STEWART — That is right.

Mr BARBER — And that is increasing from \$7 million up to about \$18 million over a short period of years. That is an indication that you need to track revenue to pay back, if you like, this asset that is now in your hands or about to be.

Mr STEWART — That is right, and that is a change to the economic regulatory environment that we now have a return for new assets.

Mr BARBER — Yes. But you are saying the mix between fixed and variable costs is not changing much?

Mr STEWART — I would have to take that on notice, but I do not believe so.

Mr BARBER — And as we know, your irrigator customers during the drought are up politically and say, ‘Hang on, I am paying a very large fixed fee here, and I am not receiving any water’. Pretty soon the government wants to help them out with that. When it says here that you will be consulting with your customers about this, where is there for that consultation about the fee structure to go?

Mr STEWART — We are consulting with them at the moment on the long-term costs of running our business. This is the revenue requirement. The pricing issues are still to be worked through, through the ESC process that you have mentioned. That is the revenue requirement that we have to run this system.

Mr BARBER — I guess what I am asking you is: if we continue to have low availability of water, is the volatility of earnings going to be put back on to the taxpayer via your balance sheet? Or is that going to be kept on the customers?

Mr STEWART — The taxpayer does not fund the operation of our business, save in the past few years where the government has elected to support irrigators through rate subsidies, and they have been very much appreciated by our customers. Otherwise we do not receive any operational assistance from government. We have funding and fee-for-service programs from government, CMAs, MDBA, for example, but there are no cross-subsidies in our business — —

Mr BARBER — Except this massive injection of capital, in a way?

Mr STEWART — But that does not affect the operational cost.

Mr BARBER — Is it fair to say that the operational costs are now weighted more towards your IT costs and less towards the people who used to go out and drop bars and so forth?

Overhead shown.

Mr STEWART — We are in a transition environment. You can see it on this slide. The red line represents what costs would be for maintaining, upgrading, operating, repairing the current asset base of 6300 kilometre-odd channels if we only partially implemented modernisation. Stage 1 is the blue line and you can see that that is a billion-dollar investment that has a fairly modest effect on ongoing cost. You can see that the major change is when you fully implement modernisation. In terms of the bottom one, we have cut 60 per cent off the asset footprint or thereabouts, Murray?

Mr SMITH — Yes.

Mr STEWART — The difference between the second one and the blue line is that we are operating two systems: we are operating the current manual labour-intensive system and we are also operating a

high-technology system. What we will do under the modernised system is have lower operational costs because we will not have all the manual intervention required to operate the system.

Mr BARBER — The people you call your bulk water customers, moving on to them, is that largely urban water authorities?

Mr STEWART — We have 10 bulk water customers, 4 other rural water corporations, 4 regional urban water corporations and 2 private hydro-electric companies. In addition to that we have more than 1500 commercial leases, licences, leaseholders, houseboat owners and so forth. When we talk about no cross-subsidy, there is no cross-subsidy between those parts of the business or any other parts of the business.

Mr BARBER — In terms of your fee structure, which is on the back of the submission to the ESC, is the fee structure for the bulk water people a combination of both holding costs and handling costs, if you like?

Mr STEWART — It is primarily an asset recovery cost for the bulk water business — running the large dams, maintaining the large dams, funding work that has to be done on the large dams and operating those dams to release water to the urban supply, for example.

Mr BARBER — So call it holding costs in that it is more about the head works?

Mr STEWART — Entitlement storage fees.

Mr BARBER — Whereas for local irrigators, individual farms, it is as much about handling the water and getting it to them as well? Would that be fair?

Mr STEWART — Irrigators pay a tariff structure which includes an entitlement storage fee — their component of operating, maintaining, upgrading Lake Eildon, for example — and also a fee related to the capacity of the channel that they have — the ability to have their water delivered.

Mr BARBER — When you threw out the number earlier about people paying \$2000 a megalitre for water entitlements, how much would one of those people pay you?

Mr STEWART — Be very clear on that transaction. That is an individual transaction between an individually and privately held property right — between me to you outside Goulburn-Murray Water. I am selling you a product, and you are buying something off me. We do not influence or control that market. But Goulburn-Murray Water is involved to make sure the transaction is possible and meets government requirements, so it is my water I am selling to you or vice versa and it can be tradeable. We have a cost to recover our administrative charge on that. Off the top of my head — —

Mr BARBER — I am not really asking that.

Mr STEWART — It is not a big number. We do not make money out of other people trading water — —

Mr BARBER — I understand that, but let us say I have just bought a water entitlement from somebody else and it cost me \$2000 a megalitre.

Mr STEWART — Yes.

Mr BARBER — But then I have to get the water via you guys. What do you charge me as a total package per megalitre when it comes to my farm?

Mr STEWART — It depends where it is, because we have 320 different tariffs across Goulburn-Murray Water's region. You will not be subsidising someone else. If you are in the Murray Valley, you will not be subsidising the cost of delivering that water to someone at Central Goulburn or Torrumbarry. What you will be paying is a cost that is calculated not only to hold your water in the appropriate bulk water facility but to deliver it through the channel network to your property.

Mr BARBER — Yes. What is a typical cost, though?

Mr STEWART — A typical cost? There is an irrigator sitting next to me.

Mr MILLS — My water rates are about \$35 to \$38 — —

Mr BARBER — Per megalitre?

Mr MILLS — Per megalitre, yes.

Mr BARBER — It gets delivered fairly cheaply?

Mr MILLS — But you have to understand that we pay infrastructure access fees, so it is not a per megalitre charge. We pay for the delivery shares that we have got which relate to how much we use of the system. I could actually sell all of my water shares and still pay nearly the same amount for my delivery shares, which is my contribution to that infrastructure.

Mr BARBER — Sure, but I was asking if you did not. I understand there is a fee structure that contains all sorts of components. I was just saying that when it all adds up and you get the bill — —

Mr MILLS — And it depends. If you are pumping directly out of the river you will pay less because you have got to incur more of those expenses yourself.

Mr BARBER — The impact of permanent water trade out of your area — does that affect your revenues?

Mr MILLS — It will.

Mr STEWART — It will, and there is an issue. It is called a termination fee. People permanently selling water out are required to pay a termination fee which is a multiple of their infrastructure access fee. Basically, that allows us revenue to deal with the obligation that is no longer being met by the reduced number of customers.

Mr BARBER — You are no longer able to bill them for holding the water in Eildon Dam even though it is being traded down in Mildura?

Mr STEWART — The person who owns the water still holds it in Eildon Dam, so that fee still applies; not to one owner but to the second owner. It is still paid for Eildon Dam — —

Mr BARBER — You get paid for that bit but the delivery is now no longer your business?

Mr STEWART — That is right, and so if we halve the number of customers on a particular channel, we need to be able to recover the cost of running that whole channel network still, and that is covered by what is called a termination fee, which is a multiple of the annual cost.

Mr BARBER — And when you deliver this quantum of water under other bulk entitlements and other environmental entitlements, or if the federal government becomes an owner of large quantities of water, is that also going to hit your revenue?

Mr STEWART — No, because they will pay the entitlement storage fee. Anyone who owns the water has to hold it somewhere, and they pay that entitlement storage fee. You used the example of the commonwealth becoming an entitlement holder. The commonwealth would pay the charges of delivering the water down the river system for whatever it needs.

Mr BARBER — Do they?

Mr STEWART — If they will not be using irrigation distribution — —

Mr BARBER — They are not going via channels, they are just sending it down the Goulburn to the Barmah — —?

Mr SMITH — The termination fee is based on the delivery share. It is the infrastructure getting it there. It is reflecting that rather than the actual physical water entitlement.

Mr BARBER — Again, this whole business plan, if you like, or this whole pitch for a price path and a range of other issues to the Essential Services Commission is based on a return to 100 per cent entitlement at the time of this submission, is it not?

Mr STEWART — It was based on the information guidelines at the time. We have since been in discussions with the government and agreed to review that assumption.

Mr BARBER — In February when you wrote this you noted that you had got about a 40 per cent or 45 per cent previous entitlement. It then says:

The prices included in this submission have been based on the following allocation assumptions;

For 2009–10 onwards for the Goulburn, Murray and Campaspe systems that was 100 per cent?

Mr STEWART — That was reasonable to do at the time because that was based on what our estimates on this season might have looked like in February — average years since that time; since we have seen the season unfold. We are recasting the business' plan for this year based on a lower figure, which has been agreed with government.

Mr BARBER — All of this in fact works on the basis of a return to 100 per cent entitlements onwards into the future, doesn't it? That is how you are going to repay all this money we have just given you. That is how you are going to meet all your — —

Mr STEWART — Yes.

Mr BARBER — In technical financial terms, you would be cactus if it were 40 per cent ongoing for years and years to come, wouldn't you?

Mr MILLS — We are not going to repay the money that you have given us, but we are going to maintain and operate the system in the future without calling on government. We have factored in — —

Mr BARBER — It is the return on a regulatory asset?

Mr MILLS — We have factored in there the \$100 million contribution from irrigators. That is factored in, but there is no expectation that there is a repayment to government.

Mr BARBER — You do not pay dividends, but you do have to repay it in the sense that you have to set aside enough revenue each year to — —

Mr MILLS — I think the government was very clear when it funded the food bowl project, that it saw this as a regional development project; that it was vital for the future of this region that it invest in irrigation infrastructure so that irrigated agriculture could move into the next century.

Mr DRUM — Provided [inaudible] for Melbourne.

Mr BARBER — And you filled up all the motels and everything else. I am sure that happened during the building of the pyramids as well. This is an inquiry into the business case for this particular piece of infrastructure, and what I am just trying to clarify is that a basic assumption, a fundamental assumption, is that we will return to 100 per cent allocations of water, and it will continue that way indefinitely for the life of this infrastructure?

Mr MILLS — I do not think anybody can say what the rainfall is going to be in the future. We are in an era of climate change. We are perhaps in an era of drought within climate change. If anybody can come with more accurate figures or methods of predicting what the future rainfall and rainfall run-off is going to be, we would love to know about it. It would help our decision making enormously if we could do that but — —

Mr BARBER — But the general consensus is downwards?

Mr MILLS — We have had a couple of very serious drought years in the last decade, but all we can do is look at the averages. We have looked at the averages, and we have picked out the last 15 years — you can go to any period of time you like and you can get a sequence of events that suits your argument.

Mr BARBER — Yes, I know. There are climate change sceptics in the Parliament who say the world has been cooling down for the last 10 years.

Mr MILLS — But I think you need to understand — —

Mr BARBER — Are you a climate change sceptic?

Mr MILLS — It does not matter if I am a climate change sceptic or not — but I am not; I fully believe it is happening. But what I do know is that we are very reliant for our revenue bases on the infrastructure access fee, which is a fee to collect from irrigators and other users for their privilege of using the infrastructure, not on a per megalitre charge. I think it is only about 15 per cent of our total revenue, somewhere around there. The fixed and variable — you need to understand that — is 85:15, so it is not a major component that is the variable.

The CHAIR — We are going to have to move to Mr Tee, Mr Barber. I realise you have got further questions, and we may have time to come back to you.

Mr BARBER — It is a question of whether they want to come back to Melbourne another day and field the questions.

Mr MILLS — We are happy to come back to Melbourne another day.

The CHAIR — The sense is that there are a lot of questions remaining around the table. We will move to Mr Tee and Mr Kavanagh, and if there are questions after they have each had a turn this afternoon, we may have to reschedule a further session.

Mr TEE — Thank you. I just want to clarify the issue from where we left off with Mr Barber in relation to the bulk entitlement. As I understand it, the way the system works is that there have been some water savings that you have made. There is an estimate of what those savings are. That estimate is being audited, and the way the bulk entitlement would sit on top of that would be that the bulk entitlement provided a portion of those savings to the environment, and Mr Barber and the Greens in voting against the bulk entitlement have therefore denied the environment getting its part of that savings.

Mr BARBER — We are in 100 per cent agreement on that. I just want to know how many gigalitres it is.

Mr MILLS — I do not think you are getting an answer to exactly how many gigalitres. We would all love to be able to do that, but we are not quite that exact on the science. Unless Graeme or the auditors — —

Mr TEE — We are waiting for that audit to come through.

Mr BARBER — What is this sheet? Is this the sheet you have given us that shows your savings that you have achieved so far?

Mr SMITH — That is an NVIRP sheet. It is an indication of the connections program. When we go out and have our one-on-one discussion with farmers and talk about how they can connect back to the backbone — —

Mr TEE — Again, I am conscious of the time, Chair. The other issue was just in relation to — we have had some discussions and evidence earlier in relation to the plastic piping. Is there a warranty in relation to — not the plastic piping — the use of — —

Mr STEWART — Plastic lining.

Mr TEE — Plastic lining, sorry. Is there a warranty for that plastic lining?

Mr STEWART — Yes.

Mr TEE — And what period of time is that?

Mr STEWART — Twenty years, I believe, Darren, isn't it?

Mr NABBS — Twenty years.

Mr STEWART — And the costs of renewal and replacement of that are included in the whole-of-life information that we presented.

Mr TEE — Thank you. The other aspect that I just wanted you to comment on, which we have not really covered today at all actually, is the economic benefits for the region from the project in terms of employment and so on. I know we do not have much time, but are we able to get an estimate of those benefits?

Mr DRUM — It is a plus or minus question. You can either say it is going to have a net benefit or a negative — —

The CHAIR — Order, Mr Drum!

Ms BROAD — Only you could spend \$2 billion and get a minus impact economically.

The CHAIR — Order, Ms Broad!

Mr TEE — Again, the benefits in terms of employment for the local region and the ongoing benefits — —

Mr STEWART — I might ask Darren just to give a snapshot of what has happened in Shepparton over the last 18 months as a result of the Shepparton modernisation project, and then Murray might want to comment on the implications of the NVIRP program.

Mr NABBS — I guess a lot of it has been said before. I have not got any quantifiable numbers, but on the Future Flow project, for example, over that three-month period last winter when we were at the peak of our works we had 100 people employed locally, of which a mixture of those were both local employees and people who had shifted in to do the work — obviously with the accommodation and other things and all the flow-on effects of that. But we also had 350 contractors who were working at that time, of which 90 per cent were local — again, local contractors and the money going back to themselves. So I do not have anything quantifiable from that point of view.

Mr SMITH — Certainly as part of the development of our business case those sorts of things were looked at. My understanding is that our business case has gone through the relevant departments, and it is now with government. That information is contained within the business case, which is the province of government.

Mr MILLS — Chair, if I could just add to that question — I think the biggest benefit is going to come on farm. We have had major change on farm in the way farmers are irrigating and with much less water. As you have seen from the allocations in recent years, a lot of irrigators have had only a fifth of the water that they would have previously had, and many of irrigators have been able to maintain productivity despite that really low allocation.

A lot of that has been due to their ability to irrigate much more efficiently on farm. When the project is completed and we see the reduction in Goulburn-Murray Water infrastructure from 6300 kilometres to 2400 — and that infrastructure is taken out of the middle of our farms — and we are able to operate those farms much more efficiently, we will see a huge increase in productivity on farm. But I think it is very hard to quantify at this stage, but there is a willingness by irrigators to participate.

They are prepared to invest huge sums of money on farm to complement the investment from NVIRP in the infrastructure, and I think that it does not want to be understated — the commitment that irrigators are making and probably what they have always made in this region. Before we came along with modernisation they had invested about \$1.5 billion of their money on laser grading and laying out their farm. This now gives them the opportunity to maximise the benefits of that investment that they have previously made.

Mr SMITH — Could I just add too — in terms of, Wendy, the document you handed around earlier; that was April?

Ms LOVELL — Yes.

Mr SMITH — There has been a significant uptake as well since April. Steve was talking before about the level of interest that is coming in from farmers. There is more interest than our capacity to actually service in terms of being part of the connections program, and I think that is really positive. The ideas that are coming

forward are innovative, and you will see a fairly sharp upswing, I suspect. Ken and I would most probably be in wholehearted agreement on that in terms of the amount of interest and those people participating in the program.

The CHAIR — Mr Smith, will you be able to provide us with an update of this document that Ms Lovell circulated? Is there a more up-to-date version that you could access?

Mr SMITH — Yes, we can. Like I said, in terms of the approval process, we are still waiting for sign-off on some of the environmental approval processes associated with the actual physical works of carrying out the connections. As those things hit the ground a lot of the physical works will be able to fall into place, which will allow the savings to start to be generated, subject to the rest of the discussion that has been going on here today.

Mr KAVANAGH — Thank you for the presentations today. Could I ask you about this document here — ‘system losses’? It breaks up the system losses into what kinds of losses they are. But what sort of figure are you looking at as a total percentage?

Mr SMITH — We are looking at an average distribution efficiency of around 70 per cent. So we are assuming that 30 per cent of the water that is coming into the system is lost in one form or another. If you add up those numbers, they will add up to 100 per cent, which is 100 per cent of the 30 per cent.

Mr KAVANAGH — One of the figures given is for the water wheels — ‘inaccurate metering, 20 to 25 per cent’. So 20 to 25 per cent of 30 per cent would be 6 or 7.5 per cent in total of the water?

Mr SMITH — It is in the order of 8 per cent or that order, I believe.

Mr KAVANAGH — That is a lot higher than some of the figures we have heard from other people today. Would you like to comment on that?

Mr SMITH — My understanding is that that is based on the best available information and the reports that have been undertaken by G-MW.

Mr STEWART — So 7 per cent to 8 per cent is consistent with the independent testing we have had done.

Mr KAVANAGH — I think you also mentioned that the new systems you are putting in have a benefit in reducing salt. Is that right?

Mr SMITH — In terms of reducing the environmental impacts of seepage and leakage, yes; allowing you to irrigate more efficiently, yes. So stopping waterlogging; waterlogging ultimately leads to issues with salt.

Mr KAVANAGH — Rising salt? How significant would that be over all the amount of land that is saved from salt degradation?

Mr SMITH — I think I would have to take that one on notice and get back to you.

Mr KAVANAGH — It seems to be pretty significant just from empirical evidence?

Mr MILLS — We can get that information very easily, Murray.

Mr STEWART — I might just add that in terms of those sorts of salinity and environmental benefits, one of the key parts of this program is just looking at capability of land for irrigation. So where there are saline issues, this program will address those.

Mr KAVANAGH — We also heard that the seepage and leakage can have some benefit to the environment in replenishing aquifers, for example. Could you comment on that?

Mr SMITH — Certainly with seepage and leakage you will have localised effects. From an equity perspective I do not believe it is an equitable way of distributing water. Effectively as water comes into a system, everyone pays for that water. Because a channel may be seeping or leaking in one location and an individual will have the benefit of a local shallow spear point, does that make it right?

Mr KAVANAGH — But there will be some loss of efficiency due to repleting the aquifers?

Mr SMITH — Yes, and that was considered as well as part of the business case.

Mr KAVANAGH — Could I ask you about the evidence we heard earlier today about the relative merits and cost-benefit analysis of the black plastic lining against stone and clay linings of channels?

Mr SMITH — Darren talked about it before, and Ken alluded to it as well. It is a factor of how far you have to transport material to make it economically viable. There are a number of other materials I know that have been trialled around here: white rock and Scobie rock, I think it is called. We sent away some of those samples to Adelaide University to gauge their effectiveness.

When you have a channel which is drying out and not remaining wet, they are most probably reasonably effective in terms of sealing. In terms of a system when you have water permanently in there, their effectiveness is somewhat less. But if you had clay which was readily available of suitable quality, you would use clay in preference.

Mr KAVANAGH — In preference to what? Plastic?

Mr SMITH — To plastic lining.

Mr KAVANAGH — With the situation as it is, given the difficulties of transport and so on, how would you compare the cost of clay or stone lining compared with plastic lining?

Mr MILLS — It is really hard to do that, isn't it?

Mr SMITH — I would have to take that on notice and get back to you about that. There is a break-even line.

Mr NABBS — There are thresholds.

Mr STEWART — It is always considered on a case-by-case basis, so you would only use the one that was economically most advantageous for that site.

Mr KAVANAGH — The durability of the — —

Mr STEWART — You do not just look at the construction cost; it is the whole-of-life cost that we would consider and Murray would consider before adopting one particular solution for refurbishment.

Mr KAVANAGH — I know other committee members have asked you about the water going to Melbourne — could you say in a nutshell how the plans for the 75 gegalitres of water to Melbourne are affected by the Legislative Council decision a couple of weeks ago to disallow that plan?

Mr MILLS — In terms of rolling out the physical works?

Mr KAVANAGH — In terms of what will happen with the water.

Mr STEWART — I think we have commented that until there is a change of the bulk entitlement, the current entitlement holders become the beneficiaries of any water savings. But in terms of work on the ground, there is no change to the current works programs.

Mr KAVANAGH — Thank you.

The CHAIR — Gentlemen, thank you for your time this afternoon. There clearly are a number of questions remaining from the committee which we may need to convene another session to cover.

Mr MILLS — Chair, could your staff coordinate with our staff? There were some documents that you needed that we are to provide, so if you could make a list of those?

The CHAIR — Yes.

Mr MILLS — If you would like a further meeting, perhaps a list of the issues that we would need to concentrate on would be useful for us as well.

The CHAIR — Thank you. We appreciate the presentations you have given this afternoon and your time this afternoon. It has been a very useful session for the committee as we start this inquiry. We will no doubt have follow-up material but thank you for your time this afternoon.

Mr MILLS — Thank you.

Committee adjourned.