REPORT ON PROCEEDINGS BEFORE

PORTFOLIO COMMITTEE NO. 5—INDUSTRY AND TRANSPORT

WATER AUGMENTATION

UNCORRECTED

At Macquarie Room, Parliament House, Sydney on Monday, 5 June 2017

The Committee met at 10:40 am

PRESENT

The Hon. R. Brown (Chair)

The Hon. R. Colless
Mr S. MacDonald
The Hon. M. Veitch

The CHAIR: Welcome to the ninth hearing of Portfolio Committee No. 5—Industry and Transport inquiry into augmentation of water supply in regional and rural New South Wales. The inquiry is examining water demand and supply, the suitability of existing water storages, flood history and technologies to mitigate flood damage and water management, practices including that for environmental water. Before I commence, I acknowledge the Gadigal people who are the traditional custodians of this land and I pay respects to the elders past and present of the Eora nation, and extend that respect to other Aboriginal people present or those who may be joining us today on the internet. Today we will hear from the Waterfind Group, from the Independent Pricing and Regulatory Tribunal and from the Murray-Darling Basis Authority. We will finish with a panel featuring representatives from the Department of Primary Industry and WaterNSW.

Today's hearing is open to the public and is being broadcast live via the Parliament's web site. A transcript of today's hearing will be placed on the Committee's website when it becomes available. If the media appear today I will direct them to the broadcasting guidelines. Witnesses may take questions on notice if they could only answer if they had more time or with certain documents to hand. In those circumstances witnesses are advised that they can take them on notice and provide an answer within 21 days. The same applies to questions that Committee members have not had time to ask during the hearing and a witness can take them on notice. Witnesses are advised that any messages should be delivered to Committee members through the Committee staff. If you wish to table any documents the Committee staff will take them from you and they will be then admitted.

To aid the audibility of this hearing, I remind both Committee members and witnesses to speak into the microphone. In addition, several seats have been reserved near the loud speaker for persons in the public gallery who have hearing difficulties. Finally, I ask everyone to turn off or turn their mobile phones to silent during the hearing.

TOM HENRY ROONEY, Chief Executive Officer, Waterfind Group, sworn and examined

SIMO TERVONEN, Manager, Trade, Policy and Market Operations, Waterfind Group, sworn and examined

The CHAIR: Do you want to make an opening statement? The Committee has received your very colourful submission No. 54.

Mr ROONEY: Thank you for the invitation to make a presentation to the Committee. In my opening statement I would like to talk about three things. First of all, to provide you with a little bit more information on Waterfind. Secondly, to set the record straight on a few material misstatements that have previously been made to this Committee. Thirdly to provide you with a different perspective in relation to some of those statements. First of all, more information on Waterfind. We are a fully Australian owned and operated entity controlled by an executive and non-executive directors that have previously held senior positions in the New South Wales farming entities, and also the Federal Government's water sections. In the absence of regulation we do self-regulate our business and we self-regulate with the following rules. First of all, we have a rule of no speculation. Secondly, we quality assure our business and ensure our operations to protect our customers. Thirdly, all of our transactions that we operate are operated with customer contracts and all of our transactions are facilitated through independently audited trust accounts. Those audits are available for our customers to view.

In setting the record straight, we have not received, as has previously been stated by the Chairman of the Southern Riverina Irrigators, $5.3 million in government grants to develop a computer program to tell how much water he has in his account—we have not. We have, in our 14 years of operation, worked very hard and have been humbled by our responsible position to serve in terms of water more than half of Australia's irrigated farmers and have invested very largest sums of our own revenues over this time period to improve the industry and transparency of water market information. I believe that our efforts, coupled with the efforts of the New South Wales Government, other State and Federal governments, have served the market and community well in today providing the most transparent and efficient water market in the world.

The Committee has previously been provided with an article from the *Weekly Times* that was published approximately in February. It supported a reader to untruly believe that Waterfind was speculating in the market. I would like to table, through the Secretariat, our original response to the *Weekly Times* questions which are involved in this statement and our answers, which unfortunately most of our responses seem to have been omitted from that article which was provided prior to the publishing of that article for reasons which I am unaware of, to provide the Committee with a different perspective

Document tabled.

Finally, while it appears to be the case that temporary water markets have got cheaper as the market deepens, the largest correlation of price of water remains to be the quantity of water allocated on entitlements on an annual basis. In the past five to seven years the correlation coefficient is greater than 0.9 which in statistical form is very, very high. Allocation determination formulas and models, however, still remain closely guarded secrets of water planners in Australia and we would argue that in light of government wanting to improve the transparency of water market it is a good area for the Committee to consider its focus and encourage to bring out into the public domain this major price driver.

Secondly, with nearly one-quarter of all the water allocated being trade each year, water markets are now a critical part of the infrastructure of an Australian irrigated farming entity. In some of the more mature markets approximately 10 per cent, or more than 10 per cent, of water entitlements are now held by non-productive direct users, that is, non-farmers.

Mr SCOT MacDONALD: Would you repeat that? Did you say in some zones?

Mr ROONEY: In some of the more mature markets, more than 10 per cent of water entitlements are now held by non-productive direct use, with this number being as high as 30 per cent in some areas if you include excess water which is held by irrigated farmers and/or environmental water holders.

The CHAIR: Can I ask you to clarify the term you used, "non-productive direct use"?

Mr ROONEY: Non-productive direct use could include an investor, which could be you, that holds water and trades that water on an annual basis into the marketplace.

The CHAIR: So the "use" part of that statement would refer to the trade of water?

Mr ROONEY: Non-productive. You are not an irrigated farmer.

The CHAIR: I am not growing cotton or wheat; I understand.

Mr SCOT MacDONALD: It is what Senator Bill Heffernan said would happen.

Mr ROONEY: In some ways we are not a deregulated industry because we have never been regulated. However, those who have attempted to understand the water market will quickly learn that the market is not devoid of rules. In fact, we regulate over 27,500 water trading rules in over 200 different markets, each of which has different trading permutations and transfer processes. We have created the world's most sophisticated computer program to manage that process. That said, Waterfind is a long-term advocate of regulation of the water brokerage industry, as not all participants in the market hold a non-speculation position and not all participants in the marketplace independently audit their trust accounts. However, I believe in regulating the water market the Committee will need to unravel the Gordian knot in defining when a producer becomes a speculator, when a speculator becomes a producer and when participants become brokers or water market operators.

The CHAIR: There was a lot of highly technical stuff in your opening statement. Mr Tervonen, would you like to add anything?

Mr TERVONEN: No, I am fine, thank you.

Mr SCOT MacDONALD: I am interested in the issue of trust accounts. Real estate agents operate trust accounts. What is the risk of a broker not having a trust account? Do you have examples of abuse, failure, people losing money, or are you looking ahead to the day when that could happen?

Mr ROONEY: Unfortunately, there is now evidence of people losing money from brokers that have utilised or abused moneys held on behalf of growers that were held on behalf of water traders in the marketplace. They have lost that money.

Mr SCOT MacDONALD: Would you envisage something similar to the real estate industry, that you must have a trust account that must be audited? It is a pretty tightly regulated industry.

Mr ROONEY: I do not think I would want our industry regulated in the same way as the real estate industry. Real estate is not the most highly regarded industry in the land. I would say that we would be better off regulating the industry in a way that is going to be holding our industry in a higher regard than the current real estate industry. I used to be a real estate agent, and my family came from this area. I was also a citrus grower and so an irrigator in previous years. The use of trust accounts is a mandatory part of any form of regulation that you would impose in the water market. Trust accounts could be used as a mechanism for brokers to double-check the reporting they do in relation to pricing to registers, because brokers need to report a price to a register. There is an opportunity for brokers to manipulate their reporting—I am not saying that we or others do this.

Mr SCOT MacDONALD: So it is a double-check?

Mr ROONEY: It is a double-check that you could do in regulating or administering a trust account.

The Hon. RICK COLLESS: How is what you refer to as your client clearing account set up? Is it set up as a trust account? What transparency and accountability measures are in place?

Mr ROONEY: The client clearing account is not a trust account. It is purely like a float for water. The trust account that we have is an independently administered account—in fact, we run several trust accounts.

The Hon. RICK COLLESS: Does that account hold water licences too or is it a financial trust account?

Mr ROONEY: No, we do not hold water licences. We are not a speculator in the marketplace, and this is very different to what has been reported. We do not speculate, we do not hold water licences, we do hold client clearing accounts, which is not our water but water that is parked—

The CHAIR: Part of a transaction.

Mr ROONEY: It is part of the transaction, where we will bring water into a central point for ease of administration of the movement of that water.

The Hon. RICK COLLESS: In terms of accountability, transparency and so on, what processes have you put in place so that you do not get accused of speculative operation?

Mr ROONEY: We independently audit on a quarterly basis our trust accounts, which are the accounts that hold clients' money. Those audits are available to our customers. We also have a code of conduct that we provide. This is the way we self-regulate our own business. We have a code of conduct and we have an independent non-executive board of directors to oversee the code of conduct and the adherence of our business to that code of conduct.

The Hon. RICK COLLESS: I am a bit confused as to what you describe as a water fund client clearing WAL, which I presume stands for water access licence?

Mr ROONEY: Water access licence. The water access licence has zero megalitres on it. If you ask whether we own water licences, yes, we do but the licence has no water on it. It has zero megalitres on it and is called a zero WAL. It is worthless; there is no worth to a zero WAL, so to speak. We transfer clients' water onto that zero WAL and hold it as a float, in essence. That is what we refer to as the client clearing account.

Mr TERVONEN: If I may add, Waterfind holds those WALs in order to minimise the clients' transaction costs and to maximise the efficiency of transaction. That is all it is.

Mr SCOT MacDONALD: We have to make recommendations. Would you recommend going to protecting the consumer, in this case the WAL-holder, the person doing the trading, the client? The recommendation could be along the lines of reviewing safeguards and transparency for trading. You are pointing pretty heavily to trust accounts and auditing. I do not know that we have to drill down exactly to that, but you are flagging protecting the owner of the WAL needs work as the market grows and becomes more fluid—pardon the pun. Does the Committee need to look at protecting the water access licence-holder?

Mr ROONEY: I am trying to understand the question. Are you asking for our recommendations in relation to how to improve the safety of holding a zero WAL for other water right-holders if we were asked to make recommendations?

Mr SCOT MacDONALD: I am coming at it from the point of view of someone who has said to you, "I have 500 megalitres and I have an allocation this year of X amount but only want to use half of it. Please trade the rest." You sell it for a lot of money and you hold that money for the time needed to do the transaction and then you pay the person. How do you protect the person who has given you the trade during those steps?

Mr ROONEY: In regulating and industry, I think there needs to be a separation of powers, just as there is in a parliamentary point of view a separation of powers, between market participants, market operators and market rule makers and rule enforcers. There are really four boxes. We could say that from a proper regulatory viewpoint you would create separation of powers between these four boxes. At the moment, there is no defined separation. We have rule makers that are trading themselves, including governments. We have participants—water market operators or brokers—and we see the evidence that there is trading or speculation occurring by some water market participants, and we think in an ideal regulatory world you would have those as separate standalone boxes not inspired by the industry but separate boxes that in essence provide all preclusions for people to be able to trade if you are a rule maker, or speculate if you are a participant in the marketplace or market operator, or particular processes that they need to follow to ensure that there is total transparency with their customers if indeed they are crossing one box into another box.

Mr SCOT MacDONALD: You have covered everything, except for that trust account thing. I have had my go at asking questions, so I will let other members have theirs.

Mr ROONEY: Trust account?

Mr SCOT MacDONALD: The safety around that.

The CHAIR: We will properly define a written question on notice and send it to the witness.

The Hon. RICK COLLESS: Do you describe yourselves as brokers?

Mr ROONEY: We would describe ourselves as a market intermediary.

The Hon. RICK COLLESS: What is the difference between that and a broker?

Mr ROONEY: We are not an agent on behalf of customers, so we are not representing the views of a customer and protecting their best interest. Because, just like a stock exchange in essence has two parties to a transaction, and a stock exchange will charge a buyer and a seller for water, we also charge a buyer and a seller for water and we administer the transaction. In relation to taking that position, we are not an agent. Would we classify ourselves as brokers? We would classify ourselves as a water market intermediary—someone that stands in the middle, that basically facilitates a piece of infrastructure that joins a buyer and a seller together. They find each other through our infrastructure and make the transaction, and then we administer the transaction. I would prefer us to be called a water market intermediary or a water market stock exchange operator. We have what we call water brokers—and we give them a term "water brokers"—which act as an interface between the customer and the electronic exchange. Because the average age of a farmer in Australia is 60-plus—

The Hon. RICK COLLESS: Be careful with what you say about people over 60.

The CHAIR: Be very careful.

Mr ROONEY: —some of our customers want to talk to a person. They do not want to talk to another bloody machine; they want to talk to a person. We like to provide those people that do not want to use technology with the ability to talk to a person, and they provide an interface between the electronic marketplace and the person.

The Hon. RICK COLLESS: What is the difference between Waterfind and an organisation like H2OX, for example?

Mr ROONEY: I don't know. Number one, I suppose, we are a fully Australian-owned, independent organisation. We have been around for 14 years and before that I learnt the craft from my father. I started in 1989, so for me it is my twenty-eighth year in the industry, so we have been tirelessly servicing this industry for a long period of time. Through that whole period of time we have operated trust accounts. We are not another investment vehicle for people to invest in to make money out of; we are an independent intermediary. They are some of the differences that I would point out.

The Hon. MICK VEITCH: You are like the Tinder of the water industry.

Mr ROONEY: I don't know a lot about Tinder, but I think Tinder is the meeting of two people, is that right?

The Hon. MICK VEITCH: It connects people, yes.

Mr ROONEY: I think usually that is a bit smutty, but I would say that we would not like to be seen as the Tinder of the water industry. We spend millions of dollars providing transparency of information, so the information that we get that we provide ourselves is exactly the information we provide to our clients. We created an award-winning independent watermark information centre which people can access. They can see contracted as well as settled transactions as soon as they happen in the marketplace. We also support what we think is the most important industry in Australia. I am sure there are other important industries, but we believe that the Australian irrigation industry and the farming industry—because I was a farmer—is one of the most important industries in Australia. It puts clothes on our back, it fed us this morning, and water markets are now a critical part of the infrastructure of that industry.

The Hon. RICK COLLESS: I return to Mr MacDonald's example. He said he had 500 megalitres and was only going to use 250, so he has asked you to transfer the other 250. How would the mechanics of that work? Do you take 250 megalitres and put it into your clearing account?

Mr ROONEY: No. If Mr McDonald wanted to transfer 250 megalitres of his allocation—

The Hon. RICK COLLESS: Let us say I am also looking for 250 megalitres myself, so there is a buyer for it.

Mr ROONEY: In that circumstance, it would just be posted on our exchange. You would be alerted if you had an existing order on that exchange and if you posted water on that exchange, it would automatically clear and we would simply, under that circumstance, transfer water from your WAL to your WAL—just a straight transaction.

The Hon. RICK COLLESS: You said you would charge fees to both the seller and the buyer of the water. Is that a set standard fee irrespective of the number of gigalitres or megalitres, or is it imposed on a quantitative basis?

Mr ROONEY: It is both. It is based upon a set fee per transaction plus a quantitative basis. We make an arrangement with you before you place your order into that marketplace, and you approve our terms of use and our fee. Mr MacDonald would do the same: approve our terms of use and our fee—and that would vary according to what region you are in, the quantity of water you are trading and the number of transactions or what we call splits, because you might do that in three trades or in one trade.

The Hon. RICK COLLESS: The next question is: How is the price determined? Does Mr MacDonald say, "I want so much a megalitre for this water," and you transfer it to me at that price plus your fees?

Mr ROONEY: The price of the market is excluding our fees. If Mr Macdonald placed the transaction at $100 per megalitre, for instance, you could agree or not agree to pay that $100 per megalitre. We do not set the price in water. The participants in the marketplace, like a stock market, will set the price of water. Our job is to make that price transparent. We do protect the privacy of Mr Macdonald and we would protect your privacy in relation to dealings, so we are not necessarily saying, "This person is dealing with this person," but you use

our infrastructure and we do provide transparency in relation to the price that is paid in the last transactions in your region.

A customer can look at that and say, "Okay, the last six transactions that occurred in this region occurred at $98, $103 and $102," and you say, "Okay, $100 is a fair price and I'll buy that water." That is your independent decision, and it is not us setting the price of water. What we do is provide the transparency of the prices that are getting paid both in our marketplace, and we also provide transparency on the registers. In relation to that, we do warn our customers that if they take too much relevance from register data, the register data is not audited. So the information that you provide as a government out there to the marketplace in relation to water pricing is not audited, it is not registered, it is not guaranteed at that price. So if you had an unscrupulous speculator in the marketplace, for instance, that was trying to pump the market up and that speculator was not dealing with an exchange such as Waterfind—

Mr SCOT MacDONALD: So you could short the market?

Mr ROONEY: You could be reporting your prices at $150, $160, $170. Then if you are looking at register-only data you might say, "$150 is a fair price", where the information that the New South Wales government provides out there in relation to pricing transparency is not audited. That is an area, we believe—in answering your original question, Mr MacDonald—is an area where the marketplace could be well serviced by auditing those transactions. The reporting and the transparency that the government is providing, participants in the marketplace, because it is coming from a government register, are fairly assuming is a true and accurate record of price.

The Hon. RICK COLLESS: So the unscrupulous operators, if we can call them that, might take Mr MacDonald's 250 megalitres at $100 per megalitre and then let me know that they have found some available water for $150 per megalitre. Is that what happens?

Mr ROONEY: Yes. Certainly that has happened in the past in relation to the marketplace and our infrastructure put a lot of that out of business. Probably some of those what I would call speculators or traders in the marketplace—when we first invented the concept of Waterfind it was to join together buyers and sellers in a fully transparent manner because that is what used to happen. Mr MacDonald would have posted his—in fact, even as a trader would have gone and bought water from a region that you did not know that you could trade with because it was difficult to get water through the rules and the transfer process from that region.

Mr MacDonald would buy that water for, say, $60 and he would then onsell it to you for $160. You have got no proof of knowing whether indeed he bought it for $60 or $160. So what our trading rules engine did—and this is a part of our software infrastructure that we have developed—we developed a trading rules engine which actually joins together different areas and regions. It is very sophisticated and we have won two national innovation awards for it. It joins together all those trading rules so the sellers of that $60 water can find the buyers that are willing to pay potentially $160. They win, you win, and we facilitate the transaction in the middle.

The CHAIR: You have alluded to the fact that you protect the identity of your clients, being buyers and/or sellers, so I am going to ask the question straight out. Are any of your clients governments?

Mr ROONEY: I have sworn on the *Bible*, yes.

The CHAIR: Are they a major part of our business?

Mr ROONEY: No.

The CHAIR: In total?

Mr ROONEY: No. The major part of our business are irrigators.

The CHAIR: Private transactions.

Mr ROONEY: Private transactions, farmer-to-farmer transactions.

The CHAIR: You were saying before that about 10 per cent of the total trade is non-productive users. Is that right?

Mr ROONEY: Yes.

The CHAIR: Not just your trade—10 per cent of the total water trade?

Mr ROONEY: I am talking about 10 per cent of the total water holders.

The CHAIR: Water holders?

Mr ROONEY: Yes, in particular areas. There has been a growth of water investment houses holding water as an investment vehicle.

The CHAIR: If 10 per cent of the total water holders are non-productive users then that would include the Commonwealth water holder, would it not.

Mr ROONEY: No.

The CHAIR: It does not?

Mr ROONEY: No. That is where I made the second statement to say that if you include government environmental water holders and irrigators that hold excess water on their accounts for the non-rainy day so to speak—

The CHAIR: For security.

Mr ROONEY: For security reasons, that number might be more edging up towards 30 per cent in some areas.

The CHAIR: We are going to attempt to get the Commonwealth water holder to the witness stand. We have not had much success so far but we will prevail.

Mr ROONEY: Well, there is a great report—

The CHAIR: It will be interesting for the Committee to ask the question directly: "How much do you hold?"

Mr ROONEY: They do publish this.

The CHAIR: They do.

Mr TERVONEN: It is public information but, if I may add, it is not just the Commonwealth that is holding environmental water, there are State managers—in New South Wales the Office of Environment and Heritage. They do publish their holdings as well, as does the Victorian environmental water holder. So there is public information out there. In terms of how much of the annual trade, volume or value is done by the State or Federal environmental mangers, that is also available but it is not made—we know how much water they hold off the total entitlements on issue in Australia but the amount of trade can be interpreted but it is not as obvious.

The CHAIR: You have to extrapolate or interpolate the data to try and get that out?

Mr TERVONEN: Correct.

The Hon. MICK VEITCH: A statement was made to this Committee about the speculative nature of a purchase—namely, a suggestion was made that a company made $375,000 in 15 minutes. Is that possible?

Mr ROONEY: We read that statement. That included noting down three companies—one that earned $300, one that earned $400 and one that earned $800,000. I do not know where that data came from. We earned zero dollars because we do not speculate, so from our point of view I can say that it was zero. Customers did—we lodged transactions. This was mainly in relation to an IVT transfer, was it not?

Mr TERVONEN: Correct.

Mr ROONEY: An IVT transfer is what they call an inter-valley transfer. The New South Wales Government opens us a process for us to transfer water from a valley to a valley and there is a scramble to get water from this valley to another valley. The reason why there is a scramble is because water was double the price if you got the water out of one valley and into another valley.

The Hon. MICK VEITCH: So the Murrumbidgee to the Murray?

Mr ROONEY: From the Murrumbidgee to the Murray. It is not always the case but in the last few seasons it has been the case, that there has been a pricing differential between the Murrumbidgee and the Murray—and this is because there is a 100 gigalitres limit between transfers out of the Murrumbidgee into the Murray on a net accounting basis. This is one of the rules. That means if water is going into the Murrumbidgee it builds up that net account and it hits a trigger point, which I think needs to be 10,000 megalitres. Is that right?

Mr TERVONEN: Fifteen thousand megalitres.

Mr ROONEY: Before then they open up the IVT. When they open up the inter-valley transfer they announce to the market that they are about to open it up and they provide a date on which they are going to open it up. When that date is announced they say, "At 9.30 a.m. a first in, first served basis of transactions that go into that, is how we are going to facilitate the choice of who gets in the line." So there is a scramble on to try and

lodge transactions as close to the 9.30 a.m. or 9.00 a.m. deadline that is provided. The reason why they are trying to do that again this year is there is a pricing differential in one market to another market. The reason why there is a pricing differential is because there is a limit on trade of 100 gigalitres. When was the last time that we really pressure tested that 100 gigalitres trade limit? Because if there was no trade limit—and I am not suggesting you should get rid of the trade limit—there would be no pricing differential between markets.

Is 100 gigalitres really the trade limit or the limit of water that you can get from the Murrumbidgee to the Murray when you can transfer water between the Tooma power stations up the top of the system? And should we pressure test that 100 gigalitres? And if we pressure tested that 100 gigalitres and we changed it, say 500 gigalitres, there would be no pricing differential because there would be no artificial rule put in place. What in essence the rule does is it creates additional supply with limited demand in the Murrumbidgee market, because all of the Murray water and the Murrumbidgee water can transfer into the Murrumbidgee, which means that you get this huge quantity of supply. And economics 1.0.1, demand and supply: more supply, less demand, lower the price. So a good way to look at addressing that differential might be to pressure test the 100 gigalitre limit between the two markets.

The Hon. RICK COLLESS: Technically there is no transfer of water per se, it is just a balance, isn't it? An irrigator down the line is using water that comes from the Hume Dam but it is actually in the Burrinjuck's account.

Mr ROONEY: I think there is an actual physical transfer.

Mr TERVONEN: Yes, correct.

The Hon. RICK COLLESS: The physical transfer of the water from one valley to the other?

Mr ROONEY: Yes.

The Hon. RICK COLLESS: How does that happen? I was under the impression it was all based on a balance.

Mr TERVONEN: The trades are just accounting.

The Hon. RICK COLLESS: It is an accounting transaction, not a transfer of actual water?

Mr TERVONEN: Correct, but there is an actual transfer of water from the Murrumbidgee to the Murray based on this water old, which is the reality balance. So every now and then, they do have strategies around this, how much they release. They just open the gates—

The Hon. RICK COLLESS: But if it is to be transferred from the Murrumbidgee to the Murray, it goes down through the system and it is used below Balranald, correct?

Mr ROONEY: No, you can transfer it up the top. You can transfer inter-valley between the power stations through the Eucumbene. But it requires Snowy Hydro to be involved in this. Then there are penalties and different payments that occur because you are limiting Snowy Hydro's capacity to earn money through generating hydro if you are transferring inter-valley between the top. This is a part of the Gordian knot of water transfer rules. There is an ability to transfer a lot of water out of the top of the system but then it has other perverse secondary impacts to energy markets: Snowy Hydro, water sharing rules, and environmental flows. Because you have got different temperatures of water when you are transferring at the top and if you are releasing a huge amount of water from this location into different areas you might change the temperature of water and that might affect fish health or the macro-invertebrate levels. It is a sophisticated system and it can include physical movement of water at the top of the system, or at the confluence between the Murrumbidgee and the Murray.

The Hon. MICK VEITCH: On the connected system.

Mr ROONEY: Well, on the bottom of the connected system. There is the top of the connected system through our human infrastructure. Then there is the bottom of the connected system through God's infrastructure, which is the two rivers.

The Hon. RICK COLLESS: The major irrigation storages, being the Hume and Burrinjuck dams on each system—or the Hume and others on the Murray system of course—most of those transfers would occur below those storages, would that be true? What proportion of those transfers occur at that top level through the Snowy Hydro system?

Mr ROONEY: I do not know the answer to that, sir. The total quantity of water moved every year?

The Hon. RICK COLLESS: We could ask the water people about that this afternoon.

The Hon. MICK VEITCH: I travelled to the Snowy so I am interested in your comment about the interconnectivity.

Mr ROONEY: I think you do have the operations managers in this afternoon. I would be fascinated to know.

The Hon. MICK VEITCH: I am sceptical about it going down through the upper Murrumbidgee to Burrinjuck. I suggest the only way it goes would be down through Talbingo and Blowering, if it was to occur at all. The connectivity between Eucumbene and Tantangara dams—which is the only way you get the water into the upper Murrumbidgee out of Eucumbene—I do not think exists. I would be interested to explore that further. The only way to get water into the Murrumbidgee is down through Blowering Dam and the Tumut River. That is something else I need to talk about.

Mr ROONEY: I think the Murray River planners are probably best to, the Murray River operators or the Murrumbidgee operators—

The Hon. MICK VEITCH: You made a comment earlier about the Gordian knot. When does an irrigator become a speculator, in your mind?

Mr ROONEY: Well, I think my mind on that does not matter, it is your mind on that which matters, if there is a rule around regulating speculation in the market place. I do not know the answer to that question.

The CHAIR: There is no rule at the moment.

Mr ROONEY: There is no rule.

Mr SCOT MacDONALD: You would want to be very careful too, would you not?

Mr ROONEY: These are our customers and we want to support and look after our customers. I think that our customers want the freedom to operate and manage their water accounts with the most freedom they can. They do not want government stepping in and saying, "You can grow this, you cannot grow that. You can move water here, you cannot move water there." They want as much freedom as possible to manage their water accounts within the constraints of the physical operation of the system. We have to remember there are two levels of constraints that are put into this water market.

One is the constraints that we set in policy—not "we", you set in policy. And the other is the physical constraints about how much the system can bear without having adverse environmental degradation, other degradation or impacts to community. I would say that growers want as much freedom as they can to be able to manage their water accounts at the lowest cost possible so they can grow and produce and convert that water into produce and support their local communities. Is that more regulation? Is that less regulation? Is that more transparency? Is there enough transparency? Is that attacking these different rules and limits that we have placed, either we have placed them? That 100 gigalitre limit, I can tell you, has not been tested in 20 years.

The Hon. RICK COLLESS: When you say it has not been tested, we have never got to 100 gigalitres?

Mr ROONEY: No, we have definitely got to 100, but the actual rule of 100 has never been tested.

The CHAIR: It has never been suspended or increased.

Mr ROONEY: Has never been changed.

The CHAIR: That is what you mean by tested?

Mr ROONEY: Has never been tested. What would happen if it was 200? What would happen if it was 500, or what happens if it was 50, or there was no IVT at all, you chopped off the two valleys? I am sure you would have Murrumbidgee growers not very happy if all of a sudden you chopped off the Murray and the Murrumbidgee and all of a sudden it shrunk up their supply of water that they could get into their valley and all of a sudden they were paying twice the amount of water because they could not get access to it. Which is what they do in the northern valleys. The northern valleys are constantly at 200, 250-plus a megalitre long term for their temporary water because they have not got a lot of supply in those northern valleys in New South Wales.

The Hon. RICK COLLESS: When the Committee was in Tamworth there was a lot of angst over the Peel systems. Have you any comment about the markets in the Peel systems, whether they are failed markets? Farmers were essentially saying they were failed markets, they could not trade, they could not sell, there were no buyers, those types of comments. Do you have any experience or comments on the Peel systems?

Mr TERVONEN: Most of that angst is based on the high fixed charges in the Peel River, and they are the highest in New South Wales, as you would have heard. In terms of the market activity, they went through

a number of years in a row without any allocation. If you do not have any allocation, you might have some carryover but there is no water to trade. They even had this trial to trade water from the Peel to the Namoi during one of those years when there was not allocation. So I guess in that sense it was a fail.

The rules around that tradeability between the Peel and the Namoi are a bit unclear. It is still possible; even this year some water was traded from the Peel to the Namoi. If that tradeability between those catchments was opened up, that would bring more supply. But even during the trial, of course, you cannot trade from the Namoi to the Peel, it is only the other way around: from the Peel to the Namoi, because it flows that way. During those years when there has been allocation in the Peel, like this year, there is some temporary trading activity. But, in a nutshell, it is a small catchment with a very limited amount of water, a very limited amount of supply, so the market is not as active or as liquid as it is in the southern connected system.

The CHAIR: This is a question we may get to directly ask the Commonwealth water owner: if there are not rules around speculation at the moment, could that also imply that those rules are not there no matter who the buyer is, including governments? For example, we have heard evidence that there is a tremendous amount of dam capacity held by, say, the New South Wales Department of Environment and from time to time you get a clamour from the users to be able to get access to it, to use it, to buy it. The Commonwealth has been, and I do not know what the current situation is today, a huge player in the market in terms of perhaps even market distortion because of the volumes that were being bought.

I just wonder whether there is any evidence of governments speculating. In other words, one could argue that if you are one of the biggest buyers in the market and you dump, the price goes down; all of a sudden you buy back on the market and you have built your bank, so to speak—in other words, what you call reverse shorting, if there is such a term. Have you ever heard any of your clients complain to you that they thought that governments were distorting the market?

Mr ROONEY: Most definitely, we have heard people complaining about that. Have we seen evidence of, for instance, the Commonwealth environmental water holder selling a huge bunch of water and buying it back? No. In fact, the quantity of water that they have traded, so to speak, or put onto the market is very, very small in the whole scheme of things. They have done a trial in the Goulburn and they did two trials in the Macquarie system. Is that right?

Mr TERVONEN: Peel and Gwydir.

Mr ROONEY: Peel and Gwydir.

The CHAIR: A sell-back trial?

Mr TERVONEN: They are selling temporary water on the market.

Mr ROONEY: As far as the total percentage of water which is actually sold in the marketplace, it was quite small. But the impact to them entering the marketplace was huge, because, of course, you have got the biggest person—

The CHAIR: The biggest bank.

Mr ROONEY: The biggest bank then going through their processes to announce—because they have a process that they need to go through—to the public that they are going to trade water in the marketplace. Of course, everyone thinks that there is this massive volume of water that is going to come on, and it does have a detrimental impact in relation to—

The CHAIR: It drives down the price elsewhere.

Mr ROONEY: It drives down the price. Whether that is detrimental or not I do not know, but it does affect the marketplace.

The CHAIR: It is detrimental to the sellers.

Mr ROONEY: The biggest impact, I think, that the Commonwealth has is in relation to the shifting of water, and this depends upon how you quantify speculation. Is it speculation Mr MacDonald is managing his water assets and shifting water from one location to another location to protect it from one year to another year? If that was speculation in MacDonald doing that because, in essence, it is him preserving water from one year to another year, the Commonwealth definitely does that and does not report to the marketplace when it is about to facilitate those very large water movements from one location to another location.

The CHAIR: Do you believe it should?

Mr ROONEY: Yes, it should, because it can change the market on a dime. In the past it has done it where there was a large shift of water that happened from below the choke to above the choke, and it opened up the trading rules in the choke. Without that environmental water movement above the choke it would have closed down. You could say that with more open transparency that might have had a positive effect on growers 'ability to access more water.

The CHAIR: That should have had the effect of reducing or lowering the price on the Edwards system then, should it not?

Mr ROONEY: The Edwards system and the Murray system are pretty much a conjoined market as far as above the choke pricing market. Yet it did have an impact, the movement of water does have an impact because it can close trading rules, close inter-valley trades [IVTs] and it can have an impact in relation to the market price. We have decided as a country to address our supposed over allocation that we have provided through the Commonwealth buying water out of the marketplace. We would say that generally you are crossing one of those boxes that I originally talked about when I was answering Mr MacDonald's question—

The CHAIR: You are crossing a couple: policy and—

Mr ROONEY: You are crossing a couple. There are other ways that we could have addressed that. We proposed those other ways, the Commonwealth, when they were doing that 10 years ago, yet the market was seen as a place to play, a place to facilitate that over allocation. Our biggest concern at the time was that the market was too precious to Australian irrigators, too much of a critical part now and going to be too much of a critical part of an Australian irrigators infrastructure that they use. A quarter of it gets traded now every year—do not mess with that market. You need to protect that market. People do not need the bull in the china shop walking around, so to speak; they need to have clear rules set aside with people that are participating in that market, operating those markets, enforcing those rules, and that includes water brokers, that includes governments, that includes environmental operators, speculators, and other market participants.

The CHAIR: I have allowed us to run over time, which I rarely do. Gentlemen, there may be some questions that we would like to put on notice. We would appreciate answers within 21 days of you receiving those questions in writing, if that is okay with you. Once again, thank you very much for providing us with your time. It was a very, very interesting submission that you made, and your statements that you have put on the record today are of great value to us, so thank you.

(The witnesses withdrew)

(Short adjournment)

MATTHEW EDGERTON, Executive Director Water, Independent Pricing and Regulatory Tribunal, on former oath

HUGO HARMSTORF, Chief Executive Officer, Independent Pricing and Regulatory Tribunal, on former oath

ROB O'NEILL, General Manager, Licensing and Compliance, Independent Pricing and Regulatory Tribunal, on former oath

The CHAIR: As you have all previously appeared before the Committee under oath, you are not required to be sworn again. Before we begin with our questions, would one or all of you like to make an opening statement, as we do not have a submission from you? You can be as extensive as you like.

Mr HARMSTORF: I do not think we need to be extensive, given that this is our second appearance at this Committee. We are delighted to be able to help the Committee with its consideration of this issue. One thing I do want to address, having read the transcript of your Tamworth hearing, in particular, it is worth correcting a misconception that appears to be fairly widely held and that is that we are setting the price of water. We are not setting the price of water. We are recovering the costs of the infrastructure required to store and deliver water to the people who own it. The way we allocate those costs is through the amount of water, the overall share of the work required by the infrastructure that is represented by the person's allocation on entitlement. But we are not putting a price on water per se.

The CHAIR: I think a lot of the questions that led to those statements being put on the record might have been around the concept that, well in fact you are setting a price by your determinations, whatever they may be, or your calculations of how the costs are determined, particularly including whether, in fact, and I know this is not the Independent Pricing and Regulatory Tribunal's [IPART] rules, these are set for you by what is and what is not legacy infrastructure and therefore, whether those costs are allocated at all. From that point of view, I guess yes, you do the work that derives the overall cost of supplying that resource. Would you agree with that?

Mr HARMSTORF: Firstly, we allow the business to recover only the efficient costs, so where they are inefficient, we will give them a haircut. So they can only recover the efficient costs of the infrastructure required. Now, how do you work out who should pay how much for the infrastructure?

The Hon. RICK COLLESS: What is the difference between efficient and inefficient costs?

Mr HARMSTORF: It depends on the business. What it involves is us going through the proposed operational costs of the business and working out where we think they are spending too much. That could be through inefficient operation or basically more spending than is necessary. Where we identify that, we do not allow them to recover those costs from their customers.

The Hon. RICK COLLESS: This is the irrigator's business you are talking about?

Mr HARMSTORF: No, the Government utility. So WaterNSW or DPI Water recovers the Water Administration Ministerial Corporation's [WAMC's] costs. That is what we do, we go through line by line, we look at their proposed capital program, their proposed operating expenditure and if we find potential inefficiency there—and to do that, the business firstly proposes to us what they will do. We put that on the Internet and seek comment from all stakeholders. Then we typically engage our own consultant to go through it and assist us to identify what might be inefficient and take that out. We put that consultant's report on the Internet as well.

The CHAIR: Typically, from which disciplines do you draw your consultants? What is their expertise in advising you?

Mr HARMSTORF: It would be economics and engineering. We hire the best.

The CHAIR: We cannot argue with the engineering side. So someone, a consultant, makes a determination as to what is efficient and what is inefficient?

Mr HARMSTORF: To be precise, the consultant will make some advice to the IPART tribunal in its report. The tribunal makes the decision.

The CHAIR: But the IPART tribunal, in itself, is not made up of experts, they rely on expert opinion. Is that correct?

Mr HARMSTORF: They are experts in economics and they have done this for many years. They are appointed on merit but they do seek additional advice.

The CHAIR: I was not suggesting they were not, I am simply seeking information here, that is all.

Mr HARMSTORF: So we engage, on their behalf, expert consultants and we put that on the Internet and, if you like, we crowd source feedback from the broader community on what those consultants have found. And the tribunal then goes through that feedback and either agrees with, disagrees, provides reasons, all the submissions are addressed in the tribunal's draft report on the issue, which then itself is subject to a further round of feedback.

The CHAIR: For example, a lot of government-run bodies require their costs to include things that are, we will call, required, under community service obligations, for example. How would your experts price those and talk about the validity of community service obligations? For example, I know they are regulated but Forests NSW, under their charter of operations they are required to do certain things which, if they did not have community service obligations, their operations would be less expensive. I am wondering whether there are any such considerations in the calculation of the costs of water infrastructure people, such as the operators of dams?

Mr HARMSTORF: I am going to ask Matt Edgerton, the executive director of water pricing. He can address that in more detail than I can.

Mr EDGERTON: First of all, we only regulate prices for WaterNSW monopoly services. The monopoly service in this case, as Mr Harmstorf said, is the storage and delivery of bulk water. If WaterNSW was proposing any expenditure that was to serve a function other than that, we would exclude it from the cost base in setting prices. The other thing to note is that in setting prices for WaterNSW what we do is we engage the expert consultants. They come and look at WaterNSW proposed expenditure relating to bulk water storage and delivery over the next four years. That gives you an aggregate level of efficient costs. We then apply what we call the impactor pays principle to determine what share of those aggregate costs should be recovered from water users—

The Hon. MICK VEITCH: What was that—the impactor?

Mr EDGERTON: Impactor pays—so who caused the need for the cost to be incurred. We then use that principle to determine what portion should be recovered from water users as opposed to what portion should be recovered from the Government on behalf of the broader community. So, for example, if expenditure is relating to a gauging station or a piece of water infrastructure where part of the function of that infrastructure is to warn the downstream community of a potential flood event and a portion of its function also relates to ensuring water is delivered to irrigators, that cost may be shared 50:50 between irrigators and the broader community. If the infrastructure is created solely because of the irrigators, it is a case to attribute 100 per cent.

The CHAIR: For clarification, in the case where it is shared between irrigators and the broader community, how does the broader community pay?

Mr EDGERTON: We set prices so that prices only reflect 50 per cent of the cost and by default the broader community will pay as the Government is the shareholder and owner of the—

The CHAIR: And we pay taxes. I understand that. Does that also apply not just for the exclusion, not just for community service obligations, but for larger things like environmental water, for example—the infrastructure required to manage and handle environmental water?

Mr EDGERTON: The environment comes into it in several ways. For example, if WaterNSW is required to comply with environmental legislation—for example, to ensure there is sufficient fish passage—and it is required to comply with that legislation primarily because of the infrastructure required to supply water to irrigators, then that cost is included in the cost to be recovered from prices. In much the same way, in Sydney, when Sydney Water is subject to Environment Protection Authority [EPA] requirements, the EPA puts requirements on Sydney Water's sewerage treatment plants that go to the coast and also go to the Hawkesbury-Nepean. Sydney Water is required to comply with those environmental requirements and that is just a cost of delivering water to water users. So those costs are included in water prices. In rural areas, where the utility—WaterNSW—has to comply with an environmental obligation as part of its activities in delivering services to irrigators, those costs are also included in the cost base through which prices recover.

The CHAIR: So, for example, with the discharge device that was put into Burrendong to ensure warm water discharge to prevent cold water events for fish in the downstream environment and the cost of providing that, it would seem to me that it does not matter to an irrigator what temperature the water is provided. If there is infrastructure provided and capital costs and operating costs provided, would you consider that as 100 per cent community cost?

Mr EDGERTON: We would have to go back and look at that particular case, but the principle is impactor pays. So it is who causes the need for the cost to be incurred, not beneficiary pays.

The CHAIR: So if a dam is there for irrigation purposes, no matter what happens, it is the irrigators that are the impactors.

Mr EDGERTON: Yes. If the dam is there to serve irrigators and then the environmental regulator says, "You need to comply with this environmental requirement, WaterNSW," and WaterNSW incurs the expenditure in meeting that environmental requirement, that will be reflected in prices. What we do, though, is make sure that only the efficient cost of complying with the environmental requirement is reflected in prices.

The CHAIR: Most of these dams have been built long ago and a lot of them were built specifically for the purpose of irrigation. With the changes to the expectation that those storages were also going to be used for environmental water, can it still be argued that 100 per cent of the impactor is the irrigator?

Mr EDGERTON: There are also environmental entitlement holders—an environmental group or if the environment is an entitlement holder—

The CHAIR: Say the State Government is an environmental title holder.

Mr EDGERTON: They pay the same charges as other entitlement holders.

The CHAIR: Thank you. That was what I was trying to get to.

Mr SCOT MacDONALD: The licence has the same characteristic.

Mr EDGERTON: That is right. So there are regulatory requirements relating to the environment and then there can be situations where the environment is an entitlement holder—

The CHAIR: And therefore pays the same entitlement costs—

Mr EDGERTON: —and they are the same as other entitlement holders.

The CHAIR: —or the same level of pricing as the commercial users.

Mr EDGERTON: That is right.

The Hon. MICK VEITCH: How much scrutiny do you get over the Murray-Darling Basin Authority's [MDBA's] pass-through costs?

Mr HARMSTORF: It is probably fair to say not as much as we would like.

The Hon. MICK VEITCH: How much would you like to have?

Mr HARMSTORF: When we look at the costs for WaterNSW, we have line item access and access to officers to interview. We do not have that in relation to the MDBA.

The Hon. MICK VEITCH: So you do not get the breakdown of the pass-through costs?

Mr EDGERTON: Not to the same level as for WaterNSW. WaterNSW's own core costs. We are currently three-quarters of the way through a review of WaterNSW's prices. We engaged an expert consultant to review WaterNSW's proposed expenditure. In our draft report we reduced their proposed capital expenditure for the next four years by 24 per cent. We asked the same consultant to look at the Murray-Darling Basin Authority [MDBA] costs. That consultant could not find any evidence of inefficiency. However, they did comment that they did not have access to the same amount of information as they have for WaterNSW?

The CHAIR: That smells like a recommendation to me.

The Hon. MICK VEITCH: It does. Do you give consideration to depreciation in the calculations?

Mr HARMSTORF: Yes. Assets have a life. We call it return of and on capital. Depreciation is captured in the overall efficient operating costs of the utility.

The Hon. MICK VEITCH: On another matter, we were in the Central West a couple of weeks ago and the Cranky Rock dam proposal phase two was a site we had a look at. The Committee took testimony from potential downstream irrigators of the Cranky Rock phase two dam. The question was posed if they had to pay the same fees as the Peel Valley would they be interested in accessing that water. They had some concerns about that. I do not think they will draw water out of Cranky Rock Dam phase two if they have to pay for the infrastructure?

Mr HARMSTORF: I am not familiar with that particular project.

The Hon. MICK VEITCH: It is a new dam.

Mr HARMSTORF: Is it being built solely for the purposes of providing water to irrigators?

Mr SCOT MacDONALD: Flood mitigation was one of the arguments.

Mr HARMSTORF: You would not expect irrigators to pay for flood mitigation. That is a broader community benefit and it would be funded by the broader community.

The Hon. MICK VEITCH: That leads to the Peel Valley and the charges incurred there. Mr Scot MacDonald was lucky to get out of the Tamworth meeting after debunking their suggestion that we have postage stamp pricing. Does the Independent Pricing and Regulatory Tribunal [IPART] give consideration to something like postage stamp pricing?

Mr HARMSTORF: Value-based pricing is more efficient than postage stamp pricing because it means the users in the valley are exposed to the price signals that come directly from the infrastructure that they use.

The Hon. RICK COLLESS: Does it not depend on which valley you are in? I am sure the water users in the Murrumbidgee and the Murray would agree with that but the water users in the Peel and Coburn valleys would not.

Mr HARMSTORF: Presumably water users in the Peel would like someone else in a different valley to help them pay for their infrastructure, but they are the beneficiaries of that infrastructure and it is fairer and more efficient for the costs of that infrastructure to be recovered from the beneficiaries of that infrastructure.

The Hon. RICK COLLESS: Even though it puts them out of business because the water charges are too high? You have to look at it from the perspective of the irrigator. This is what the Committee heard in Tamworth: from the perspective of the irrigators, because the water charges are so high, they are unable to make an efficient irrigation industry in that particular valley despite the fact that there is sufficient water there. There used to be a huge lucerne industry on the flats of the Coburn River just north of Tamworth, which now has cattle grazed on it.

Mr HARMSTORF: My opening point is, it does not matter how much water is there. What matters is how much needed to be spent on the infrastructure to service the irrigators. Recovering the costs of the infrastructure in the Peel, the fact is that there are fewer people to recover it from so each of them has to pay a greater share.

The Hon. MICK VEITCH: There are 50 irrigators downstream from the Cranky Rock Dam phase two, which flags a concern about the economic viability of that proposal. You may need to take this on notice. When IPART talks about community service obligations, can you give the Committee an example of a community service obligation you would take into consideration?

Mr HARMSTORF: Hypothetically, if there was a dam that the government wanted to make available for recreational use such as boating, fishing or swimming, then that would cost more for the dam maintenance. There would need to be purification and so on and there would be additional costs. In my example that would not be the policy of WaterNSW, it would be a different obligation imposed by the government on the utility and we would expect and identify it as much as possible and the government should pay for those additional costs directly. It is effectively buying a higher degree of service from the utility.

The Hon. MICK VEITCH: If at some stage the Government of the day decided a dam constructed solely for irrigation required a percentage of air space maintained for flood mitigation, you would take that into consideration in developing the costs?

Mr HARMSTORF: Flood mitigation is quite common and IPART recognises that as a community-wide benefit which should not be paid for by the irrigators.

The CHAIR: It is up to the water operator to identify in its chartered expenses for your consideration what they believe are and are not costs over and above the costs to purely operate that as an irrigation supply?

Mr HARMSTORF: In the first instance, yes, but there are many steps to make sure they have correctly done that. IPART would do its own research on what the obligations are and by making everything transparent and holding public hearings, including in regional areas, I would be very surprised if such a cost remained hidden throughout the entire course of a price review.

The Hon. MICK VEITCH: When you talk about efficiencies or inefficiencies in the WaterNSW chartered accounts, or consideration in your development of the charges, does WaterNSW ever push back?

Mr HARMSTORF: Yes.

The Hon. MICK VEITCH: What is the process for that?

Mr HARMSTORF: In the first instance they put a proposal forward and WaterNSW's most recent proposal had costs 18 per cent lower than before. They already recognise that they could be more efficient than they have been. IPART scrutinised that and we engaged consultants. They get a look at the consultant's report. They push back and then we engage heavily with the community, who push back from the other side. It is a contest of ideas. We look at every issue on its merits, it is not a vote.

The CHAIR: Can you clarify: If the government is pushing back to reduce the cost of the commodity does IPART forensically examine that to see if they are right or wrong and they should be charging a higher price? And, if that is the case, what sections of the community would push back against lower prices?

Mr HARMSTORF: Theoretically that might happen, but it has not happened in my experience.

The CHAIR: Where a utility has voluntarily cut its costs?

Mr HARMSTORF: Cut them by more than we think they should.

The Hon. MICK VEITCH: It is rare we have IPART in front of an upper House inquiry. I appreciate your attendance. Considering downstream and constraint issues such as a low level bridge on the Murrumbidgee River at Mundarlo—which is often raised in conversation to be raised—do you take into consideration those constraint issues along the system or is it just what WaterNSW provides you with regard to the operation and maintenance of the storage?

Mr EDGERTON: The starting point is what WaterNSW proposes in terms of expenditure and capital projects. Through the course of the review if stakeholders were to raise a concern and say WaterNSW should be spending money on this asset rather than this asset, then that is something we would consider.

Mr HARMSTORF: I do not recall that particular bridge being raised with us.

Mr EDGERTON: If it is impacting on customers' quality of services and they think there is a case for more or less expenditure to be made on a particular asset or item we will consider that with the help of our expert consultants through a review.

Mr SCOT MacDONALD: What would be the consequence to the economy of not using the IPART principles? You are our favourite whipping boy, if you read the *Land*, and other publications.

The Hon. RICK COLLESS: Everyone blames IPART.

Mr SCOT MacDONALD: Everybody blames IPART. If we did not stick to recovering the cost of storage and delivery, efficient costs, rejecting inefficient costs, where do you think we would see agriculture in the economy?

Mr HARMSTORF: I will try not to turn this into an economics lecture.

The CHAIR: Please do.

Mr HARMSTORF: The idea of the efficient cost is that it sends the best price signal to suppliers and users of water in this case. If we set our price too low, too many people would set up water dependent industries and you would end up with people wanting more water than existed.

Mr SCOT MacDONALD: Setting up for failure?

Mr HARMSTORF: Ultimately, yes, because if the costs are not being recovered by WaterNSW, for example, the utility will not be sustainable in the long term. On the other hand, if we set the price too high, we would be artificially restricting the size of the industry because farms or irrigators that could be viable at the efficient price would not be able to be viable at an artificially higher price.

Mr SCOT MacDONALD: You talked about the users. Would you also include the people proposing to build infrastructure?

Mr HARMSTORF: That is right. As I said, we set prices in order for WaterNSW to recover its efficient costs. If it is not recovering its efficient costs, eventually something will break.

The CHAIR: I find the last descriptor a bit puzzling. On one hand you are saying that the IPART plays a big part in maintaining a viable future, that if there were no controls we would run out of water. That is primarily what you said. On the other hand, you put forward the argument that if the pricing is too high, an industry would be at the point that it cannot produce at that higher output level, and that is exactly the situation that occurs in the Peel and Cockburn valleys. One of the questions we have been asking all of the users—the dry-land growers, current irrigators, agri-economists, anyone who is prepared to proffer an opinion—is how much would you be able to produce, ballpark, were you to have the water equation solved? In other words,

using as much water to produce at the higher production level for irrigated and non-irrigated persons and at a price that would allow you to at least produce.

One could argue that that price is the average of all prices across WaterNSW, not taking into account the highs and lows. The question that Mr MacDonald put to you was what would happen if the IPART was not there? If we put together all those points of discussion, it could be argued that the IPART's role is in fact too suppress policy that could lead to greater development, and I mean agricultural output. We have had arguments that New South Wales and probably the rest of Australia might need to increase its output by 70 per cent by 2050. Do you believe, therefore, that in providing the expert balanced opinion, looking at efficiency, you are in fact being a player in the restriction of policy for the future? I am not being argumentative, I am asking for your opinion.

Mr HARMSTORF: You have raised two points, so I will address them in turn. The first benefit that IPART brings to the table is to make sure that where a utility has a monopoly, it is not allowed to recover as much as it would like to from its customers. As I said, we focus very strongly on making sure they are only charging their efficient costs. If you look at any other monopoly that is not regulated, they charge whatever they can get away with.

The CHAIR: Here you are talking about a government monopoly?

Mr HARMSTORF: Private sector monopolies, in particular. Government monopolies might not manifest in higher prices, it might manifest in inefficiencies. There is a saying that the best monopoly profit is a quiet life. So you would find that the irrigators would be paying for the utilities to have a nice quiet life. Our role is to try to make the utilities act as though they are in a competitive market competing with other providers, and if they were in such a situation, they would constantly have to look for ways to be more efficient and to deliver better for customer service.

The CHAIR: In other words, they could not get away with a quiet life?

Mr HARMSTORF: That is right, because of the IPART. That is the first thing we do. The second thing you raised is in relation to valley-based pricing; that is, the different cost in different areas. In fact, infrastructure costs different amounts in different areas and there are different users to pay for it in different areas. You raised the Peel Valley. If their price were lower, then whilst it would be nice for the irrigators in the Peel Valley to have lower prices, someone else would have to pay for that infrastructure. Would it be irrigators in the Murrumbidgee or would it be the taxpayer?

At the moment, the government policy is for WaterNSW to recover its efficient costs, so that presupposes there should be no more taxpayer contribution than is efficient. If the Government wanted to top that up, that could be open to the Government, and there is a section of the Independent Pricing and Regulatory Tribunal Act, section 16A, that would allow that to be taken into account. But in the absence of that, if we were directed to set a uniform price across New South Wales, you would find that irrigators in the Peel would have their infrastructure subsidised by all the other users across New South Wales.

The CHAIR: Under your Act, is section 16A an intervention after the IPART has set the price, or is it a direction during the considerations?

Mr HARMSTORF: It is the latter.

The Hon. MICK VEITCH: A decision by government?

Mr HARMSTORF: By government to force the IPART to—

The CHAIR: Amend.

Mr HARMSTORF: —make sure that the final prices reflect whatever the determination is. An example is the costs of the Sydney desalination plant. We are directed to allow Sydney Water to recover the costs of its payments to the desal plant. The tribunal's own opinions on whether or not those costs are efficient are not relevant. The tribunal is directed to allow Sydney Water's prices to recover those costs.

The CHAIR: Again, I would not ask you to comment on this because it is a policy situation, but State and Federal governments in this country and across the world distribute pricing. The perfect example is 44 per cent of our gross domestic product on welfare. That is distributed pricing. The taxpayers pay for that. Maybe they do not pay willingly, but they pay. A government—a Federal Government, I assume—can instruct under 16A for that to happen, or is it the State Government?

Mr HARMSTORF: State Government.

Mr EDGERTON: Just a point of clarification, we regulate prices for WaterNSW in the Murray-Darling Basin under accreditation from the Australian Competition and Consumer Commission, so that is under the Commonwealth's water charge infrastructure rules. We regulate their prices on the cost under the Independent Pricing and Regulatory Tribunal Act. As Hugo outlined, there is obviously strong economic principles for doing valley-based pricing, and that is the way the IPART has always regulated prices. However, an added impetus for that is under the water charge infrastructure rules the IPART is required to comply with pricing principles, and those pricing principles advocate efficient cost-based pricing; that is, valley-based pricing.

The CHAIR: Excuse my ignorance. Why is there a difference between east and west of the stone curtain?

Mr EDGERTON: The IPART used to regulate water prices in the Murray-Darling Basin in New South Wales under the Independent Pricing and Regulatory Tribunal Act.

The CHAIR: It is because of the Federal involvement now west of the stone curtain?

Mr EDGERTON: Exactly.

The Hon. MICK VEITCH: I will scurrilously add, that would be why you would like to have greater scrutiny over the pass through costs on the MDBA as a part of your determination?

Mr HARMSTORF: Sure.

The Hon. RICK COLLESS: You mentioned in answer to the question from the Hon. Mick Veitch that you do take depreciation of dams and major infrastructure into consideration when determining these costs. At what stage does that infrastructure become fully depreciated? Do you still apply those depreciations next to the costs after the asset is fully depreciated?

Mr HARMSTORF: Dams have very long lives.

The Hon. RICK COLLESS: How long? 100 years?

Mr EDGERTON: Around about 100 years.

The Hon. RICK COLLESS: So Burrinjuck would not have to be depreciated, yes?

Mr EDGERTON: We have a regulatory asset base that generates a return on that asset base and a return of that asset base. The return of is what we call regulatory depreciation. For every asset that goes into the regulatory asset base we have an estimated asset life, and so it is depreciated at the end of its asset life.

The Hon. RICK COLLESS: What is the asset life for the Hume weir and Burrinjuck Dam? Where do they currently sit on that depreciation schedule?

Mr EDGERTON: We would have to take that question on notice. They are very long lived assets. One thing to note though, when IPART first set the regulatory asset base for what was then State Water, IPART essentially drew a line in the sand and basically a lot of assets pre—

Mr HARMSTORF: 1997—

Mr EDGERTON: Pre-1997 or 2004 were basically not included in the cost base.

The CHAIR: They were called legacy assets?

Mr EDGERTON: Exactly they were treated as legacy assets.

The Hon. RICK COLLESS: They were considered to be fully depreciated?

Mr EDGERTON: That is right.

The Hon. RICK COLLESS: And then you were still looking at a return on that asset though as opposed to the depreciation costs?

The CHAIR: A return of assets?

Mr EDGERTON: For the legacy assets there would be no value assigned to them in the regulatory asset base. Capital expenditure since then would go into the regulatory base and would be depreciated evenly over its asset life. So in simple terms, if it goes in with a value of $100 then it has a 10-year asset life, that is $10 reflected in prices each year.

The CHAIR: Augmentation capital expenditure such as raising dam levels would not be considered beyond the original life of the dam and asset in any case, would it?

Mr EDGERTON: New capital expenditure goes in—

The CHAIR: But it would exceed—

Mr HARMSTORF: No, it could not outlast the dam, no.

The Hon. RICK COLLESS: When you say they are long lived assets, what is the life expectancy of Burrinjuck Dam or Hume Dam?

The Hon. MICK VEITCH: And do not tell the Committee you will go to the Dam Safety Committee because we have had this argument as well?

Mr HARMSTORF: We will take that question on notice. If you are looking for the remaining life—

The Hon. RICK COLLESS: It is an interesting question to ask. When we are talking about assets that are worth so much money initially, and they have such a long life span, how are they considered in a depreciation schedule?

Mr HARMSTORF: As Matt said, any legacy assets are valued, if you like, at zero so there is no customer cost passed on for that. Subsequent expenditure on those assets is recovered from customers.

The CHAIR: Is there a published list of those legacy assets in relation to water infrastructure?

Mr EDGERTON: I am not sure if there is a published list but certainly in our earlier reports we explained how we set the initial regulatory asset base. It was expenditure prior to July 2004 was largely treated as a legacy cost and not included in the regulatory asset base.

The CHAIR: In the answer to your question on notice about the depreciative life of some of those assets would you also tell the Committee what items you regard, in your current workings, as legacy assets? Do you have a list that you apply?

The Hon. RICK COLLESS: Which would include almost all of the current storage infrastructure, I would presume?

Mr HARMSTORF: Our focus is not on the legacy assets. Almost by definition we are recovering the costs of new assets so I cannot guarantee we will have a comprehensive list of legacy assets.

The Hon. RICK COLLESS: In terms of that comment, the proposals for the Cranky Rock Dam and Mole River Dam that have been talked about would be fully depreciated. If those two assets are to be built, what would their depreciation life be? How would you make those calculations on a big new dam?

The Hon. MICK VEITCH: The same thing would go for the Broken Hill Water Pipe Line?

Mr EDGERTON: Absolutely. In simpler terms, the utility would propose an asset life to us and we would get our expert engineering consultants to have a look at that and see whether they considered it reasonable.

The CHAIR: A steel pipe will not last as long as concrete one.

Mr SCOT MacDONALD: Do you put that out to the public?

Mr HARMSTORF: Absolutely, we are even more transparent than this Committee. We not only publish transcripts but also we provide a draft report and invite everybody to comment on that.

The Hon. RICK COLLESS: In relation to your comments about using the price to control the amount of water that is used—I do not know whether that is exactly you said but that would be the bottom line. If it cost $100 a megalitre to provide water to an irrigator but they can only afford to pay $50 a megalitre then that means they cannot use that water. The Committee heard about Coburn Valley in particular which is an unregulated stream running into the field and the irrigators can no longer afford to grow lucerne because their water charges are too high. That was reducing the amount of water that was used by the price mechanism.

Can we control the amount of water? I think you said if it was too lower a price then there would be too many irrigators wanting it and it would be over-utilised. Surely that issue can be controlled by proper allocations of irrigation water and understanding what the yield from a particular catchment, such as the Coburn catchment, is and working out on a per irrigator basis what their allocation is rather than just letting the market decide through this price mechanism?

Mr HARMSTORF: We have not talked about secondary markets but if something is forced to have its price too low there will be someone who can afford to pay a higher price and still be viable and they will buy it off the less efficient user. What happens is that the water ends up with the most efficient users anyway it just

means that the people who were less efficient have sold it for a profit. If there is going to be that higher price paid in a secondary market then it makes more economic sense for those profits to be captured by the person providing the infrastructure.

The Hon. RICK COLLESS: I understand entirely where you are coming from. My comment is we are talking about a very dry economic argument and not taking into account the social impacts of those other areas and that is what we are seeing at the Peel.

Mr HARMSTORF: If we walk away from Peel for a second and look at the north coast or the south coast where cost recovery is likely to be never achieved, they will never be able to pay the full costs of that infrastructure there so the tribunal's position in the past has been, well in that case we will try to bring them up to full cost recovery. Now it is arguable that if you keep trying to put the price up by 10 per cent every year, or every determination, you will eventually price everybody out of the market. In the extreme you will have one remaining irrigator who is being asked to pay for the full cost of the dam. That is not an efficient outcome. The tribunal recognises that as a constraint. In such a situation it makes sense to try to capture as much revenue as you can, without putting prices too high that the demand just falls away.

The CHAIR: When this situation arises in your determination on the north and south coast, what is the mechanism by which you ameliorate your calculations? Do you apply a de-pricing factor overall? Do you introduce a concept of policy directed by government? How does IPART then change the structure of your calculations to take into account exactly those considerations?

Mr HARMSTORF: There is a concept called stranded assets and in telecommunications, for example, where the old copper wire just cannot pay its own way and so the utility just has to write down the value of that because it is simply not worth as much, it cannot generate the revenue and it is becoming outdated. So we are not talking quite about that situation in relation to a dam—it is not becoming outdated—but its effective value is no longer its construction cost, it is worth less than its construction cost, and therefore a lower amount should be collected from its customers.

The CHAIR: As a component of the cost that goes into the calculations. That is how you handle it?

Mr HARMSTORF: I am just talking about conceptually; I am not talking about specifics. But it is a recognised concept in regulatory economics, and there is a way to deal with it.

The CHAIR: Let me clarify that. You are telling me that in building up the costs you discount some of those costs to reduce the overall amount of cost, which then goes into your calculation to produce a price. Or do you run up the costs as a full cost and then apply some sort of discount in the pricing component of your calculation?

Mr HARMSTORF: Either of those would be valid ways of dealing with it.

The CHAIR: How do you deal with it now?

Mr EDGERTON: The starting point is to set prices to reflect efficient costs. We first do that, but then we are also mindful or conscious of customer impacts. The coast is an example of where prices could increase to a level in the foreseeable future to achieve—

The CHAIR: That would match recoverable costs.

Mr EDGERTON: Exactly, so the tribunal has deviated from cost-reflective prices. Traditionally, we have gradually increased prices—for example, at 5 per cent per annum or 10 per cent per annum—to transition towards cost recovery. For the current review, our tribunal has realised that that will not be achieved, and therefore it has deviated from its usual approach and set low prices because it realised that there is a unique situation on the coast. There is evidence of declining demand over a period of time and prices that will never achieve cost recovery.

The CHAIR: I am not trying to verbal you, but are you telling the Committee that you still do the cost calculation exactly as a pure calculation of what the cost should be, and then at the end that consideration is applied simply to what the tribunal determines will be the price? Instead of saying moving towards cost recovery would indicate another 10 per cent increase this year, you say, "No, we are not going to achieve what we want to achieve so therefore we will strike out 8.5 per cent and only charge you 1.5 per cent." Is that how it is done?

Mr EDGERTON: That is right.

Mr HARMSTORF: That is what the draft report did, yes.

The Hon. RICK COLLESS: I have an important last question. I understand the dry economics of it entirely. Let us go back to the Cockburn-Peel system. Let us assume that the water is going to go to its maximum highest usage, which is probably cotton farming at Wee Waa, so all the water that has been used in the Peel Valley gets transferred into the Namoi down to Wee Waa to grow cotton. The social impacts of the transfer on the Peel Valley are enormous. How do we account for those costs, the income that is lost and the business that is lost from the Peel Valley? It is not just the irrigation farmers; it is the machinery salesman, the produce salesman—it has a huge impact on the communities further up when the water moves to a higher value. How do we account for that? How do we, as members of Parliament, justify to the community that, based on IPART's recommendations, that water should all be used at Wee Waa because it can be more productive there than at Tamworth? That is the question we face every day.

Mr HARMSTORF: Again, there are a couple of elements to that question. The first part to note is probably that the irrigators in the Peel Valley are paying for the full efficient costs of the infrastructure that they should be paying. Once you are paying full costs, we are not going to keep expecting prices to go up and up. You pay efficient costs and that is sufficient for WaterNSW to manage the asset, so that is the end of that story.

The Hon. RICK COLLESS: But if that water is not used in Tamworth, when that water gets to Wee Waa the Wee Waa growers are still paying the same cost per megalitre. Is that correct?

The CHAIR: No, they are not.

Mr HARMSTORF: No, they are not.

The Hon. RICK COLLESS: Why?

Mr HARMSTORF: Because if it is flowing down the river to Wee Waa then the infrastructure required to store and deliver it into the Peel Valley is not being used.

The Hon. RICK COLLESS: I do not follow that.

The CHAIR: The Peel Valley is down-wall from Chaffey Dam.

The Hon. RICK COLLESS: The Peel runs into the Namoi, which runs into Wee Waa.

Mr HARMSTORF: Yes, so if it is flowing through the Peel—

The Hon. RICK COLLESS: Into the Namoi and down to Wee Waa.

Mr HARMSTORF: Yes, from the Peel Valley point of view, it is just flowing down the watercourse. The dam therefore is not part of the delivery to people in Wee Waa.

The Hon. RICK COLLESS: You have completely lost me.

Mr HARMSTORF: The cost of the infrastructure in the Peel Valley is recovered from the beneficiaries of the infrastructure in the Peel Valley, who are the irrigators in the Peel Valley.

The CHAIR: If the Peel Valley takes no water, the beneficiaries of the Chaffey Dam become the people, cotton farmers, of Wee Waa.

Mr HARMSTORF: Of the dam infrastructure.

The Hon. RICK COLLESS: Yes, correct. If the irrigation industry in the Peel Valley was to cease tomorrow—and there has already been a big reduction in it because of the water prices—that water then is going through down the river to Wee Waa where it can be used for the Wee Waa irrigators to irrigate their cotton farms.

Mr HARMSTORF: To back up to what you said before: the assets in the Peel Valley are not stranded assets, to use the term I said before. The infrastructure is being sufficiently paid for by those users.

Mr SCOT MacDONALD: By the annual charges.

Mr HARMSTORF: By the WaterNSW charges, yes.

The Hon. RICK COLLESS: Is that $60-something per megalitre, compared to $4 further down? What are the water charges at Wee Waa?

The Hon. MICK VEITCH: It is less than that. I think it is about $18.

Mr HARMSTORF: It is higher because there are fewer people there to share the cost amongst.

The Hon. RICK COLLESS: I am trying to establish what happens to that water if the irrigation industry in Tamworth shuts down. Where does it go?

Mr HARMSTORF: This is where you come to the social point, which was the other part of your original question. IPART explicitly considers the bill impacts and tries to make sure that no-one is going to get bill shock from an outrageous increase. But when you talk about the economic dislocation, which is what you are going towards, that is not something that IPART is best placed to manage.

The CHAIR: Yet IPART makes exactly that decision when it comes to east of the divide. You ameliorate your calculations by considering the fact that a full cost recovery can never be made.

Mr HARMSTORF: That is right.

The CHAIR: If the industry in the Peel Valley is in decline because the costs can never be met—

Mr HARMSTORF: But they are being met. That is my point: They are being met. The Peel Valley irrigators are paying for that infrastructure at the moment, sufficient. If you look at the North Coast and the South Coast, we are talking about less than 50 per cent.

The CHAIR: You are saying that that would only go towards a consideration of increasing those costs and that because they are doing a full cost recovery there is no increase.

Mr HARMSTORF: That is right. The North Coast and South Coast are currently at below 50 per cent, so in order to get to full cost recovery those charges—

The CHAIR: Would have to double.

Mr HARMSTORF: —would have to more than double. That is not the case in the Peel.

The Hon. RICK COLLESS: How much have the charges in the Peel Valley gone up per annum over the last 10 years?

Mr HARMSTORF: I do not have those figures—

The Hon. RICK COLLESS: That is the point, because they have gone up to such an extent that—particularly on the Cockburn catchment, which is unregulated—as I said before there are a number of people who used to grow a lot of lucerne along that valley and can now no longer afford to pay the water charges.

Mr HARMSTORF: I ask you to contrast that with the North Coast. I put forward the example before that, in the north or south coast—either one—prices would have to go up so much that the entire irrigation industry would be closed down because no-one could afford to pay the cost of that infrastructure. That is not the case in the Peel. In the Peel that infrastructure is being paid for sufficiently. If the industry has contracted, it has not contracted to the point we can no longer for the infrastructure.

Mr SCOT MacDONALD: Is there any social, environmental or economic justification for postage stamp pricing?

Mr HARMSTORF: There may be some justification on social grounds, if that were the Government's policy. If everyone pays the same price for something, no matter what level of benefits or the cost of providing them service, that does not lead to an efficient outcome. There is no economic justification, no.

The ACTING CHAIR (The Hon. Mick Veitch): It has been a riveting 50 minutes. There will be questions on notice, and the Committee has resolved that answers to questions taken on notice be provided within 21 days. The secretariat will be in touch with you about that. There will also be some questions from the members—I believe the Hon. Rick Colless is already writing his down, regarding the Peel Valley and the good folk of Wee Waa. Thank you very much for attending today.

(The witnesses withdrew)

(Luncheon adjournment)

DAVID DREVERMAN, Executive Director, River Management, Murray-Darling Basin Authority, affirmed and examined

The CHAIR: Would you like to make a brief opening statement before the Committee proceeds to questions?

Mr DREVERMAN: Some very brief opening remarks. Water reform in the Murray-Darling basin over the past two decades recognises that our water resources are finite and that they have been developed beyond their sustainable level. The basin plan of 2012 aims to achieve a sustainable future by, in part, reducing diversions in the Murray-Darling basin by 2,750 gigalitres per year on average. As part of the basin plan sustainable diversion limits have been set for both groundwater extraction and surface water extraction in each valley. So whilst a new development is allowed, and indeed is encouraged, it must occur within the approved sustainable diversion limits.

Since the cap on water use in the Murray-Darling basin was set in the mid-1990s, we have seen ongoing investment in irrigation across the basin as market mechanisms enable water to move to its higher value uses—cotton and almonds in the southern basin are examples of such developments. Importantly, these new developments occur within existing diversion limits. Coming to the question of new dams. If a new dam is constructed within the Murray-Darling basin the new use, including any evaporation created by any new dam, must be offset by a reduction in use elsewhere in the basin—usually in the same valley. Water use has to therefore remain within the sustainable diversion limit. I think they are the fundamental issues for the Murray-Darling Basin Authority in looking at the terms of reference of this Committee.

The CHAIR: Mixed in amongst the terms of reference is the implication that the Committee would look at the potential for augmenting water supply to the State. The term "augmenting" in its textbook fashion means getting extra water. In the past there have been schemes developed and put forward such as the Bradfield scheme for diverting eastern flowing waters to the west. The definitions you laid down earlier about being within the existing limits would not apply if more water was supplied to the basin, is that not correct?

Mr DREVERMAN: That would be the case. If you brought an inter-basin transfer into the basin from outside, similar to the Snowy Mountains Scheme, which transfers large volumes of water into the Murray and Murrumbidgee rivers, then that would be additional water available under the sustainable diversion limits.

The CHAIR: Again, in your opening remarks you mentioned that there had been a realisation that the development had exceeded availability, for want of a better word, and therefore sustainable diversion limits were put on. Is there any record of the calculations or would you be able to provide the Committee with some idea of what you think the development of those production needs would require? In other words, how much outside the current sustainable flows did that potential demand reach? If it was untethered, would the demand be another 20 per cent or 50 per cent or 100 per cent? Were any determinations made as to what the overuse formula would be?

Mr DREVERMAN: Yes, there were. I do not have the exact numbers with me but broadly speaking the basin had been developed up to about 13,000 gigalitres of use, or probably just over 13,000, and the 2,750 reduction will bring us to just under 11,000, so 10,000 something or high 10,000s.

The CHAIR: The determination was that the productive capacity, given current technologies and the current extent, shall we say, of the water supply, of about 13,000 gigalitres would give maximum production?

Mr DREVERMAN: No, that was the level of development that had been reached by the 1990s, at which point it was capped. There was still recognition that if development had continued uncapped we would have got to the position where you basically stopped the river flowing for most of the time. As it turns out during the Millennium Drought, from 2001 to 2010, barely a trickle reached the sea. So for nearly a nine-year period every drop of water that landed in the basin from rainfall was used in the basin.

The CHAIR: Do you have a rough idea how much was being used?

Mr DREVERMAN: Yes, but it varies from year to year because it is seasonally adjusted. In those years it is probably between 6,000 and 11,000.

The CHAIR: Somewhere in that range?

Mr DREVERMAN: Yes, and it varies. Those numbers are collected and reported annually. But the whole water use in Australia is variable because it responds to whatever the inflows are.

The CHAIR: Since its inception, has the Murray-Darling Basin Authority done any work on what the capacity of the producing areas would be if new water were to be found from somewhere like that or not? Or have you mostly concentrated on managing the existing inputs?

Mr DREVERMAN: We have not looked for sources beyond the basin for the simple reason that the schemes that you have talked about, and others that people have talked about over the years, whilst they are feasible technically, if they were to be fully paid by the users would be beyond the capacity of the users to pay. Whilst engineers can build them, unless you are going to have huge subsidies for them, they would not be viable—not at the rates of return that we currently get from irrigated agriculture.

The CHAIR: That is understandable but those sorts of issues are for policymakers to determine in the future. I mentioned to the Independent Pricing and Regulatory Tribunal of New South Wales earlier that we subsidise our welfare budget to the tune of 44 per cent of our gross domestic product at the moment. So somebody somewhere has made a decision to do that. The Committee has asked some of the major irrigator groups and even individual property owners to give us some sort of calculations as to what they believe their production could be, given that the border equation was miraculously solved.

In other words, no matter where you got it from, if there was sufficient water to reach the productive capacity of those lands, what would it be? I do not think the Committee has received any replies to those questions, and it may not, but one of the things this Committee will be putting to the State Government somewhere down the track is that someone needs to do that sort of work. Someone needs to look at what potential demand might be, even crystal balling out to the end of this century—certainly to the middle of the century.

There is a challenge with some of that because we use rivers as our canals to move water from storages to irrigators. You would have to use the water relatively close to the point that it is brought into the basin because if you bring it in a long way from the point of use—and I have seen people even promoting bringing water from north Queensland, or places way north of the Basin and bring it all the way to Shepparton—most of that water, if it was to be used in summer, would evaporate before it got to Shepparton. In fact, it would evaporate a long while before it got to Shepparton.

The CHAIR: True.

Mr DREVERMAN: You then have to match available land with closeness of supply. It is like at the moment irrigation in the Darling is not supplemented by regulated releases from northern basin storages because the distances are simply too far and the travel time is too long.

The CHAIR: It just gets lost.

Mr DREVERMAN: In a hot, dry summer when the rivers are not flowing it would evaporate before it gets there.

The CHAIR: That is a question for someone in the future to solve. Currently we are talking about sending probes to the sun and to Mars. Sooner or later someone will have to solve the engineering, economic and social problems of doing something like that. We are asking witnesses to reach out a little bit beyond their current level of expertise and give us their opinions and ideas. That is why these questions have been asked of some of the witnesses.

The Hon. MICK VEITCH: When the Committee was in Deniliquin it had the opportunity to visit a farm that had been flooded after the Hume flooding events. The inquiry took evidence and testimony from individuals who were critical of the post-flood consultation that took place in that part of the Murray. Do you have views about the consultation that takes place, and does the Murray-Darling Basin Authority [MDBA] review its consultation mechanisms on a regular basis to enhance and improve them?

Mr DREVERMAN: Yes. I have probably visited—I am not sure if it is the same farm that I visited as you visited, but I have certainly been to properties that were damaged. I have been to businesses and met with communities and representatives on both sides of the river. We met with the Federal members and stakeholders in Albury and Wodonga. We met in Corowa with a very large public meeting and we met individual farmers downstream of Yarrawonga. I am pretty sure we have met most of the stakeholders who were impacted by floods.

The Hon. MICK VEITCH: What lessons were learned post that event and what changes have been made?

Mr DREVERMAN: I think the first thing is that there are a number of stakeholders in that reach who are of the view that the dam operator makes the flood. Actually, the rain makes the flood, not the dam operator.

All the dam does is make the flood smaller than it otherwise would have been if the dam was not there. We have two very large dams in the upper Murray, at Dartmouth and at Hume. Dartmouth storage did not spill last winter at all and its peek inflow reached 35,000 megalitres a day. Hume Dam experienced a number of flood events. The first, I think three, were fully stored. The fourth one, the minor flows coming out, by the time you get the fourth flood event of the season the dam is close to full. It was a time when irrigation demand was about to kick in and if we are going to maximise water for irrigators we have to be close to full at the time that irrigation demand exceeds the inflows. The Hume was close to full at the end of September and rainfall at end of September, early October, generated inflows that were mitigated at Hume. The peek outflow at Albury was probably about 30,000 megalitres a day less than the inflow to the Hume and the Kiewa combined, and that is without the effect of Dartmouth as well.

The fact that we have those storages there, we use them for irrigation, they are designed for irrigation, they are not designed for flood mitigation. But nevertheless we probably knocked about 40,000 to 50,000 megalitres a day off the peak flow at Albury, which hit about 110,000 megalitres a day or thereabouts. The dams, by the way they are operated, have provided significant flood mitigation. Let me just for the record say since Dartmouth Dam was built in 1979, 70 per cent of the inflow floods upstream of Hume Dam have been fully captured by the storages—70 per cent. Landholders on the floodplain downstream are only now seeing 30 per cent of what they would have seen prior to Dartmouth or any dams being built.

That is an enormous amount of flood mitigation, given that the decisions taken in the mid1950s when gates were put on the Hume, was that there would be no specific flood mitigation function provided at Hume Dam. Although it has no specific function, it does actually provide substantial flood mitigation. But it also provides substantial irrigation for irrigators in three States, and governments when they enlarged it in the 1950s wanted to maximise water availability for irrigators. That is still the number one function of the dam today. Other than in floods, our first priority is to make sure the dam remains safe. But our second priority is to make sure we maximise water.

The Hon. RICK COLLESS: That is the integrity of the actual dam.

Mr DREVERMAN: The integrity of the structure. We would not mitigate a flood to the point that we let the water behind the dam rise to a point where the wall is not considered safe. We operate it, and we are very, very careful about that because the consequences of any dam failure are enormous. We are very, very cautious in the way we operate the dam. But we do bring it to full and try and get it as close to full. We deem 99 per cent to be full, which gives us just a little bit of air space to manage a flood. But when you get the dam close to maximising its water for irrigators and you get a large inflow event, you basically have to pass that inflow event downstream as it occurs.

The Hon. RICK COLLESS: How much surcharge on the dam can you manage safely?

Mr DREVERMAN: We do not surcharge Hume.

The Hon. RICK COLLESS: You do not surcharge at all?

Mr DREVERMAN: No. We do not take it up above its—it has historically been up there once for specific conditions but at that time they did not have the detailed understanding of the dam safety issues that we have today. Hume Dam is a design that traces its origins to the nineteenth century. It is an archaic design and it is one that we have spent a lot of money on trying to bring it towards contemporary standards, throughout its life really. It has been a work in progress almost since it was first completed in 1936.

The Hon. MICK VEITCH: Before the lunch break we had the Independent Pricing and Regulatory Tribunal [IPART] witnesses giving testimony. I asked them about the MDBA's pass through costs. What does the MDBA include in its pass through costs, and is it possible that IPART could have a greater say or scrutiny over those costs before determining user charges?

Mr DREVERMAN: The MDBA costs are passed through to governments. The three State governments and the Commonwealth agree a cost-sharing arrangement in relation to our costs. The decision as to how much our budget is each year is taken by Ministers and they provide the scrutiny. There is a process in New South Wales overseen by IPART where IPART determines how much of the New South Wales share of our costs should be passed to irrigators and how much should then be borne by the State Government itself. That is a matter for New South Wales. We do not get involved in that.

We have looked at ways of trying to improve the amount of scrutiny that our costs get charged to. We have looked at whether we would get the Australian Competition and Consumer Commission [ACCC] to have a look at it. We looked at whether we get the Productivity Commission to do an independent review. As it turns out, we have done effectiveness and efficiency reviews by independent consultants a number of times in the last

15 years and each time they have had a look at our costs they have determined that our costs are efficient and are effective. The challenge for having IPART by itself have a look at it is that you would then have implications for water users in Victoria and South Australia who would want to work out how they get the equivalent, which is why we did look at other mechanisms. At the moment it is a little bit tricky. Our commitment to IPART has been to increase the transparency around what those costs are.

The Hon. MICK VEITCH: The construction of the Broken Hill pipeline has been explored. This inquiry had a visit out to Broken Hill and participants at Deniliquin and Griffith also were asked about the Broken Hill pipeline. From the Murray-Darling Basin Authority's perspective, how will that pipeline benefit the Murray-Darling Basin and what are the operational activities that need to be taken into consideration with that particular pipeline?

Mr DREVERMAN: The Broken Hill pipeline is a New South Wales Government project and does not actually involve, as far as I am aware, any Commonwealth input, so it is a matter for New South Wales. The amount of water that gets supplied to Broken Hill is somewhere between six and 10 gigalitres a year. The Murray is thousands of gigalitres a year—it is probably 3,000 to 4,000 gigalitres a year. So in terms of Murray system operation, whether that water is taken out of Menindee Lakes or taken out of the Murray downstream of Wentworth does not really have a huge impact on our operation.

If the point of off-take is, as I understand, downstream of Wentworth, then when we have water in Menindee Lakes we would most likely call on it from Menindee to meet that demand in any case. Effectively, the water would run down the lower Darling and then be pumped back from downstream of Wentworth whenever water was available in Menindee, and when it was not then it would be met from upstream, and we progressively meet demands from the first source we have upstream. So the next place would be it would come out of an inter-valley transfer account in the Murrumbidgee, then out of an inter-valley transfer account in the Goulburn and finally out of Hume and Dartmouth. So it does not really affect our operation at all.

The Hon. MICK VEITCH: My last question before I hand over is to do with environmental water. This inquiry has heard a lot of testimony around the need for greater transparency on the successes of environmental water. How does the Murray-Darling Basin Authority communicate the successes of the environmental flows?

Mr DREVERMAN: All the water that is recovered under the basin plan is held by the Commonwealth Environmental Water Holder. So it is up to the Commonwealth Environmental Water Holder to report the use of that portfolio. There is also a volume of water that was recovered under the Living Murray initiative, up to about just less than 500 gigalitres was recovered, and that is still held and managed by the authority on behalf of four governments—it probably actually includes the ACT to a small amount, so five governments I should have said—and that portfolio is reported through annual reporting processes within the authority.

Overall, the authority also puts out a report on basin plan implementation, which would include the environmental impact. Just as we also put out environmental watering strategy to encourage environmental water holders to use their way to achieve the best environmental outcomes. How you actually do it is challenging in early years because if it took us from the 1920s to 2012 to create the problems that we are now trying to redress with the basin plan, it is going to take that sort of time again. It is a 30, 40, 50 or more year journey before the full benefits of all of that water recovery will be seen. So you can obviously look at what is happening but you have to have a process of being able to look at what would have happened had you not had all that water recovery.

The only way you can do that is through a comparative model. We have spent a lot of time in the last 12 years building a new daily model for the Murray and other governments are building similar models for their other rivers, which will allow us to get the level of refinement in the modelling into the future that will allow us to do that comparative analysis. In addition, you then have to have means of assessing the environmental condition of what you have actually achieved and then compare that with your models that you have calibrated against what has happened historically to demonstrate what the difference is. You can certainly see changes happening in flow regimes as environmental water is recovered, both in high-flow regimes and in the in-channel flow regimes that are being achieved.

The CHAIR: What is the formal arrangement, for want of a better word, or the contractual arrangement, however you like to call it, between the Murray-Darling Basin Authority and Snowy Mountains Hydro, if anything, in terms of the water—the ownership, the use of the water, the control of the water?

Mr DREVERMAN: The New South Wales Government issues a water licence to Snowy Hydro and that licence requires Snowy Hydro to release certain volumes of water each year into the Murrumbidgee and to

the Murray river systems. In the formal sense, that is the document that regulates the transfer of water—and not only the transfer of water, because Snowy Hydro also regulates large inflows that are to the Murray catchment or to the Murrumbidgee catchment that are upstream of their intake points; so probably in the Murray about half the water that comes out of Murray 2 power station at Khancoban and probably half that water originates from inflows in the Murray catchment and about half from inflows in the Snowy catchment. All of us, both the Murrumbidgee Valley and the Murray Valley, rely on that water licence as the means of determining the arrangements between Snowy Hydro and the western flowing rivers.

The CHAIR: Ideas that are floated, like the most recent one by the Prime Minister, that the Commonwealth should buy out Snowy Hydro, would perhaps suggest that WaterNSW would no longer be the issuer of the licence, someone else would be—probably the Commonwealth. Has the Murray-Darling Basin Authority been involved in any of the discussions as to what effect a change of regulator would have on the relationship between the current regulator, being WaterNSW, and the Murray-Darling Basin Authority?

Mr DREVERMAN: No, we have not been involved, but those changes that they are talking about are to create a pump storage scheme, which simply recycles water that is held in the Snowy scheme. I have not heard anything that indicated there would be any change to the Snowy water licence in terms of what volumes of water would be required to be discharged into the Murray or Murrumbidgee system. I think the Crown of New South Wales is the holder of the water that lands there and my understanding would be that New South Wales would continue to issue that licence as it is New South Wales water—I am not sure whether I have a different view to others in the Commonwealth on this—but I cannot see that changing who owns the shares in Snowy Hydro would change the licence arrangement. So if it is only a change of shareholder and not a change of the entity, the licence is issued to the entity.

The Hon. RICK COLLESS: Can I just go back to the issue of the management of Hume Dam and the releases that occurred prior to the flood? You made a comment that once the dam is full the flood occurs anyway. I do not disagree with that. The criticism we heard though at this inquiry was that the dam was at 99 per cent full, as you described, and there was a forecast of imminent rainfall of up to 100 millimetres in the catchment, which obviously in a very wet catchment like it was at the time was going to be 100 per cent runoff, pretty much. So whether or not you agree with the 100 per cent, it is very high.

Mr DREVERMAN: It is going to be a significant run-off, yes.

The Hon. RICK COLLESS: The majority of it is going to run off, whatever happens in that situation. What is the time frame for that water to come into the dam and could not that flood peak have been reduced substantially or significantly at least, by pre--releasing some of that water before the rainfall actually arrived in the dam?

Mr DREVERMAN: Pre-releasing is normal practice but we have channel limits and capacity limits that we go to. I think you will find there were already quite high flows in the river at that time and that the pre-release options had been considered and we were at the normal limit for that sort of—

The Hon. RICK COLLESS: So is that why the dam gates had to be opened at 11 o'clock at night? And this is the evidence we took: That there was a horse stud that was contacted at 11 o'clock at night to get horses out of the way because the flood was going to encroach on their stables. We heard evidence from people further down who said that the flood rose faster and much higher than ever before, breaking all the levy banks et cetera. So, when you say that the pre-release conditions had already maximised on what the channel capacities were, when you had to open the gates then to prevent the dam surcharging, did it not make the flood a lot worse downstream?

Mr DREVERMAN: No. The flood downstream, we can demonstrate if we have got the plots. I have heard some of those assertions. Let me go back to the horse stud. From what I heard—I met the people, they were at one of the meetings that we went to in Albury. They left their home and went off to Melbourne, to the Grand Final, leaving their horses out on the flood plain with the river already above its banks. They came back and the river was in the moderate flood range. It did not get to major flood because of the mitigation we were able to achieve, so we kept it down. It was not anywhere near the biggest flood at that part of the river.

As a father of kids who own horses, I cannot believe that people would have done that to their horses, left them on the flood plain with a huge forecast of rain in the offing, the river already high, they know it is only going to get higher, and they came home from the football and were aghast that they had to swim the horses back off the flood plain. That is the circumstance. If I go to the ones downstream, the river did not rise faster than it has ever risen before. We took plots and showed the people on the river the gauges that we had. We showed them historic gauge rates of rise on the river. The river rose slightly slower than it had on previous flood

events. The gauges reached levels—depending on exactly where you were in the reach from Hume to Echuca—the river reached heights either last seen in 1993 or last seen in 1975. It did not exceed the 1975 flood limits.

A lot of those levies that you would have seen were built post the 1975 floods, to about the level that had been experienced in 1975. We got close to that. If they are built to that level, over time levies tend to settle. All the ones we own, we are continually topping them up to bring them back to the design level. It would not have needed a great deal of settlement for a flood that is just under the 1975, at that point, slightly higher than 1993, to have over-topped levies. Essentially, the owners of those properties have determined the level of risk that they were prepared to build their levies to. They have built the levies. They own them and they have built them. They have built them to a level of risk and that risk has eventuated and they have lost the levy.

They have then turned and said they want to blame the dam operator for the fact that the risk that they have planned to avoid, they have planned up to a certain level and that risk has been exceeded and they have suffered the damage. But they have actually accepted that risk in the way they have designed and operated their levy system. I am responsible for the risks around the assets that we have created. Certainly we operate Hume Dam to make sure that it is perfectly intact at the end of the flood event. But just as easily, or just as well, those landholders are responsible for the risks that they have accepted and that is what has happened.

The Hon. MICK VEITCH: Earlier in your testimony you used the term "pots"?

Mr DREVERMAN: "Plots"—it is a graph. We have all the historic gauge data which is normally recorded in a table. We put all those points on a graph, so we can compare one with another.

The Hon. RICK COLLESS: On the same subject of the operation of the dam, does the Murray-Darling Basin Authority operate the gates itself or is that WaterNSW, what is the relationship there?

Mr DREVERMAN: Each of the contracting governments, when it has signed up to the Murray-Darling Basin agreements, the various agreements, appoints the constructing authority for that State. When the governments agree collectively to create an asset, they agree which one of the States will be responsible for that asset and that constructing authority is then responsible for the investigation, design, construction, operation and maintenance of the asset. When they did Hume Dam, it was too big a decision. So way back in 1917, 1918 or 1919, about then, they could not decide whether New South Wales or Victoria should build the dam so they agreed that they would both be jointly responsible. Victoria built the half in Victoria and New South Wales built the half in New South Wales.

The Hon. RICK COLLESS: I hope they sealed it up properly in the middle.

Mr DREVERMAN: The interesting thing there is that In 1996, right at the point where the two works met, at the southern junction, the dam moved and we have spent well over $100 million since then, trying to make sure we have got that junction as tight as we can possibly make it in a contemporary sense. But long before that movement, New South Wales and Victoria had between themselves agreed that New South Wales would look after that dam. It was probably the Department of Water Resources in New South Wales at the time. It has gone through many changes, but today WaterNSW is the constructing authority for New South Wales. That is a decision of the New South Wales Government, through the relevant water Act in New South Wales. It is not a decision that the Murray-Darling Basin Authority is involved in. We simply work with whichever constructing authority is appointed.

The Hon. RICK COLLESS: As far as the operation of the dam goes, you give WaterNSW instruction to open the gates and let so much out. Is that how it works?

Mr DREVERMAN: Yes. The Murray River system is operated from an operations room in our office in Canberra and our operators direct the releases, including during floods. Virtually every day we issue an instruction to WaterNSW as to what the flow should be for the particular day. During floods that could come down to every two or three hours as we collectively watch the various indicators of the inflows, how fast they are rising.

The Hon. RICK COLLESS: I turn to the management of the lower lakes, Lake Alexandrina and Lake Albert. I guess the first question is, what sort of evaporation rates occur from those lakes, in terms of the total amount of water, and how do you account for that in the overall Murray-Darling Basin?

Mr DREVERMAN: It is about 800 gigalitres a year, plus or minus, it just depends on net evaporation. So that is after you have allowed for the impact of rainfall on the lakes. So some years it can be more; some years it will be less. If it is a wet year it will be lower.

The Hon. RICK COLLESS: So that is an average figure?

Mr DREVERMAN: Yes, about 800 gigalitres. It is partially taken into account through the entitlement flow that New South Wales and Victoria guarantee to deliver to South Australia every year. It is partially covered also by—the first component of that is a component, the fixed component to South Australia, which happens first. There are 696 gigalitres a year of the 1,850 is guaranteed before New South Wales or Victoria get any water allocated at all. That is for dilution and loss. Then on top of that there is the other amount of 1,154, I think, which is guaranteed in most years by New South Wales and Victoria, provided there are certain volumes available to each of their own States. When water is scarce, the 696 gigalitres is delivered and then New South Wales, Victoria and South Australia share equally the shared resource that is the water upstream of Albury.

Over the years, South Australia limited its diversion to make sure that if it got 1,850 gigalitres a year there is just a small trickle goes to the sea. If you get 900 gigalitres to South Australia in one year—as we saw 950-odd in the worst year of drought—there is insufficient to meet the evaporation in the lower lakes. Over a couple of years the lower lakes fell to -1.1 metres—about 1.3 metres below sea level. The whole system can be quite distressed. When that happened, large areas of the beds of the lower lakes were exposed. The lake bed sediments are sulphidic and when they get oxidised—exposed to air—they turn sulphuric. So we had this large acid production on the bed of the lake. It was damaging the fringing vegetation. There was concern that if it continued for another year it would have significantly endangered the PH of the residual body of the water in the lakes themselves.

The CHAIR: Excuse my ignorance. During that period, was there any consideration given to opening the barrages to allow seawater into the lower lakes?

Mr DREVERMAN: Yes, there was serious consideration given to that. Quite a number of us—and I would have been one of them—initially thought intuitively that would be the way to go, because letting in the seawater would have neutralised some of that acidification process. But at the time we commissioned some fairly fancy mathematical modelling by some consultants who looked at—

The CHAIR: When you say "we", do you mean MDBA?

Mr DREVERMAN: MDBA with the South Australian Government. I suspect the contract may have been by the South Australian Government but we would have met the cost of it. We were certainly very actively involved in making sure what they modelled was what we were facing in reality. What that modelling showed was that, if you let seawater in, very quickly, within a matter of four or five months, the lower lakes do not just come back to seawater salinities but, because of the ongoing evaporation, they very quickly become hypersaline. We looked at that carefully.

We did set up a procedure that would have allowed the South Australian Minister at the time to make that decision to let the seawater in, because it was a trade-off between one impact and another. Fortunately in some ways, I guess, it got to the point where it rained before the South Australian Minister had to take that decision to prevent the acidification. Probably the threshold was another about half a metre or so below the level that we got to as the calculated threshold where the acidification would have been a worse outcome than the salinity that was in the lakes. The salinity in Lake Alexandrina only got to about 7,000 electrical conductivity [EC], but it got to a whole lot more in Lake Albert. It is only in the last six months over this last summer that Lake Albert has got back into the range it was in before drought at about 1,600 EC today.

The CHAIR: Historically, probably before the barrages were built, I wonder what the salinity cycle would have been in those estuaries then. There obviously would have been times then at which it would have gone hypersaline, I am guessing.

Mr DREVERMAN: Yes, there is evidence. The only evidence, because the salt probes were only installed in the lower lakes in the mid-1930s, is there is an incident on the record in 1937 when the salinity at Milang got to about 70,000 EC. Milang is on the western side of Lake Alexandrina and the seawater is about 50,000 EC. That would have been in a period of low flow, but it was also in a period where diversions for irrigation, although not at the level of today, would still have been significant. So you can actually see as irrigation developed, even as early as the early 1900s, there were concerns that the salinity was changing. The reason you would have seen that is that there was no regulation of flow into South Australia in summer and most of the irrigation that did occur at that time would have been in the summertime. You can see photos of the River Murray downstream in various places. There are photos in Renmark and at Nyah of the River Murray in summer totally empty. It was basically pumped dry by upstream irrigation at the time, which is why the big push to build the large storages and the locks and weirs as well so that you always have water in the river.

The Hon. RICK COLLESS: The barrages were built initially so they could irrigate from Lake Alexandrina—is that correct?

Mr DREVERMAN: No. The barrages were built because of the increasing incidence of the estuary intruding in for longer periods of time.

The Hon. RICK COLLESS: And of course in those days it used to go all the way up to Morgan or somewhere further up, did it not?

Mr DREVERMAN: It would not have got that far. There are anecdotal stories of higher salinities affecting steam trains at Murray Bridge. They were basically built to mitigate the impact of the irrigation development at that time. Once they were built, the complaints from lower lakes communities around upstream irrigation basically stopped and irrigation probably trebled between then and 2009—it probably trebled. If you look at it, those barrages have enabled the upstream diversion to increase to the level that we are at today without a material negative impact on the communities in and around the lakes.

The Hon. RICK COLLESS: Despite the fact that we are losing 800 gigalitres of water out of it every year.

Mr DREVERMAN: Yes, but one of the interesting things there is that when we have developed a basin plan and we have looked at the environmental needs of rivers all the way from their source to where they join the next river downstream, so cascading through the system till each of the tributaries reaches the Murray and the Murray flows all the way through to South Australia, if you meet the reasonable environmental needs of all the rivers to a point upstream of Wellington, the return flows from meeting those upstream demands will be sufficient to meet the environmental needs of the lower lakes, the Coorong and the Murray mouth.

The Hon. RICK COLLESS: The suggestion that has been made to us, and I have heard this from a number of different sources, not just through this inquiry, is that what really needs to happen with that system is a regulator at Wellington, diversions for irrigators below Wellington would be piped—I think most of them probably are piped now anyway—and the barrages should be at least modified to allow an estuarine system to be reconstructed within the lakes themselves. The second part of the question in relation to that is the south-east drainage works. I was talking to a hydrologist some time ago who estimated there were something like 3,000 or 4,000 gigalitres of water that was actually going out to sea through that south-east drainage program which would have otherwise come into the Coorong and eventually into Lake Albert.

Mr DREVERMAN: I will start with the south-east drainage. I am not the expert because it is actually a program that is not run as part of the Murray-Darling Basin by definition.

The Hon. RICK COLLESS: It is not part of the Murray-Darling Basin and it probably should be.

Mr DREVERMAN: I think the number is of the order of about 80 gigalitres of which I think about 30 gigalitres have already been returned to the Coorong. The plan is for about another 20 gigalitres to be returned, which is part of a process combined with improved river flows through the barrage. The two measures should give an opportunity for the southern lagoon of the Coorong to be at a healthy but hypersaline condition. At times, particularly after the last drought, it was so hypersaline that there was nothing growing in it, not even brine shrimp.

The Hon. RICK COLLESS: Would that have happened prior to the diversions when the river was running in its natural state?

Mr DREVERMAN: Probably not prior to the diversion of all that drainage water to the sea, which happened about the same time as the upstream diversion. It is hard to unpick which one had the most impact. Let me go back to the weir at Wellington. When they built the barrages in the 1930s the original choice was to build at Wellington. They looked for a site and they could not find one. The river in that reach is up to 15 or 17 metres deep, whereas most other places it is two or three metres. In that lower reach it is 17 metres deep and it sits in what you can only describe as unconsolidated, it might be kind to call it mud, but it is goo. It is really soft. When we have tried to build things there you get large settlements and the foundations are not strong enough to support anything.

They could not find a site in the 1930s. You can talk about finding smarter engineers but there has not been a major breakthrough in how you build structures on soft foundations that would change what would be a very expensive build. In the drought we looked at building a temporary weir but it was designed to last for only a short period of time and it was designed to fail at a relatively low flow in the river. It was not ever going to be a permanent solution. If you operate the barrages either you remove them or you operate them to have more of an estuary. You will find that in a repeat of the climate sequence we saw from 2000 to 2010, before the basin plan, there was a barely a trickle that reached the sea. The lakes, within five or six months of the first significant low flow period, would quickly become hypersaline. That is why we did not let water in during the drought in any case, they were going to be hypersaline.

It is interesting that the arguments to pull the barrages out or change them normally originate a long way upstream. You do not find too many advocates who live in and around the lower lakes. It would be important to get the message that those barrages have been important to enable upstream diversion to increase. The biggest increase is in New South Wales, the biggest user of water in the basin. To allow that diversion to happen would not be without a material negative third party impact on the community of the lower lakes. From my perspective it is about why the barrages are important to New South Wales and Victoria. These two states meet the largest share of the cost of operating and maintaining them. They are the two states that benefit the most from the barrages being there in the first place.

The CHAIR: The two evaporation ponds in South Australia is the cost we pay for being able to have a good irrigation system in Victoria and New South Wales?

Mr DREVERMAN: Meeting that evaporation is part of the cost of having 10,000 or 11,000 gigalitres of water use upstream. Effective barrages are an important part of a healthy working basin going forward and supporting the 11,000 gigalitres of irrigation.

The CHAIR: Within the charter of the Murray-Darling Basin Authority [MDBA], is there any room for you to become involved, in a technical or a brains trust level, if governments were to start looking at ways to augment water supplies into either the northern or southern New South Wales basins? Let us say the Committee put a recommendation forward that low harm technology should be investigated to put diversions on some of the eastward flowing rivers, would the Murray-Darling Basin Authority's charter allow you to become involved from a technical, scientific or contributory point of view?

Mr DREVERMAN: We could. Recently stakeholders sent me a copy of what they thought was an unpublished version of one of the Bradfield scheme elements. It was a report from about the 1980s by some engineers on a diversion from the Clarence to the border rivers?

The CHAIR: The Gwydir?

Mr DREVERMAN: It was north of the Gwydir. This one was going to somewhere near Pindari in the border rivers. The scheme we saw in the 1984 version—it escalated forward some of the costs and some of the costs of water—would have had water valued as delivered to the Murray-Darling Basin [MDB] at a price that would be above the point that cotton farmers could afford. You were getting it well above the price. It included some very large dams. These dams were 160 to 180 metres high. They were as big as Dartmouth Dam. They had prices in the 1980s that we escalated forward and thought were consistent with what we have valued Dartmouth at. Some of the embankments they described had volumes larger than Dartmouth. These were very big undertakings.

Dartmouth would be $1 billion to replace it today. They had a number of those, at least two large storages in this particular scheme. I think you would have to find a way of doing it that was significantly cheaper than what engineers have previously identified. I am not sure that is going to be possible. Some of our predecessors were smart engineers and they got their feasibility studies close to the mark. There was nothing you could not build, it was just that the cost of building it would exceed the value you would derive from irrigation, if you were repeating irrigation on a large scale, say for cotton today.

The CHAIR: The problem that they did not take into account, which is the problem we are looking at now, is a worldwide population of 10 billion people within the next 50 years—probably the next 30 or 40 years. Under those circumstances you probably need people advising governments on policy issues that go across from economics into futuristics. The cost of building a dam today, if it will produce X amount of produce and you change the market price in 50 years time because of demand, all of a sudden a $2 billion dam would seem cheap. They are the issues. I will not call them policy blockages. We cannot sit here as an ill-informed Committee and make the jumps in logic. Has the Murray-Darling Basin Authority done any work at all on what the future water requirements for the Murray-Darling Basin might be, from a demand driven point of view?

Mr DREVERMAN: Only that demand will always exceed supply. What we have been focused on is what the likely change in supply would be.

The CHAIR: Managing what you have got?

Mr DREVERMAN: No. We did a lot of work a few years ago with the Bureau of Meteorology and the Commonwealth Scientific and Industrial Research Organisation on impacts of long-term climate change on inflows. There were some pretty comprehensive studies that looked at what might happen to inflow sequences. That is probably the area that we continue to focus on. We look at what might happen in terms of the availability of water. Even as one industry stops using water, another industry picks it up. You will find even if you get shifts—for instance, we have seen the shift of cotton into the southern basin has coincided with reduction in rice

production as a result of drought, and then the rice production has not bounced back after drought because an amount of that water—

The CHAIR: Price of rice.

Mr DREVERMAN: You can make more money growing cotton in the south than you can growing rice. You will find over time that water will shift to highest value uses, but the advantage of some of those annual crops is that they adapt really, really well to our highly valuable inflows. If you just keep planting permanent horticulture, then you get a repeat of 2006 to 2010, and some of that repeated horticulture, even if they are prepared to pay enormous prices in the market—way over what people paid in the millennium drought—they would not be able to find the water because it is finite and it just would not be there.

Mr SCOT MacDONALD: You have answered what I was going to ask. In respect of our inquiry, which is looking at water augmentation, are we likely to get bigger bang for our buck in respect of water agriculture by improving efficiencies in the agriculture and water system relative to building dams?

Mr DREVERMAN: You missed my opening remark. Building dams in the Murray-Darling Basin is unlikely to create new water, and if you build a dam for a new use, then that new use and the evaporation created by the new dam have to be met from existing demand somewhere else. You can shift water from one part of a valley to another, or possibly across valleys by building dams. New dams in the Murray-Darling are going to be limited to those that meet a really high economic output, such as urban supplies, or maybe mining. You can understand that it is possible. What we have seen at Chaffey Dam, where it has been raised to enhance the water supply for a large urban town—Tamworth—that sort of thing may happen in the future from time to time, and there may be places, particularly as populations get bigger, where we need to enhance storages to make sure we can meet the water needs of humans. Of course, if you look at the value of water, the urban pricing of water is in certain places—at least where I live—100 times more than what a Murray irrigator pays for water. You can justify the expense of that infrastructure.

For irrigation, the important thing is to make sure it is as efficient as possible, but also to facilitate it to move towards the highest value use, and we are seeing that. We have seen over recent years an increase in things like table grapes, almonds, olives or avocados, but equally we have seen the decline in the canned fruit industry. That is not a result of lack of water, that is the result of a market force that says that none of us buy that many tins of fruit anymore. You will find on those blocks where people have gone out of that they will be replanting other things that will generate higher returns. It is to facilitate. Of course, all the market reforms have allowed that to happen. The separation of land and water and the creation of free markets allow the total production of irrigated agriculture to increase enormously.

The CHAIR: We are out of time. I wish we had another hour. Mr Dreverman, thank you very much for agreeing to talk to us today. It has been eye-opening, to say the least. If we have questions on notice and we send them to you, could we ask you give to us a reply within 21 days of receiving them?

Mr DREVERMAN: Certainly. It will be my pleasure to do that, with the assistance of my colleagues

(The witness withdrew)

(Short adjournment)

GAVIN HANLON, Deputy Director General, Department of Primary Industries, sworn and examined

DAVID HARRIS, Chief Executive Officer, WaterNSW, on former oath

ANDREW REECE GEORGE, Executive Manager, Assets Solutions and Delivery, WaterNSW, affirmed and examined

ADRIAN LANGDON, Executive Manager, Systems Operations and Asset Maintenance, Water, on former oath

The CHAIR: I confirm that submission No. 48 is from the Department of Primary Industries—Water and WaterNSW. Mr Hanlon, would you like to make an opening statement?

Mr HANLON: I will make a very general one. The Department of Primary Industries—Water [DPI Water] has a primary role in administering the Water Act. Our primary function is to develop policy, planning, regulation and administer funding across the State. We have provided quite a comprehensive and detailed written submission and a supplementary submission recently, and in times past as well. I am happy leave it at that.

The Hon. MICK VEITCH: The Committee has travelled widely and taken testimonies that raise a number of matters that we will not have time to explore today. However, would you like to respond to the testimonies the Committee has received?

Mr HARRIS: I am happy to make a couple of observations on the key themes that have come out since I appeared at Broken Hill. From reviewing the transcripts, if I am right, there are a couple of emerging key themes—environmental water, water pricing and charges, the role of government departments and agencies in water and identifying and progressing options for new and augmented water storage infrastructure. I am happy to make observations about the matters that have been raised on behalf of WaterNSW.

Our role in environmental water is predominantly operational. However, we support the views expressed by inquiry participants that generally there is room for improvement in relation to environmental water arrangements to promote its effectiveness and efficiency. In particular, the need for a strengthened outcomes-based framework to clearly set out the outcomes desired to be achieved by environmental water. Second, is a greater monitoring and evaluation of environmental water to inform the effectiveness of the releases and analysis of the cost and benefits of environmental water. Third, to review the rules for planning environmental water to ensure release of water to the environment is not automatically triggered without an active analysis of the benefits of that action.

There has been much discussion in the inquiry in relation to pricing. As the Independent Pricing and Regulatory Tribunal [IPART] highlighted this morning, neither WaterNSW nor the DPI Water set the price of water—that is determined by the market. The prices WaterNSW charge water users are based on our need to recover the capital and operating costs that we incur to capture, store and release bulk water to our customers. We, and IPART, use a building blocks approach to determine our recoverable cost, based on a valley-by-valley basis. Our cost base is then assessed by the IPART to determine whether it is prudent and efficient and, in turn, appropriate to be recovered from customers. The Independent Pricing Regulator, IPART and the Australian Competition and Consumer Commission [ACCC] then determine the charges to recover our costs in accordance with pricing rules and principles, such as the National Water Initiative. For example, that includes decisions such as the split between user and non-user charges, valley based versus postage stamp pricing and impact versus beneficiary pricing.

Our focus at WaterNSW is on ensuring we deliver the best assets at the lowest prices to deliver the bulk water services that are desired by our customers. Separately, but related, we support the view expressed through this inquiry for the need for greater transparency of the Murray-Darling Basin Authority [MDBA] costs to provide confidence to customers that the costs are prudent and efficient, and you touched on that with Mr Dreverman before Mr Hanlon and I appeared. Thirdly, this inquiry has heard of continued confusion in relation to the roles and responsibilities of DPI Water and WaterNSW and government agencies and departments generally, As the inquiry would be aware, the second stage of the Government's Water Reform Program was delivered on 1 July 2016 with the transfer into WaterNSW of DPI Water's operational, customer facing and infill functions.

This saw WaterNSW become the sole operator of all regulated and unregulated service water and groundwater systems throughout the State. It also means that we are the one-stop-shop for rural bulk water customers. The intention of that Government reform is twofold: First, to clearly establish DPI Water as the resource regulator and establish WaterNSW as the resource manager and system operator for surface and groundwater operations, and the one-stop-shop for customer interaction. Second, to streamline and simplify

arrangements for our customers and incentivise WaterNSW to innovate and transform its service provision to its now much expanded customer base.

We acknowledge that these intentions are yet to be fully realised and that there still persists some misunderstandings between our customers and water market stakeholders. However, we are working relentlessly to address this situation. We have undertaken comprehensive customer surveys to better understand the needs and wants of our customers. We have developed a detail customer strategy and response to those findings. We are working hard to integrate the range of functions in more than 200 staff we received from DPI Water on 1 July last year.

We continue to partner with DPI Water to work on cross-organisation initiatives to identify and address customer hotspots. However, this is not something that can be achieved overnight. Much of the change required to effect the full realisation of the Government's reforms is not simple. For example, WaterNSW is currently operating on an IT system that has not been significantly updated for many years. This limits our ability to provide much of the online presence and capability that will address much of our customers' needs. We are working hard on this with a broad range of further initiatives to put the customer at the heart of everything that we do.

Finally, on new assets and augmentations, again the inquiry has heard many and various proposals for new or augmented water storages. While localised suggestions play a role in identifying possible future asset needs, it is important that any decision to build or augment an asset is put through rigorous assessment, as each investment decision will have an impact on that valley's water charges now and for several generations to come. WaterNSW was established as the single entity to be accountable for South Wales' major water storage infrastructure development, maintenance, planning and operation.

Our assets are long-lived assets, and WaterNSW must take a long-term view for capital and operational investment decisions. We must be able to clearly demonstrate to our customers and IPART that our investment decisions are prudent and efficient. To do this, we are preparing a 20-year asset strategy that analyses the suitability of existing water supply storages and supply schemes against long-term regulatory and customer levels of service requirements for both the Government and customers. We believe this is the most appropriate process to identify and assess the State's water infrastructure needs. I am happy to take questions on those or any other matters.

The Hon. MICK VEITCH: Thank you. I thought this was an opportunity for you to respond to some things raised with us as we have travelled around regional New South Wales. I want to dwell on the transition to your new structure. We have heard concerns about the transition to the new structure, because people do not know who is responsible for what. People have also raised a concern about a public service churn in that people are in the roles for a short time before they move on and there is no opportunity to develop a rapport or relationship with individuals. We have heard that in this part of government service delivery, water, it is very important that people have an opportunity to develop relationships with individuals they work with. Will the new structure give people surety that the churn will stop and so people will have an opportunity to develop longer term relationships with people in government?

Mr HANLON: I guess from a governmental and departmental point of view we are now finishing off our change processes internally, and that will provide as much certainty as any organisation now can provide. One of the challenges for us is to make sure that we have good systems and procedures in place to allow staff to move on and take career opportunities. One of the challenges we have with the generations of people coming through organisations like ours, is that they love doing a project for three or four years before they move on. The emphasis is really on us to make sure that we have systems and procedures in place to capture some of that knowledge. A lot of our staff are regionally based, and they do develop relationships locally and across the State. A lot of our officers have statewide roles as well, and they do a lot of travel as they develop relationships over time.

Again, our workforce has a profile with some of the people having been around a long time in water starting to retire. That starts to leave a bit of a gap. Most importantly, we are hearing that they lose the relationship they have had over a long period of time. The emphasis is then on us to make sure that we can quickly point out who is the new point of contact, and enable them to build the relationships as fast as they can to make sure our systems are in process. Our systems and procedures are in place to make sure we are capturing knowledge as best we can throughout our lifetime and particularly with the water reforms that are ongoing.

Mr HARRIS: Certainly it is very similar from WaterNSW's point of view. We completed our stage one restructure in 2015, so that is 18 months behind us now. Since that time, we have acquired an additional circa 200 staff from the department. We have properly structured our organisation. We have developed a three-year strategic plan for our organisation, so that our people can see that there is constancy of purpose in our

organisation over the medium term. There will always be people who for non-work-related reasons have to make decisions, but like Mr Hanlon's, we now are an organisation that is developing our people.

We are doing everything we can by way of skills, leadership and so on to retain and grow our talent and to fill our many vacancies by attracting high-calibre people. On the customer front, we really over the last year and largely in the context of the rural pricing determination have taken an enormous step up in our efforts to engage locally with our customers through our, currently, customer service committees and soon to be customer advisory groups. We do four roadshows a year with those customer service committees. I also get out to see people in my organisation right around the State. In short, we are an organisation that is looking to grow and develop people, attract good people and hold onto good people.

The CHAIR: Maybe I did not look properly, but I have not seen in your submission a functional diagram of how you propose to operate. Am I right that you have not included a functional diagram of how your departments or your key centres operate with each other?

The Hon. RICK COLLESS: Organisational chart.

The CHAIR: Yes, I will call it an organisational chart.

Mr HARRIS: We can certainly provide our organisational chart. It is on our internal site.

The CHAIR: Could you provide us with one?

Mr HARRIS: Yes, no problem. I might say on that that our organisation is structured along its market function lines. For example, Mr Langdon heads up our business unit that looks after asset maintenance and system operation; Mr George heads up our business unit that looks after assets solutions and delivery; and similarly we have a customer community business unit as well as information and communications technology [ICT] and other enabling business units. We will certainly send you that org chart, but we are structured along market function lines.

The Hon. MICK VEITCH: I have some questions, but I am not sure whether they sit with you. One of them came to mind when I was listening to another witness today. A lot of the levee banks are constructed around towns by the local authority, but irrigators do their own levee bank construction on their land that, for example, might fail under a flood event. Do you have any role in instructing or assisting, firstly, urban utilities in developing their own levee banks and, secondly, private landholders with their levee bank construction and also maintenance?

Mr HANLON: Generally—and I will throw to Mr Harris for some detail—local governments do it within the urban area. In the broader rural sense, the Office of Environment and Heritage [OEH] plays a role in preparing flood management plans. There is another flood management plan to do associated with flood plan licences. That is a different thing. We actually administer that, and WaterNSW has another role there.

Mr HARRIS: In relation to flood works approvals, it is a function that was transferred from DPI Water to WaterNSW on 1 July last year. We license flood works approvals, so in essence works that are located on a flood plain and could affect the flow of water can be levees, brokerages, culverts and those sorts of structures as well. We have that approval function, together with the on-the-ground compliance function, in relation to structures on flood plains or flood works.

The CHAIR: That does not go forward in time to extension services and advisory services. For instance, back in the day, the Soil Conservation Service gave all the advice to landholders as to how they should design and build structures like that.

The Hon. RICK COLLESS: Levees were still under the control of the Water Resources or whatever its name was.

The CHAIR: Do you have any upfront involvement, or do you start at licensing and then compliance?

Mr HARRIS: Yes: for us, licensing and compliance. The proponent of a development of a flood works will get their own advice and so on on that, and submit it to us, and we will assess that structure against the flood plan.

The Hon. RICK COLLESS: The flood plan is developed by the Office of Environment and Heritage, and WaterNSW is the licensing authority for the works. Is that how it operates?

Mr HARRIS: Yes.

Mr HANLON: Pretty much.

The Hon. MICK VEITCH: When it was mentioned earlier, I wondered how it all worked—thank you. Airspace management has also been raised with us, as you would have read in the transcripts. It is a vexed issue and is raised a lot. It comes down to whether or not there is a space for flood mitigation. How do you give consideration to the treatment of airspace in our facilities and storages?

Mr HANLON: I can talk about the policy perspective and Mr Harris the operational—probably that is the best way to describe our relationship.

The Hon. MICK VEITCH: I am happy with that.

Mr HANLON: Particularly in the Murray-Darling Basin sense and the shared assets between us—and you heard Mr Harris speaking earlier as well to find rules for how the Murray River in particular operates—in terms of the airspace associated with that, the storages are actually built for irrigators, not for flood mitigation. They do have a small ability to take the peaks off flood and have a little bit of flexibility in decision and judgement around the edges of that. I guess over the longer term there is some scope within the basin where the States are currently talking about whether there is a way—without impacting third parties or creating unmitigated third party impacts, particularly on irrigator reliability—we might be able to operate the storages differently and get an environmental benefit or credit from the MDBA. It is very early days in that space. I think you heard Mr Harris also say those rules took a long time to negotiate and get to where they are. I think to amend them will take equally as long as to work through them. Those discussions are equally shared discussions between ourselves and the other States from a basin point of view, but then there are New South Wales storages as well.

Mr HARRIS: We have airspace operations at two of our dams, Burrendong and Glenbawn. We carry out those operations in accordance with the water resource plans—the rules, if you like. As Mr Hanlon said, balancing out against supply is a decision that is very properly made by DPI Water in consultation with stakeholders as to how people want to use that asset and that resource, because that is a trade-off. You cannot have both.

The Hon. MICK VEITCH: What are the departments doing to, firstly, acknowledge and, secondly, address cold water pollution with the releases from our storages?

Mr HANLON: High-level and operational: I guess we know that as part of the basin plan a lot of the targets are around water recovery, but a lot of the benefits are to do with more than water. Whether it be management of carp or management—the best you can—of temperature, you are really only going to get the maximum environmental benefit if you look across all parts of catchment management, which includes some of the things potentially with cold water pollution, more so in the north. I guess we have been advocating that position at the State level and the basin level for a while now, and I actually believe there is merit in complementary measures in the basin plan to look at those sorts of things as well. I think Mr Harris has a couple of operational examples, potentially.

Mr HARRIS: I might hand to Mr George. We have implemented some innovative operational solutions. I think the main game, by the way, as Mr Hanlon has described it, is that we could briefly talk about some operational aspects of that.

Mr GEORGE: Certainly the Committee may be familiar with the Burrendong cold water pollution curtain, which was probably the first of its kind. If you like, it was a novel approach. In many ways it was an experiment to undertake to see if it could actually achieve the environmental benefits it was hoped. We are obviously still recording or measuring the benefits from that project and we will need to do that over some time—various seasons, various operational heights—to understand what the benefits truly are. We are taking a broader Statewide strategic approach to cold water pollution rather than looking at individual solutions in isolation.

There are obviously synergies with what DPI Water and the Commonwealth are doing, particularly around the basin plan implementation, so those things need to work together. As I said, we are developing a cold water pollution strategy and there are synergies with some of the work that DPI Water is leading. That is trying to understand, given the benefits or the outcomes from the example of Burrendong: Can we apply those learnings and can we identify any gaps in our thinking before we proceed with putting forward other infrastructure solutions around the State?

The Hon. MICK VEITCH: Following on from that, are there hotspots?

The Hon. RICK COLLESS: Cold spots!

The Hon. MICK VEITCH: Or cold spots. People have raised it with us wherever we have been—not just in the north of the State but in the south as well. Do you have a model? Are you developing a strategic

process to try to address this catchment by catchment? Is one catchment worse than any other? What is the science behind how you are working this out?

Mr HANLON: Certainly Fisheries within DPI has a fish strategy which looks at all sorts of risks to the assets and fish populations around the State, and one of its main things is also fish passage, barriers, weirs and those sorts of things as well. Certainly as part of the basin plan we have been developing a broader strategy of complementary measures built around fish populations and the health of the rivers themselves that identify some of those areas. From the work we have done I think it comes up in the south. There may be very limited opportunities down there, but I guess it comes up in the context of it being more than water recovery for the whole basin plan: It is about everything else you do, so let us make sure we are looking at all the opportunities for complementary measures to get environmental outcomes.

The Hon. MICK VEITCH: I live in Tumut, and it gets raised a bit in Tumut as there is bank fold over.

Mr HANLON: That is a flow management thing as well.

Mr HARRIS: I might just mention that we are developing a long-time strategy with Department of Primary Industries—Fisheries [DPI Fisheries] around fishways, which Mr George might talk about.

Mr GEORGE: It was featured in our pricing submission, which IPART are obviously about to determine. We are working with DPI Fisheries, developing a long-term fishways implementation strategy. Again, taking a more strategic approach to how we implement these. We are obviously taking the lead from DPI Fisheries on what those priorities are around the State so that we can direct funds and effort to the highest need, highest priority sites first in priority order.

The CHAIR: In doing that, do you take in your recommendations to IPART a position on who should pay or do you not go into that at all?

Mr GEORGE: The cost-share arrangements is something that IPART determines.

The CHAIR: So you only provide the costs?

Mr GEORGE: Yes.

The Hon. RICK COLLESS: Mr George, could you please expand on the cold water curtain? I understand that the Burrendong structure was damaged in some way. Is that correct?

Mr GEORGE: Yes, it was. I am happy to answer that. Recently, in the flooding at the end of 2016 when the Burrendong storage rose rather rapidly, it became obvious that there was a structural defect but it only became apparent once that storage rose and the curtain was subject to the load. The curtain became detached from the bottom of the dam at one location.

The Hon. RICK COLLESS: Has that been rectified?

Mr GEORGE: It is in the process of being rectified. As you would appreciate with a full dam, it is very deep and very cold. We have to bring in specialist divers who can only work for very short periods of time. The recovery effort took quite some time but those works are well advanced.

The Hon. RICK COLLESS: Does the work that was done at Burrendong set a blueprint for other dams such as Copeton or are they different?

Mr GEORGE: Each dam is different. For example, Burrendong has the intake tower, which you may be familiar with, and at Copeton there is no tower and the outlet, if you like, is on the bottom of the dam so there is nothing to hang a curtain to. Each dam requires its own novel approach and novel design.

The Hon. RICK COLLESS: The subject of inter-valley transfers [IVT] came up this morning in some of our discussions. How do you manage the inter-valley transfers in the Murray and the Murrumbidgee rivers? Can they go from one river to the other or is it simply a matter of balancing the demands to equalise those transfers?

The Hon. MICK VEITCH: Are you talking about the physical transfers?

The Hon. RICK COLLESS: A company called Waterfind told the Committee this morning that they could physically transfer the water at the Snowy Mountains hydro end. Can you explain how that would work in the case of the Murray-Murrumbidgee system? How are those transfers implemented?

Mr HARRIS: There is a fair bit in that question. The short answer to the question: "How do we do it?" We do it in accordance with the rules. The rules around Murrumbidgee-Murray inter-valley transfers, going

in either direction, are set out under the Murray-Darling Basin Plan [MDBA]. There are all sorts of constraints to inter-valley transfers one way or the other and they, in broad terms, relate to demand within the Murray system and whether MDBA can meet that demand efficiently either from Hume releases or from releases downstream of Balranald. Broadly around those needs there are some trigger rules—85 gigalitres and 100 gigalitres are the triggers for opening or closing of trade between the Murrumbidgee and the Murray. Those triggers and those rules have nothing to do with the market price or the state of the market in either of those two valleys, although the desire of people to trade water is obviously related to market outcomes.

We took over management of the IVT account from memory in February 2016 from DPI-Water. At that time there was not a lot of information publically available about the state of the account. Since that time we have had two iterations of providing more market information. In our first iteration we published on our website the state of the account between the 85 gigalitres cut-off and the 100 gigalitres cut-off for that account. We have since augmented that. Based on the trade outcome in March of this year, we have augmented that to show the full balance of that account—whether it is below 85 gigalitres or whether it is above 100 gigalitres. So to the fullest extent possible licensees, entitlement holders within both valleys have got good information on which to base a sale or buy decision.

As a result of the experience in March of this year, we have also implemented two other improvements. Previously it was first on the buzzer got the trade, and in March that trade closed within five minutes. We have now implemented a one-hour lag—we announce the trade is open at 9.00 a.m. but we do not take applications until 10.00 a.m. That gives more people the opportunity to, as it were, come in off their tractor or whatever they might be doing to be able to submit their bid at 10.00 a.m. We have also set up a SMS notification service as well, to which a number of people have subscribed so that they can get an SMS in advance of that account opening.

We continue to talk with our customers about how, if at all, that process within the rules may be improved. I know there have been some people say that first in is not a fair arrangement. That is all very well except that if you were to take some sort of pull approach and allocate a portion of the water available, that really does not work in water either. People either want the water that they want or they do not want anything. So the next step is a bit difficult. There is not broad agreement between customers on how that can be improved but I think the steps we have already taken, which I have outlined, have improved the operation of that account significantly.

The CHAIR: Are we talking about the same issue that the water trader company was talking about—the 100 gigalitres cap?

Mr HARRIS: So trade closes at—

The Hon. RICK COLLESS: In terms of the mechanics of it, if I am in the Murrumbidgee upstream of Balranald but below Burrinjuck and I want to buy water from the Murray, how does that physically occur?

Mr HARRIS: You apply for a temporary trade of allocation of water.

The Hon. RICK COLLESS: But the actual molecules of water do not transfer from one valley to the other, do they?

Mr HARRIS: No, they do not.

The Hon. RICK COLLESS: It is all about a trade balance between the two storages, is that correct?

Dr LANGDON: Water does flow down the system.

The Hon. RICK COLLESS: It can go down the system but—

Dr LANGDON: That is why the trade balance is between zero to 100. So if water is traded back in, that 100 will reduce backwards.

The Hon. RICK COLLESS: I understand that. It all depends on what happens below Balranald basically?

Mr HARRIS: Because it is all about meeting that demand and not incurring too much operational loss on the way through. In terms of putting water over the top, that requires the agreement of Snowy Hydro I think. Certainly one thing that we are looking at the moment—to step back from the mechanics, from an open market perspective the idea would be for us to try to maximise the time the trade is open. In other words, it is within that window. Certainly putting it across the top may help, we have not concluded that work yet but that may help.

The Hon. RICK COLLESS: So that has not happened up until this point in time?

Mr HARRIS: We are having a look at that from the operational perspective and also talking with the MDBA as well about how tight they want to run things, in other words, around that 85 gigalitres and 100 gigalitres trigger.

Mr SCOT MacDONALD: Regarding the 100 gigalitres, you said in August last year you were reviewing the normal IVT account. Is that underway? The Committee heard evidence earlier that perhaps more than 100 could be workable.

The CHAIR: Or should be tried.

Mr HARRIS: That is what I was saying a minute ago, and again 100 is the current rule. But what ourselves and MDBA are looking at is—that number has been around for a while—with the river computer systems that we have got now whether in fact there could be a wider window, in other words, keep that trading window open for more time.

The CHAIR: Which would mean a greater volume or just more time?

Mr HARRIS: It just means more opportunity for people to trade water between the two valleys.

The CHAIR: But no more water, keep the 100 cap?

Mr HARRIS: No. The idea would be if you can increase the size. There is a 15 gigalitre limit at the moment, from the 85 to the 100. If you could increase the size of that, if MDBA could operate with a higher number, then that would allow more trade.

Mr SCOT MacDONALD: We heard in Griffith and again this morning about trade closing earlier in New South Wales compared to the other States. Is that on the radar to be looked at?

Mr HANLON: Yes. We recently completed a review of water markets in New South Wales. I think the Minister launched that report a month or six weeks or so ago and looked at how our water markets performed. There are a whole range of ways and opportunities that we can improve our water markets. They are generally played out through the review of our water sharing plans where the rules for trade are generally enshrined. Those water sharing plans are being reviewed at the moment as part of a requirement under the Basin plan to develop an umbrella water resource plan.

We would look for opportunities of improving the way the market operates in the rules within the market, I guess inside that process there—anything to do with the southern system in particular, and always conscious that there are multiple States that have an interest in how those rules work. We want to make sure that any interstate trading rules that are in place, we are compliant with those as well. To the question are we looking at improvements: yes, and we will do it through the development of the water resource plans over the next couple of years.

Mr SCOT MacDONALD: Water brokers were mentioned this morning, and I have read about this in the past. As someone who is in the market, are you concerned whether water brokers should have trust accounts and those sorts of things? It can only be an opinion but I am interested to hear.

Mr HANLON: There has been many an inquiry into water brokering and questions through things like the Productivity Commission and others that looked into whether there is a need for a regulator of water brokers. We cannot do that as a State; it is actually something that needs to happen nationally if it is going to happen. They have concluded a few times that there is no real evidence to support a regulator sitting over the top of them, but anecdotally I also hear travelling around that there are issues or examples of people that feel that some brokers could operate much better than what they do. At the moment it is self-regulating; they have got their own body that they try and do those sort of things.

Mr SCOT MacDONALD: A code of practice or something like that?

Mr HANLON: Certainly a peak body that has some membership rules, I guess, is the best way to describe it. I would be happy to point you in the right direction to where that membership body is.

Mr SCOT MacDONALD: The first witnesses this morning agreed with you; in the past, no. But now there seems to be creeping evidence of some abuse or loss of money.

Mr HANLON: Yes, I think there are avenues that do exist in current legislation and other places where people have avenues of resource if they feel that things are not working properly.

Mr SCOT MacDONALD: Fraud and that sort of thing?.

Mr HANLON: There are other avenues they can take.

Mr HARRIS: I think as the market—excuse the pun—gets deeper, as there is more liquidity in the market, that will put pressure on all of us. I have outlined some of the things that New South Wales has done already in relation to the state of the IVT account. More and more the market is growing and that will put more pressure on all of us to respond to that with more timely market information. There is no doubt about that.

Mr SCOT MacDONALD: We have heard evidence about water going down the Peel system and finally into the Namoi. Some people say you can trade, other people say it is difficult and complicated. What do you think about that?

Mr HANLON: There are water sharing plans in place that articulate what the rules are. As per the specifics, it might be best if I find the specific clauses for you. From memory—and it might be best I clarify—but I am pretty sure there are a couple of circumstances in which it can happen. But if there are certain triggers for that, it might be best if I get those specific paragraphs for you and send them on.

Mr SCOT MacDONALD: Are you receiving commentary from the people in the Peel region about the desirability or not of trading, if they are finding it difficult to make irrigated agriculture worthwhile it might be more worthwhile to trade?

Mr HARRIS: The issue is well known in the Peel. By the way, up until potentially next week if IPART make a change to the fixed variable share of costs in the Peel—

Mr SCOT MacDONALD: To 80:20 versus something else.

Mr HARRIS: Correct. So, status quo. Currently it is 40:60 and they have a usage price up around $56, from memory. A move to 80:20 would drop that usage price down to, again from memory, around $17, which would put Peel right in the middle of all other valleys in terms of usage charged. There are a couple of variables that are driving or have been driving that outcome. One is a small customer base. And that is exacerbated secondly by very low usage within the Peel. A couple of years ago the Government and WaterNSW attempted to alleviate that problem through a trading scheme, which did not work, basically because at the time it was drought and there was no water available to trade.

We have worked pretty hard, I must say, with our Peel Valley customers and the Tamworth Regional Council over the last year or so to get them to see the benefit, if you like, of moving to an 80:20. In fact the Peel Water Users Association have in our pricing determination process written to IPART and supported a move to 80:20 to bring the usage price down to $17. That will hopefully not just allow them to a lower cost base but hopefully will trigger a much greater degree of use and the more use the less the per unit price is in that valley. They are not the only ones, by the way. North Coast have a bit of a similar issue, and we have been working with our North Coast customers as well to try to find a long-term solution to that pricing problem.

The Hon. RICK COLLESS: The low usage in the Peel that you just described, is that a result of the pricing structure? And what percentage of the water available in the Peel is actually being used for irrigation at the moment?

Mr HARRIS: There are some reasonably unique features about the Peel. The bulk of the water there is held by Tamworth Regional Council under a high security town water use right. Historically they have not used a large proportion of that water. The agricultural users in that valley, they have a lesser share of the resource and historically they have not been using that resource. Has that been because of high prices? Possibly. Has it been because of low reliability in the Peel? Quite possibly as well. It was that low reliability that prompted the three levels of government—Federal, State and local government—to fund the upgrade of an augmentation of Chaffey Dam, which went from 68-69 gigalitres capacity to 100 gigalitres to try to provide greater reliability for users in the Peel. We have done a fair bit up there to try and help both the physical situation and the pricing situation and let's see how that goes.

The CHAIR: So one can assume then, seeing how the reliability problem has been, I will use the term, fixed or attempted to be fixed, if the fact of low usage continues it is probably going to be the price.

Mr HARRIS: If IPART endorses the move—

The CHAIR: If nothing changes, yes.

Mr HARRIS: If nothing changes that would definitely be one of the factors, there is no doubt about that.

The Hon. RICK COLLESS: The next question then is where does that water go? If it is not being extracted by either the council or the irrigators in the Peel Valley where does it go and does it end up in the environmental water account or does it go through and it is extracted by irrigators at Wee Waa? What actually happens to that water?

Dr LANGDON: That water sits in the dam until it does get called. It mainly comes when the dam spills—that water will flow down through the system into the Namoi and then down into the Darling during a flood point of view.

The Hon. RICK COLLESS: If it is not used by the irrigators when they have got an allocation, that only lasts for two years, does it? They cannot keep accumulating it, can they?

Dr LANGDON: No. There are carryover rules in terms of how much they can carry inside the water sharing plans. The carryover rule varies in water sharing plans, so I would not like to be specific what that is, but it does not carry over for ever.

The Hon. RICK COLLESS: I am just a bit confused about what actually happens to the water. If it is not being used by those to whom it is allocated—

The CHAIR: They hoard it for two years.

The Hon. RICK COLLESS: And then what happens to it? It has got to go down the river at some stage, has it not?

Dr LANGDON: When the dam spills that is when carryover rules are reset, but that water passes down through the system.

The CHAIR: As environmental water?

Dr LANGDON: It goes through a flood environment, so the environment would receive that. It may end up downstream into Menindee Lakes, if it flows all that way, and could be recaptured.

The Hon. RICK COLLESS: But an irrigator at Wee Waa who was looking for extra water could feasibly buy that water?

Mr HARRIS: Subject to the caps under the water sharing plans, yes. As Gavin said, there are some specific rules there which we would probably have to take on notice.

Mr HANLON: Excess water is generally called supplementary water and then allocated supplementary accounts when it is above and beyond the needs of whoever had licences. There is a rule framework in place for that.

The Hon. RICK COLLESS: What I am trying to establish is, an irrigator in Tamworth who only uses half his allocation each year because of the cost, can he sell that other half downstream to Wee Waa?

Mr HARRIS: First of all, he has got to get allocated the water, so he has got a piece of paper.

The Hon. RICK COLLESS: Let us assume he has got 200 megalitres and because of the price of it he can only use 100 megalitres and he only needs 100 megalitres but there is water there. Can he sell the other 100 megalitres?

Mr HARRIS: We will have to take advice on water sharing plan rules. We will take that on notice.

Mr HANLON: And it also has to be able to be delivered, so depending on the year and its operational considerations plus the rules. I have already offered to put together the Peel trading rules.

The CHAIR: Before I go back to Mr Veitch, just to come back to your opening statement, Mr Harris, you spoke about your future planning and that you are developing a 20-year plan that takes you to 2037. What external parameters advise that strategic plan? In other words, do you look at demand? Is that one of the major things you look it? Secondly, who does that work. And the third question would be: what does the department or do you advise the Government beyond the 20 years? Is there anybody who is crystal-ball gazing and advising the Government on issues beyond 20 years? Because a dam costs, let us say, $1 billion to $2 billion to build, it has got a 100-year life, but these days with the design considerations and the environmental considerations, it could be 20 years in the building. So you make plans now, 20 years into the future. Unless you are building a dam now you are not going to have something to change the future. Given those long, long gestation periods, what are your views or what are the department's views on how far out should you be planning and how far out will you plan, and is it your responsibility or is it somebody else's responsibility?

Mr HARRIS: I will hand over to Andrew in just a second, but while he is gathering his thoughts I will answer one or two aspects of that. It is our responsibility. On the creation of WaterNSW or the passage of the WaterNSW Act 2014, Parliament gave us the explicit primary function of planning water supply infrastructure solutions for identified gaps across the State. Before I hand over to Andrew I just want to make one point. I acknowledge that planning of dams and construction of dams is a long-term thing, but I think the important thing to think about here is our 20-year asset strategy is not just about new dams; it is about a whole suite of

infrastructure. Dams are but one part of, potentially, the solution there. Often, for us, it is more about regulating structures down the length of a river, mid-range storages, on-stream or otherwise storages in a river, to enable us to better operate a river, less transmission losses, higher allocations therefore for customers. But I will hand over to Andrew. With his area of putting together that strategy he can answer that question with more detail.

Mr GEORGE: Our approach is taking two perspectives: top down and bottom up. Certainly, when you talk about how does it sit within other, let us say, government processes, we have to work within the current rules. So for that we do look to, obviously, the Murray-Darling Basin Plan and the water resource plans that the department is putting together. Notwithstanding that, we do have a view beyond those rules as to where opportunities may lie in the future; that is, if bending a rule here or there may release opportunities for future things, recognising that, though, usually doing such a thing requires all levels of government to get on board, and they are inherently very difficult.

The bottom-up approach, which has really been the focus of the last 12 or 18 months has been to go and speak to our customers and ask them what their problems or needs are. As we have found, it is not necessarily of any help to go out and announce a new dam if that cannot be affordable to the local irrigators or the people who actually pay for it. When you go and ask those customers what their problems in the valley are, those problems may not be best solved by a new dam. So it is very important to understand what those issues are, and we have developed the levels of service framework, which we have run our customers through, particularly during our pricing process where we have introduced them to the concept and we have sought feedback on the things that matter to them. So in some cases it might be that they want the volume of water that they have ordered in a timely manner or sooner than when they have delivered it. The answer to that may be the computer-aided river management approach, it may be as simple as a new re-regulating structure in the river somewhere—typically a lower expense of a new dam.

We are trying to understand what are the problems, what are those gaps that customers are experiencing. When we join those two things up, the regulatory environment, the rules, if you like, from broader government with the gaps or issues that our customers have, we are forming a practical view that will certainly be implementable within in, say, the 20-year horizon. In doing that, we are finding that might be opportunities for new ways of approaching things, particularly with its operations, with the operational team, and we take those on notice and certainly we will be having discussions with the department about whether or not they are feasible to explore in the future.

The CHAIR: Before we go on, if I could just ask for maybe a little bit more clarification there. Primarily, your area of the groups, this is your responsibility: asset planning, shall we say? Can I submit to you that it is a great way of doing it—you go and talk to the customers and ask what their needs are. You go and talk to an irrigator now, whether he is growing cotton or whatever, he will tell you what his needs are. He is probably 60 years old and he wants to hand the farm on to his son or daughter or someone else. He probably cannot tell you what the needs of the State or the nation or the world market will be in 20 to 50 years' time. So my question to you is, I understand that you said you work within the framework of the Murray-Darling Basin Plan and it has got to be all done at a certain level, is there anyone in your area of expertise or across the board who, for example, is talking to your partner organisation, DPI, about what their forecast might be for agricultural production going out 50 years? Is there any of that sort of work done? Even thinking about that?

Mr GEORGE: By way of example, the State Infrastructure Strategy projects which were recommended in 2014, those studies have been jointly done between the department and WaterNSW.

The CHAIR: Are they publicly available?

Mr HANLON: There are a couple of other frameworks in place that allow for broader statewide planning. The 2012 State Infrastructure Strategy identified some water projects and in 2014 it was updated and identified four key priority projects. The Government then, through DPI Water, funded WaterNSW to look at projects within those priority catchments—the Lachlan, the Macquarie, the Hunter and the Gwydir, from memory. So there is a direct relationship there in terms of how we work together. From an urban or regional town point of view there is another framework in place for planning there and certainly our team plays a major role in assisting there. We have a team of people that have a best practice guideline for helping local governments plan for security, amongst other things. They also ask councils to prepare an integrated Catchment Water Management Plan and in that we ask them to look at, through a range of scenarios about climate variability, how well they will last.

Recently we have also worked with the University of Technology Sydney [UTS] to develop a broader, what we are calling a catchment needs assessment, where we have integrated our data, councils' water data, health data in some cases and stream flow data, to look at the areas across the State that are most susceptible to high levels of climate variability, but also where some of their infrastructure might be starting to point towards

having some challenges with meeting health requirements as well. That work is starting to come towards an end, where we will be able to prioritise hotspots around the State that will help with guiding investment, whether it be for water security or for targeted health investment as well. But certainly, broadly across the State we have got a relationship with WaterNSW, where the Government has funded a number of these feasibility projects in those priority areas and then on a local scale we are also doing investigations ourselves.

The CHAIR: My question really is, Who do I ask? Where can you show me somebody's workings on what the forecast water demand is in New South Wales out to the middle of the century? Can anybody point to a document that we should look at?

Mr HANLON: Certainly the State Infrastructure Strategy in 2014 had some broad parameters around supply and demand across the State and where things were stressed.

The CHAIR: Are there any updates to that from your point of view? Have you done any further work on that?

Mr HANLON: The Catchment Needs Assessment process and framework I was talking about where we are working with UTS is starting to come to an end. We will make that data available once it has been curated.

The CHAIR: When do you believe that will be?

Mr HANLON: I t is now in the final stage of its peer review and that sort of thing and we would like to think that would be out in the next, I would say, comfortably six months.

The CHAIR: We have extended the reporting date for this inquiry to March next year. Maybe around the end of this year we could ask for some of those updated documents to be provided for us. It is probably too late to test them on the public hearings but certainly it may inform the Secretariat when they are trying to develop recommendations from this Committee.

Mr HANLON: To clarify, the Catchment Needs Assessment Framework looks at water supply and security for local suppliers and there are 97 local suppliers around the State. It looks at stream flowing nexus and all sorts of things about identifying where the priority areas might be, given whatever parameter we choose.

The CHAIR: Other than that work, there has been nothing put on the table since 2014 that addresses the overall agricultural output for the State going forward?

Mr HANLON: Well, certainly inside the Murray-Darling Plan process, the jurisdictions, the States, have been going through exercises of coming at it from a different angle and looking at what are the costs of taking water out of communities and out of production, whether it be for environmental purposes to meet those targets.

The CHAIR: In the Northern Basin Plan the review did that work, didn't it?

Mr HANLON: Yes, very much so. And then in the southern system we did some work ourselves around better understanding what does "socio-economically neutral" mean, if we are operating in a capped system where the water is fully allocated. We have done some further work inside of that about making sure there are no further impacts across communities.

The CHAIR: We might have to do a bit of our own research then to try and find somebody who is thinking about some of these things.

The Hon. MICK VEITCH: Picking up on some of the comments in response to questions. With regard to the Computer Aided River Management [CARM], what is the future of that and is there a plan to expand or extend it?

Dr LANGDON: We have CARM in the Murrumbidgee at the moment, which has really updated the way we run that system moving into new technology and that has sort of been trialled and put into production. What we have actually been doing is updating our river models around the State from an operational point of view, using the same technology that CARM is based on, without going as far as having all the additional meter connection and things like that. At the moment we are using that technology to update how we actually operate the systems and just looking to target aspects of CARM as much as possible.

The Hon. MICK VEITCH: Mr Hanlon, you said you had done some work with urban utilities around their requirements and one of the submissions to this inquiry recommended to the Committee that there should be an audit of town water supplies west of the Dividing Range. Is that a part of the work that you are talking about or is that something different, is it separate?

Mr HANLON: It depends what you mean by "audit". Every year we publish a benchmarking report that looks at all the parameters we collect for water supply, whether it be water quality through to burst pipes to all sorts of things and we publish that report annually. That covers every local water provider in the State. In terms of "audit", I am not exactly sure whether—

The Hon. MICK VEITCH: The members of the Committee will correct me if I am wrong, but I think what they were saying was there is a gap and, particularly the further west you go, the infrastructure is aged, it does not serve the needs of the communities any more and there needs to be an audit taken so that we know where to spend our money for those particular communities.

The CHAIR: An audit of assets.

The Hon. MICK VEITCH: Like an audit of assets, yes.

Mr HANLON: Certainly we do that benchmarking report and it looks at the performance of the local water utilities. It will not necessarily go to the performance of their assets in meeting the needs of their communities. However, the project. I spoke about earlier that we are doing on the Catchment Needs Assessment does start to point to where, if you were an investment framer I guess, depending on which parameter you use, whether it is health or environment to do with the way the sewer systems are managed, where some of those more needy communities are across the State and we are coming to the final stages of that. As to an audit, it would be worth waiting to see if that report delivers that need. My feeling is it will go very close, based on what you have just said.

The Hon. MICK VEITCH: I want to pick up a couple of lines of questioning from the Hon. Scot MacDonald. Can you explain to me then why, in the southern connected system our temporary trading closes at the end of April and those in Victoria and South Australia, as I understand it, close on 30 June. Why is ours out of kilter with the other two states?

Mr HANLON: Certainly rules embedded inside a water sharing plan have been negotiated over a long period of time. We have also had raised with us a number of other aspects to do with water trading and carryover rules, for example, with differences even between the Murray and the Murrumbidgee, where we could do with, I think it is 50 per cent in one and 100 in another, where it might make sense to see if we cannot make them the same. But again, when you start wanting to play with water rules, one person's benefit is another person's loss somewhere. But certainly in terms of the differences in trade between the States it has been raised with us a couple of times and I think again, the water sharing and water resource plan development program is one where we can flesh out some of those debates, to see whether we can harmonise between the States, if you like. I think the important thing here is that everyone knows what the rules actually are. They might be different between the States but as long as everyone knows what those differences are, it enables them to trade.

The Hon. MICK VEITCH: When we were in Griffith or Deniliquin, one of those two public hearings, it was raised with us that the quality of information that people get via the IT system in New South Wales is different to that in Victoria. I think they were advocating for the Victorian system. Is it different and how different is it, and are we looking at changing our IT processes?

Mr HANLON: There are a couple of parts to water information. I might talk to one and I might throw to Mr Harris and his team to talk to another. In Victoria they have a person delegated within the equivalent of Mr Harris' organisation there nominated as the resource manager. That responsibility has its own website where you go to for all water allocation information. It is called the Northern Victoria Resource Manager website in particular. New South Wales has a slightly different approach. We have a website where we put up our allocation statements. Our website is being renewed at the moment. Our website is quite dated and clunky, to say the least, and it is hard to find information on it. We are currently doing the specifications for a new website to hopefully make things easier to navigate around, particularly from a water information point of view.

The second part that is different between Victoria and New South Wales is the time taken to process trades and the way information is managed between those processes. I might make a general comment here that people quite often say, "You can jump on CommSec and trade shares almost instantly. Why can't you do the same with water?" I guess that would be nirvana to get to that. It is done through a titles process. It is water separated from land. You would like to think that one day, yes, we will certainly be able to streamline processes to get it much tighter than what it is. Some of that sits with us; some of it sits with WaterNSW. There is certainly a commitment from us to see if we cannot streamline those things to get those processing times even faster. A fair chunk of that is really more appropriate for Mr Harris.

Mr HARRIS: Yes. There are slightly different histories. In Victoria permanent trades and temporary trades were done by the same body. They developed a codified system to do that and so they can do permanent trades a lot more quickly than we can do in New South Wales. In New South Wales the register was

administered previously by the department and through them the Land and Property Information [LPI]. The facilitation of temporary trade was done by State Water and now WaterNSW. Those things have now come together. WaterNSW is now administering both the licensing of permanent trades and the temporary trades. I referred in my earlier comments to the fact that we have a substantial ICT renewal program going on. Part of that will be to replace our water accounting and licensing systems so that they are one system and subject to being able to codify what will become water resource plans. Then we will be able to transact permanent trades a lot more quickly than we can at the moment.

The Hon. MICK VEITCH: Thank you. A witness from Waterfind either in his submission or in evidence this morning has talked about the visibility around queuing for trade so that you can see in the queue what trades are about to occur. Is that not possible at the moment?

Mr HARRIS: Our IT system, as I understand it, does not allow that functionality. Just to be very clear, our water accounting system is some 30 years old.

The Hon. MICK VEITCH: Are we looking at moving towards that? Is that a goal as part of the upgrades?

Mr HARRIS: Yes, absolutely. As an organisation we are replacing all of our corporate systems later this year into a new Microsoft product. That will be stage one that will then enable us to introduce more up-to-date technology for specific areas—trading, our customer relationship management and so on. That is why we are doing it and we are well on our way.

The Hon. MICK VEITCH: I move to managed aquifer recharge. You would know that we have been asking lots of questions about this wherever we go and getting lots of views about it. For the purpose of the report, what work are we doing in New South Wales at looking towards managed aquifer recharge? Is it possible in New South Wales? It sort of relates to the 20-year plan. Is there anywhere in there that we are looking at maybe trialling managed aquifer recharge? It is a very broad set of questions, I understand, but the Committee has spent a fair bit of time looking at this. A couple of us on both sides are pretty excited by the idea of managed aquifer recharge.

Mr HANLON: From the department's point of view, from time to time we have proposals put in front of us. Whether they be applications for aquifer recharge, for storing water or for potential credits for the Murray-Darling Basin Plan, we look at them on a case by case basis. We also have a range of relationships with different universities around the country in terms of looking at different research projects. Specifically looking at this, we have not got any specific large projects looking at aquifer interference across the State at the moment. We know that Canberra through Geoscience Australia did some work on groundwater particularly out west at some time within the last decade looking at potential sites at a very broad scale that might be possible. I think we have a way to go before we would feel comfortable in jumping in to aquifer recharge. That is not to say it is not possible. I know South Australia have done a hell of a lot of work in this space within urban environments. Again, we would look at it on a case-by-case basis.

The Hon. MICK VEITCH: Hasten slowly.

Mr HANLON: Yes, I think it is one of those things to be cautious with. If you interfere with groundwater aquifers they are very hard to fix. I know of some work done internationally in the Emirates, for example, where a large investment in aquifer recharge for water storage in basically deserts was going on, but the money being invested in that program was incredibly large. We know Israel does it quite a bit in some of their coastal sands with recycled water and it works for them. But, again, every country has different hydrogeological conditions and, again, for us, cautiously—

The CHAIR: And different strategic needs too.

Mr HANLON: That is right—different backgrounds and contexts to why they are doing what they are doing as well.

The Hon. MICK VEITCH: I want to go back to the environment stuff. We have heard a lot about the need for greater accountability around the environmental gains.

The CHAIR: Alleged.

The Hon. MICK VEITCH: As the Chair says, "alleged" environmental gains. Just what work is the New South Wales Government doing and what are your departments doing to try to better highlight the successes and the benefits from the environmental flows in our river systems? We are putting a lot of time and effort into this. People need to know what other benefits we get. Is it the number of birds, the number of fish or growing riparian zones? I do not know. What can we point to to say this is working?

Mr HANLON: There are a couple of scales here. We represent the State at the Murray-Darling Basin negotiations where water is being recovered for the environment. I guess at that scale we advocate for transparency, particularly in the way they prepare their annual plans and their reports. To their credit, you can jump on their website and there are annual reports there. They also report on how much water they are carrying over and what water they have got in what buckets around the State as well. I guess it is fair to say that also recently we put the view to the basin States that there is quite a big gap in this space, particularly looking across all aspects of environmental water. I think Mr Harris made this comment early in his submission about triple bottom line outcomes to do with how water is used across the State, and that includes environmental water.

There is a statewide monitoring framework in place for environmental water. The Office of Environment and Heritage is the environmental water holder for New South Wales water, but by far the majority of environmental water is held by the Commonwealth Environmental Water Holder. We would like to think that that is continuing to evolve. Certainly through now and out to 2019, even 2024 as the basin plan comes to an end, that the identified gaps in science for monitoring will have been filled and there is a strategic plan in place for science and that we can easily go to any environmental flow and say, "This is why we are doing that and there is what the benefit of it was." When I say "we", NSW Department of Primary Industries does not hold environmental water. That is managed by the environmental water holders.

The Hon. MICK VEITCH: The concern was raised that we could be environmentally damaging the upstream river systems to provide environmental benefits to the downstream river systems. For example, at Tumut there is bank fold-over. And at Griffith the southwest anglers spoke of bank slumping. Their concern is that we are creating other environmental problems.

The Hon. RICK COLLESS: And the Bahmer Choke, where you cannot get enough water through?

The Hon. MICK VEITCH: They say we are releasing water for environmental purposes but we are creating other environmental issues along the way.

Mr HANLON: Your example of changes in temperature as well as habitat, in some cases getting higher flows to meet South Australia's requirements and the flows at the lower lakes are creating unintended consequences further upstream. It will be a challenge for the river operators and the environmental water managers in the future to demonstrate that they are thinking across the whole spectrum and when they do use water it is going to its best use. Potentially there might have been scope, if environmental water cannot be demonstrated to deliver an outcome, to trade it temporarily and put it back into the market for agricultural use. We have been advocating that position. There are some circumstances under which the Commonwealth environmental water holder can trade provided they are trading for the purpose of investing back in infrastructure for the environment. Our view is they should be able to trade to cover the costs of any infrastructure being built to meet environmental objectives.

The CHAIR: Such as fishways?

Mr HANLON: Such as fishways.

The Hon. MICK VEITCH: When it comes to community service obligations and we talk about the Independent Pricing and Regulatory Tribunal [IPART] determining user charges, can you give us a real example of what is a community service obligation? What would be listed? Is it fishways or the curtain?

Mr HARRIS: Just a general approach, first of all. What IPART do is track costs through to end use, either government or user charges. For example, pre-1997 dam safety upgrades are entirely allocated to government share. Fishways are allocated 50:50—government and user share. The IPART looks at our costs in each of those valleys and allocates based on regulatory requirements and recreational use. Those costs are allocated to the government share and then it apportions the rest to the user share. In terms of some specifics, I will ask Mr George to answer.

Mr GEORGE: The biggest community service obligation [CSO] that I am aware of is in the unregulated system, where unregulated assets are funded via a community service obligation to maintain them. It is a non-indexed $500,000 per annum CSO from Treasury.

The Hon. MICK VEITCH: That would be for the Copland River?

Mr GEORGE: The unregulated rivers.

Mr SCOT MacDONALD: East and west, both sides?

Mr GEORGE: Correct.

Mr HARRIS: You have to be careful. There are three concepts. One is the government share; the second is the user share; and the third, to use your language is a CSO, or what we call a subsidy, where IPART determines that the users either cannot, or it is unreasonable for them, to pay the full user share. A CSO is then paid to us on behalf of the users through WaterNSW. The North Coast is a classic example. Peel is now returning to full user share payments. The CSO has been reduced to zero for the last three years. There are those three components.

The CHAIR: The Forestry Corporation of New South Wales are paid $5 million or $6 million in CSO from Treasury. They are a corporatised operation. Pretty much the same as you are: you charge for water. They have to identify the range of CSOs for which they want the money, cost them, and it is up to the government as to whether they should be funding CSOs or not. I guess that is a political decision.

The Hon. RICK COLLESS: Translucent flows are released for the environment, is that correct?

Mr HARRIS: That's right.

The Hon. RICK COLLESS: Once the translucent flows go through the storages the environmental water that is retained in that dam continues to be retained?

Mr HANLON: That's right.

The Hon. RICK COLLESS: And how long is that environmental water retained in that impoundment? Is it the same as productive water, two years?

Mr HANLON: There are two types of environmental water. There is held environmental water, which has the same characteristics of where they bought the water from. Then there is rules-based water which is embedded in water sharing plans. In a couple of cases where there is translucent flows, and Lachlan and Murrumbidgee are good examples, those rules allow for certain triggers for water to be released and effectively it is allocated as supplementary water downstream. It goes into the consumptive pool because the benefit is its flow.

Interestingly, we have had a couple of cases where people have asked us to look at those flows early in the season where the trigger has been met and WaterNSW has released and the community at the time said, "There is rising storage, we should not be doing this now". Equally, further down the track storages are filled, we have hit another trigger, the operators have been asked to release water as per the rules, and you are potentially in a flood mitigation environment. The operator has the flexibility to make a call, in terms of making sure there is no third party damage, and can adjust the flows accordingly if they believe there is a flood risk.

The CHAIR: You have those veto powers, do you?

Mr HARRIS: Yes. They are built into the rules.

Mr HANLON: WaterNSW does. They used them in the Murrumbidgee.

Mr HARRIS: Yes, we did use them in the Murrumbidgee.

Mr HANLON: In terms of the rules-based water, we have signalled that we are happy to have a discussion with communities along the river about changes to those flows. There are some differences in terminology and we have done an internal review of translucent flows. Anything would need to be negotiated with all users, particularly because downstream do get benefit from that, particularly if it ends up in an allocation environment. Those closer along, that have the benefit of regulated entitlement, get benefit as well. Some of the strongest feedback—and it will be interesting to see if stakeholders lead us this way—is the lack of flexibility around those rules. If there was a little bit of discretion for the environmental water holders to have some sort of coolability on it you might have been able to get a better environmental outcome, because the rules are hard and fast. We will be happy to facilitate the discussion with the stakeholders and take it through the water sharing process thereafter.

The Hon. RICK COLLESS: Is there a risk that some of those translucent flows, given they are released as environmental flows, and the environment water is still held in the dam, that the amount or the proportion of environmental water in relation to productive water behind the dam wall is going to change, so there is less productive water and more environmental water?

Mr HANLON: Generally speaking, the environmental water holders currently hold a third of water entitlements. I am generalising here. It is different between each catchment but in big systems it is about a third. In the bigger systems the rules-based water is more around minimum flows rather than larger flows. Stakeholders raise with us perceptions that environmental water is being banked up, there is too much of it there. Certainly if you look at the detail behind it, it generally averages out to a third of the water that is there.

They are incentivised, like every other user, not necessarily to carry over and get the benefit of it. We know that they have a little more flexibility in terms of its delivery, particularly on the Murray system, if there is congestion in the system with delivering water to the Sunraysia in particular. Generally, to date both environmental water holders have shown some flexibility in how water is delivered to the benefit of consumptive users for productive use.

The Hon. RICK COLLESS: Where is the Broken Hill pipeline up to in respect of its planning and so forth, and what procedures are being put in place for planning for the management of Menindee Lakes post the construction of the pipeline?

Mr HANLON: I can do Menindee Lakes and David can do the pipeline. New South Wales has a range of projects it is submitting to the Murray-Darling Basin Authority for modelling for the purpose of a sustainable diversion offset. The Menindee Lakes proposal is one of those. I was out there approximately six weeks ago presenting to the community on what that looks like. Fundamentally, it is a couple of pieces of infrastructure to give more flexibility on how to operate those lakes on enlargement of the Menindee Lakes, and then another one between Cawndilla and Menindee at a place called Morton—

The Hon. RICK COLLESS: Morton Boolka.

Mr HANLON: That is the one. Sorry, it slipped my mind. That gives us a lot of flexibility in how we would then operate and our business cases around that. New South Wales will be asking the MDBA, with the infrastructure that is being proposed by all the States, to model and maximise the benefit gained by that infrastructure. The next step in the process after that is that we have to negotiate with the Commonwealth a new funding agreement to build the infrastructure, and then the final step in that process, once it is nearing completion, if the Commonwealth chooses to fund it, is to renegotiate with all interested parties the operating rules.

On the Menindee Lakes, for example, South Australia and Victoria equally have an interest in that, as well as the Lower Darling water users and even the anabranch users. That is part of the Basin agreement, which is signed by first Ministers and Premiers. It will take a while to work that one through. Fundamentally, we are asking the Commonwealth to model with that infrastructure. What flexibility does it give? We are proposing to keep water in the upper storages for as long as possible and those regulators get a bit more operational flexibility. In respect of the absolute detail of new operating rules, it has a way to go yet. On 30 June, all the States have to agree on the package of works and measures and how they might be operated, and then the MDBA comes back with a number sometime later this year. The pipeline question is for David.

Mr HARRIS: We would transfer the pipeline project back in November/December. Since then, we have done an enormous amount of work in proving up the concept design. We have been out to the market for expressions of interest and a fortnight ago the Premier announced the four short-listed tenderers, or consortium who will be invited to tender. We have structured that tender as a design build, operate [O] and maintain [M] contract. The idea being to ensure that we get best value whole of life for the asset, not just the designer build or the O and M. Four consortiums will be invited to tender for that and that tender is going out this week, if not, hopefully tomorrow. That project is on track for first delivery or first watering up in December 2018.

Mr HANLON: The only other thing I should have mentioned is in the Menindee Lakes system there are a couple of non-negotiables we will be building into the project. That relates to impacts on reliability on the other southern systems, because currently the Menindee system underpins some reliability on the Murray and Murrumbidgee, and Victoria certainly insisted that it has to have no unmitigated third party impacts and no change in reliability. That is the floor, if you like, in any operational changes going forward. I should have added that.

The CHAIR: One point of clarification, when you go to the design to construct, operate and maintain, obviously so far as operating, the tenderers understand that somebody else will be setting the price, that is, the IPART; is that right?

Mr HARRIS: The whole piece of infrastructure from capital cost to O and M costs are regulated as a monopoly piece of infrastructure by the IPART, correct.

The CHAIR: Gentlemen, thank you very much for coming in and thank you for your submissions. Thank you for the time and effort you have put in since Broken Hill. We really appreciate it. We will have some questions on notice because Ms Penny Sharpe had some questions but unfortunately she was not able to join us today. I am going to pursue the question of long-term planning, but I think I have exhausted my questions to the water people; I will now turn my attention to the agriculture people. Thank you very much for coming today; we appreciate your help. Any questions on notice will be sent to you as soon as possible, and we would appreciate replies within 21 days.

Mr HANLON: Sure.

Mr HARRIS: Will do.

The Hon. MICK VEITCH: Thank you.

(The witnesses withdrew)

The Committee adjourned at 4:16 pm