

VERIFIED VERSION

PUBLIC ACCOUNTS AND ESTIMATES COMMITTEE

Inquiry into Effective Decision Making for the Successful Delivery of Significant Infrastructure Projects

Melbourne — 22 March 2012

Members

Mr N. Angus

Mr P. Davis

Ms J. Hennessy

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Mr D. O'Brien

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Witnesses

Mr C. Walton, Chief Executive Officer, and

Mr E. Locke, Association of Professional Engineers, Scientists and Managers Australia.

**Necessary corrections to be notified to
executive officer of committee**

The CHAIR — I declare open the Public Accounts and Estimates Committee hearing on the inquiry into effective decision making for the successful delivery of significant infrastructure projects. On behalf of the committee I welcome from the Association of Professional Engineers, Scientists and Managers Australia Mr Chris Walton, chief executive officer, and Mr Erik Locke. Members of Parliament, departmental officers, members of the public and the media are also welcome.

In accordance with the guidelines for public hearings, I remind members of the public gallery that they cannot participate in any way in the committee's proceedings. Only officers of the PAEC secretariat are to approach PAEC members. APESMA staff, as requested by the chief executive officer, can approach the table during the hearing to provide information to the chief executive officer, by my leave as Chairman. Written communication to witnesses can only be provided via officers of the PAEC secretariat. Members of the media are also requested to observe the guidelines for filming or recording proceedings in the Legislative Council committee room, and no more than two TV cameras are allowed at any one time in the allocated spaces. May I remind TV camera operators to remain focused only on the persons speaking and that panning of the public gallery, committee members and witnesses is strictly prohibited.

As previously advised to witnesses here today. I am pleased to announce that these hearings are being webcast live on the Parliament's website.

All evidence taken by this committee is taken under the provisions of the Parliamentary Committees Act, attracts parliamentary privilege and is protected from judicial review. However, any comments made outside the precincts of the hearing are not protected by parliamentary privilege. This committee has determined that there is no need for evidence to be sworn; however, witnesses are reminded that all questions must be answered in full and with accuracy and truthfulness. Any persons found to be giving false or misleading evidence may be in contempt of Parliament and subject to penalty.

All evidence given today is being recorded. Witnesses will be provided with proof versions of the transcript to be verified and returned within two working days of the hearing. Verified transcripts and PowerPoint presentations will be placed on the committee's website within two weeks of this hearing.

Following a presentation by APESMA, committee members will ask questions relating to the inquiry. Generally the procedure followed will be that relating to questions in the Legislative Assembly. I ask that all mobile telephones be turned off. I now call on Mr Walton to give a brief presentation of no more than 4 minutes, if desired.

Mr WALTON — I appreciate the opportunity to appear today. APESMA has around 23 000 members, predominantly engineers, many of whom work in Victoria. The thing about engineers is that they have a code of ethics. They really care about their work and they care about their contribution. They care about the community outcomes. They are horrified by waste and they believe things need to be done properly.

There can be few more important functions for government than the effective delivery of infrastructure. It is important obviously for jobs, productivity and safety, and the wise spending of taxpayers money. Given this is so critical it is pretty important that the government has the capacity to ensure it has the expertise to manage projects and be an informed purchaser and that it also considers the people who are delivering a lot of the government work, which is the private sector. Some governments are now realising they have moved too far away from being an informed purchaser. But they also need to consider the private sector that is rolling out a lot of work and the government's role in ensuring they have the capacity: that there are adequate tenderers for projects and that the projects are competitive and represent good value for taxpayers; that the supply of engineers and skilled people are able to ensure private sector capacity; and that the government is an informed purchaser. So in short, the three key areas to getting it right are supply, the government as an informed purchaser and the private sector, rather than just one of those areas.

Unfortunately we are facing a problem after 25 or 30 years of a quite radical shift in how work is rolled out in this state — and this committee could not be more timely. To understand the problem we now face we need to understand that transition. It was a dramatic change in procurement models from large public works departments to a combination now of PPPs, design and construct et cetera. That shift, for all its merits, has had unintended consequences. Without picking fault with it — and APESMA is not saying we should move back to large public works departments — that massive shift into the way work is rolled out has had unintended

consequences. It has eroded the government's ability to be an informed purchaser. It went too far with shifting all the risk and all the skills to the private sector. It just went too far. Governments like Western Australia and others have realised that and the Building the Education Revolution report documented this right down to staffing levels. You have probably looked at that report.

The shift has also placed responsibility for training and development largely in the hands of the private sector. Given that in the areas of road, rail, water, power and local government some 60 to 70 per cent of the work is largely government funded, the private sector needs to have the capacity to roll that work out. The public works areas used to do a lot of training and then the private sector headhunted from the public sector for years, and unfortunately it has not picked up the ball adequately on doing the training that we now need. So we have got this vicious circle of inadequate private and public sector capacity. No-one saw this coming; it was just the result of that huge shift in the way we do the work in this state and in all states, frankly.

That private sector largely lives hand to mouth. They rely on a level of awareness of the projects coming but they largely get the skills they need. So when the DEEWR skills report that assessed all the occupations came out last year, guess what was the worst? Of all the occupations with a skill shortage the highest was engineers — 59 per cent of vacancies are unfilled, worse than any other occupation. Skills Australia has said this is the occupation of most risk for Australia's future, because it is not only about rolling out infrastructure, it is also having the skills to be innovative in things like our manufacturing sector.

We have created a chronic skills shortage — not one affected by the ups and downs of the economy but one that goes across those trends and has become chronic. It has of course led to increased costs due to the demand for engineering services being passed on to government in high prices. It is just supply and demand, and I will not insult this committee's intelligence. It is a shortage and you know what the result of that shortage is. That is being passed on in costs and the taxpayer is ultimately affected.

I am sure you have heard much evidence of government struggling to scope and design projects properly. I knew this problem was bad when I heard the private sector say, 'The government has inadequate capacity.' It must be bad. The private sector is saying it is very difficult to deal with the government because it is hard to deal with anyone who is an uninformed purchaser.

This analogy is too simplistic, but if you are renovating your own house and you do not get the design and scope right in the beginning and you start changing things, what happens to your cost? A 20 per cent blow-out has been found according to the literature. For every \$1 billion spent we are blowing around about 20 per cent of taxpayers dollars, as found in the Blake Dawson *Scope for Improvement* report. That is too scary to think about. This state cannot afford to waste one dollar. We need more infrastructure, not less, and our members are horrified that we are wasting any taxpayer money on infrastructure. And why are we wasting it? Because of this unintended consequence of a radical shift in the way work has been rolled out. It is no-one's fault, but it is time to step back and work out how we address this.

It is not only in cost blow-outs; it is also in delays. The BER report found that the root cause of cost overruns and delays was a lack of capacity in government, but we also have the challenge of ensuring that private sector has capacity. The DEEWR skills report showed an interesting thing — massive skills shortage and that it was not too hard to find a graduate engineer. In other words, everyone wants the 5 to 10-year experienced person — everyone is headhunting those people — and we are not actually developing up the next generation who has the skills and capacities. For the public sector it is particularly difficult because APESMA does a very detailed salary survey every year and it is highly regarded. For example, the pay on average in the private sector is 20 per cent higher than in the government sector for skilled engineers, and we have detailed data that we can provide. Even the New South Wales public sector has a \$12 900 higher wage, so even if the government here realised we needed these skills, it has a problem of a shortage overall and a problem with the private sector dragging these engineers away from the government sector. So it is difficult.

The other thing that has developed as well as delays and cost blow-outs is there is also risk to the community. If you do not get this right, you can ultimately have a West Gate Bridge or another falling. So it is not only in dollars; it is in public safety. There are also the disputes and adversarial behaviour that has developed. There is some data on the amount we are wasting now on disputes by not being an informed purchaser. The contractors are trying to deal with government and are just getting into argy-bargy because things are not clear.

If we now turn to solutions. Chair, we have brought together ANET, or the Australian National Engineering Taskforce. Rather than just APESMA, we got together to work with Engineers Australia, Academy of Technical Sciences and Engineering, Consult Australia, which represents the large consulting engineer firms, Australian Constructors Association, Roads Australia and Rail Australia, saying, 'Let's fix this problem. It's too important. This is beyond political. This is critical for the country's future'. We got that group together and produced a report on how to fix the supply, become an informed purchaser and improve private sector capacity. I am sorry we have not tabled that earlier, Chair, but that has just been put into the federal Senate inquiry on this very issue.

The CHAIR — Thank you.

Mr WALTON — I will not go on now with the detail, but there is plenty of practical stuff in there. The point I will comment on is how can government think about not only itself being an informed purchaser but also of driving behaviour in the private sector. We have now gone to industry and brought forward a view that procurement can actually make the problem worse or it can help it. If we do not procure correctly, we can overheat things and constrain the private sector. If we do not plan far enough out, it is hard for the private sector to build the capacity it needs. But they are all now saying that if government uses its procurement to drive the training in the private sector, we will improve the overall picture.

The model has to be careful. We do not want to design a camel. But we are now able to bring the private sector to government to say, 'This has gone too far'. If government in its procurement already says things like, 'You need a health and safety plan or an environmental plan, why can it not say, 'You need a plan on how you are going to develop a grad program for engineers, cadetships and things like that'? The private sector is actually saying, 'It's gone too far. We need that signal'. Because good companies in the private sector that are doing the training are actually disadvantaged in the tender process, they get no ticks for doing the right thing. In fact they are arguably commercially disadvantaging themselves in the short run.

We know it is a radical proposal, but that is why we have worked so hard with industry to make sure industry will actually help design it and will be able to say to government, 'Look, we want to work with you on getting this right. We need to rise all the boats with the tide. We need a signal from government'. If government is not going to do its own level of training the way it used to through the public works department, it has to find a way to facilitate it through the private sector.

I will just finish with one story. I met with a very senior bureaucrat, whom I will not name, in Victoria recently and I said to him, 'Tell me it's not this bad. Tell me that in this asset owner or in this government department if you spent' — forget the figures — 'say, an extra \$1 million on being an informed purchaser, on having the skills and keeping the talent you could save \$100 million in capital costs, but that even though you know that, you are not doing it because it is out of a different pile or basket of money'. He looked at his shoelaces.

So headcount on government is seen as bad or difficult for asset owners to actually pay the people and put them on even though it is critical for government to be an informed purchaser. It will have a massive and multiple benefit in ultimate capital costs on a project. Yet we do not do it. Why? Because government struggles. It is different baskets of money. It is as stupid as that. So I commend this inquiry. It could not be better timing for it. There is plenty else we could say but it is possibly better to say that through questions, Chair. We have also done a recent survey of our members who work in the sector on which we can inform the committee through questions.

The CHAIR — Thank you very much. In the time available we will ask some questions. I make an observation to which you might wish to respond in passing. The shortage of engineers appears to be coincidental or in fact caused by the shortage of maths and science teachers, which has been endemic for some time, so that is a problem. I suspect there are far simpler tertiary courses than engineering and that is where we have a problem, and similarly with maths and science.

May I say that we are very interested in your submission and particularly, as you referred to it on the way through, the Blake Dawson report to which you also referred in your submission on a couple of occasions. I would like to tease out our understanding of what your awareness of this work is in relation to the cost overruns. Can I suggest that we need to understand whether this is a nationally applicable analysis. Do you have an appreciation of particular cost overruns relating to Victorian projects?

Mr LOCKE — The *Scope for Improvement* report published a couple of years ago was recently updated in *Scope for Improvement 2011. Project Risk — Getting the Right Balance and Outcomes*. By way of passing I update you on that because it came out post our submission. The most recent research found that 58 per cent of contractors felt they bore the burden of risk and 43 per cent felt that allocation was inappropriate. The CRC for Construction Innovation in its *Guide to Leading Practice for Dispute Resolution* estimated cost wastage from procurement in Australia runs at approximately \$7 billion per year, which goes down to dispute basically.

As it goes to Victoria, we are not in a position to be able to disaggregate those figures. That is a survey of basically all constructors — not all constructors but a sample of constructors in Australia. What is interesting, though, about their work as it particularly relates to this committee is that 67 per cent of respondents thought the alliance model for delivery delivered projects on time, on budget and to the required quality. That is in contrast to 48 per cent for all models of procurement and just 38 per cent for public-private partnerships. That is the best available work that you have to inform your deliberations in this matter. The important thing about the alliance model as it relates to Victoria and the problems that Chris has outlined is that it allows for cross-fertilisation between the public and private sectors, it allows for the development of young engineers and it eases the demand down the line for professional engineers.

The CHAIR — Here is a very leading question: what difference would it make if Victoria had a better recruitment model for specialist engineers in terms of the numbers of engineers? Do you imagine that you could put a number on the savings that would be obtained?

Mr PAKULA — That's a Dorothy, isn't it? It is known as a Dorothy.

Ms HENNESSY — Enough leading of the witnesses, Chair.

Mr LOCKE — What you could do easily is go back over the procurement practices in Victoria, work out the spend through models and subtract 20 per cent for large projects. We are talking in the billions of dollars if you had an informed purchaser capacity, which is demonstrated by the BER implementation task force. Only Queensland was demonstrated to be an informed purchaser.

Mr PAKULA — I should make a comment at the outset, Erik, that it is interesting and instructive that the attitudes of constructors to alliances versus PPP seem to be diametrically different from the attitude of departments of the treasury, certainly our Department of Treasury and Finance and I suspect departments of the treasury generally. As you guys would be keenly aware, there is now this emergence of the notion of competitive alliancing as distinct from alliancing more generally, because of the view that has emerged within treasuries, but also I suppose spoken behind hands amongst consortia, that alliances have ended up being a methodology whereby the private sector has gouged government. I would be interested in your views on whether you would view competitive alliancing as favourably as traditional alliancing.

Beyond that, I suppose I am in some ways asking you to summarise the report you have shown us today, as it is difficult from your submission for me to absolutely ascertain what you see as the fundamental problem/solution. Is it that there are not enough engineers being qualified — there are not enough tertiary education places for engineers? Or is it that there are but they cannot get from graduate to experienced because there is a gap in the workforce? Or is it that they are there but the public sector cannot get them because you cannot pay the wages? Or is the problem with PPPs? I am just trying to understand it. Have you synthesised your argument yet?

Mr WALTON — Excellent. Mr Davis was right on the point. In short, the answer is supply. Kids have to do maths and science at school, and as only 10 per cent of engineers are women, we need girls in particular to be engaged in maths and sciences. We need people to not be headed off maths and science by career advisers and people saying, 'Don't do the subjects'. Whole governments in the US are now saying, 'We need more scientists and engineers and fewer bankers'. There are all sorts of signals. They call it stem science, technology, engineering and maths. You are spot on, Mr Davis.

A lot of primary school teachers have a humanities background, so we need to really engage them. We could go on at length, but part of the way to engage them is they need to touch and feel. They need the science and maths to be real. Guess what that is? It is called engineering; that is how maths and science come into practical application. We have to get that right. We then have to get them into university. When they are at university we have a 40 per cent dropout rate, and we need to fix that. We are doing a lot of work with the deans and others on that.

Mr PAKULA — Is that a higher dropout than law or arts?

Mr WALTON — It is higher than laws and arts, yes. It is in part because again they are not using adult ed. principles. They are not applying what they are learning. There is too much theory, and there are lecturers who have been off the job for too long. For women, the environment is not great. So we have to get them through university. But even if we fix the supply, they then effectively do an apprenticeship when they finish university. It is the wrong word, but they actually learn through mentoring and on the job training et cetera. That is what the big public works departments used to provide. The private sector just wants to get them 5 or 10-year experienced. I should not say this on a transcript, should I? A graduate is not as useful as you would want; they need that experience and training. Whenever I say that, the older engineers smile and the younger ones look at their shoelaces. We have to have that program. How do we do that? Guess what used to work? Cadetships and graduate programs; the dropout rate for cadetships is about 5 per cent instead of 40 per cent.

How do we facilitate that? How does government do it? That is an internal debate about saying, 'There is a cost benefit of doing it and getting it right'. Then the private sector will just try to headhunt anyone. How do we get the private sector also doing this? The answer is that if there is a Roads Australia event and VicRoads is there, you can guarantee every construction company and consulting engineer firm will be there, because VicRoads has the chequebook. What does that signal to us? If they are all around at all those meetings, then VicRoads could actually change the culture of the constructors and contractors in the roads industry. What we have to do is find a model that works to do that that is not going to design a camel and that is going to get industry support. That is why we have been working so closely. So supply, informed purchaser, then even if we got the private sector doing it, they still need to deal with people in government who know what they are doing.

In terms of your question, Mr Pakula, the problem is that Treasury, as you know, comes out and tries to protect the taxpayer. How does it do it? It has competitive tendering. That is the only means it knows to protect the taxpayer. Is the lowest cost tender the best outcome for the community? Not necessarily, because of lifelong maintenance and other things. You say to Treasury, 'What about the next two tenders if we do not even have the skills. Isn't it going to blow out?' or 'We won't even have enough adequate tenderers to get something competitive for the state'. Treasury looks at you and says, 'Well, that's all too hard'. It is going to need political will to guide Treasury.

In regard to the actual model, we are saying in our report that we need the office of a chief engineer, who would really understand this and could guide it, and who would have some expertise to work out the best model. It will not always be alliancing. It will sometimes be D and C, et cetera. Yes, you need to ensure alliancing still gets good outcomes, which means even more reason to be an informed purchaser and find ways to be able to benchmark and provide some competitive incentive. It is not one model, but any of these models will work well if we know what we are doing and we can benchmark. Surely with so many billions of dollars at stake, you would have someone across the table from the private sector who has actually been in the private sector or knows what they get up to, and you just have an environment where you are getting a good outcome and you are seeing through things. The private sector wants that because they are going nuts dealing with people who do not know what they are talking about.

Mr PAKULA — Is that not as much as anything about being able to afford to pay that person so that you can pinch them from the private sector and have them on your side of the table?

Mr WALTON — That is true. I know this will sound self-interest for our members to get a pay rise, but really this is just a no-brainer. If you agree with that, then of course if you got all of the heads of the asset owners in a cone of silence and you asked them that question, they would go, 'Oh, absolutely. We desperately need it and we are finding all sorts of means to try and keep our people and the average age is getting up to 60, and we are worried about that grey-hair losing once the golden handcuff and the super are gone. We are in deep, deep trouble'. It is just holding together because of those old grey-haired wise people who have enough corporate knowledge. It is only just holding together. 'But how do we do that with a 2.5 per cent maximum wage outcome, and if we give engineers more, won't it flow on to other workers?'. There is a real practicality to this that I am not naive to. It sounds self-serving, but we have got to fix it. We suspect that any cent we spend there will get at least a 10-times return in savings on capital costs. We have got to find a way through it. It is not easy. It is not the way government works. Government does across-the-board things when it actually needs to be a little more nimble and have the capacity to get the best and brightest in here.

The CHAIR — Good observation.

Mr MORRIS — On page 8 of your submission, in the first paragraph, you have stated, ‘42 per cent of projects poorly scoped, leading to cost blow-outs of up to 25 per cent project capital costs’ and that is footnoted back to — —

Mr LOCKE — Blake Dawson again.

Mr MORRIS — Blake Dawson 2010 and a reference to a website. When I go to that website I find a document *Scoping Our Future — Addressing Australia’s Engineering Skills Shortage*. Is that the document you are referring to?

Mr LOCKE — Yes, it is.

Mr MORRIS — The only reference I can find to the 42 per cent when I do a search of the document — I have not read it cover to cover, but I have just searched through the PDF here — is a reference to a Blake Dawson report from 2006, *Scope for Improvement — A Survey of Pressure Points in Australian Construction and Infrastructure Projects*, which is a report for the Australian Constructors Association. I then searched for that document and I was unable to find it. I have a further question, but I just wanted to clear this up. I would be interested in having a look at that original document to get a handle on the 42 per cent figure. So if you are able to point us in the right direction for that.

Mr LOCKE — It is not misreported at all. It is a direct quote. If you go to the Australian Constructors Association website it should be on there.

Mr MORRIS — I have just been there and I cannot find it, which is not saying that it is not there. But I performed a quick search of the publications page of that website just a few minutes ago.

Mr LOCKE — There was one missing on there that I saw when I was most recently looking. The 2008 one is certainly there and the 2011 one. We will get that for you.

Mr MORRIS — According to this, the 42 per cent appears to originate from 2006. I would just like to see how the 42 per cent is made up. That would be useful background. Moving on from that, on the same page of your submission, you then go on to state:

Costings performed by the Department of Transport of the Department of Treasury and Finance are likely to be inaccurate because they do not employ enough engineers to properly scope budget submissions.

Can you expand on that, please?

Mr LOCKE — Sure. Basically poorly scoped and poorly designed projects will not deliver optimal outcomes. You will not have an accurate idea of cost at the outset and you will not have the key deliverables in place. Poorly scoped and designed projects lead to cost overruns. If you do not have engineers properly involved and properly qualified engineers early on in the process in scoping and designing a project, you are not going to get the project outcomes you desire. It is as simple as that. Again there are some facts and figures that are again carried in *Scope for Improvement* and this document that we will leave with you, but that is the general principle, and I think it is widely held.

Ms HENNESSY — Thank you very much for your presentation today and your submission. Both were really thoughtful and seemed to confirm a number of items of evidence that have been put before the committee during these hearings and also some of the other engineering stakeholders that we have met right across the country. I am interested in your proposition about the office of chief engineer. I know that it is a recommendation and a suggestion, and I do like the analogy you draw between that as a proposition and the office of the chief architect in terms of looks versus safety and delivery. I was wondering if you could talk to the committee about how you would see that operating, and what issues canvassed in your report you believe putting in an institutional advocate around the importance of engineering skill could achieve?

Mr LOCKE — Thanks for the question. I know we may have been a bit cute in our criticism of the office of the government architect — —

Ms HENNESSY — No, it entertained me no end.

Mr LOCKE — However, engineering is very much critical to the future of this state. You have a number of major firms headquartered here, and they have come here on the back of a massive infrastructure spend here that has gone back to the 1990s. You have Parsons Brinckerhoff, Siemens, SKM and so on and so on. Everybody screams when we lose jobs in key industries — it is a key industry; it could not be a more key innovation industry in this state. The problem that you have is that coming down the line there are just not enough engineers and, as Chris has outlined, that is affecting the entire procurement model and the financial fabric of the state. An office of the chief engineer — or, as we have advocated in here, the Australian engineer — could market the profession to school-aged children, and particularly to young women and girls, to try to get them interested in a career, because the perceptions at the moment are that it is very much a building-based profession. That is not solely the case, as you would be well aware. It can produce the pull. It can also work on changing the attitudes of some agencies to their recruitment of migrant engineers who are adequately qualified, reducing cultural barriers and driving change in procurement models that would see some training and workforce development. That is the role it could perform, which would be much more useful, in my view, than the office of the government architect.

Ms HENNESSY — Thank you. Just as a supplementary, Chair — there are many fans of engineers on this committee; you are in safe territory.

The CHAIR — Some of us are fans of architects as well.

Ms HENNESSY — And I have to say, I trust the Premier is not listening — Phil has to say that.

Mr PAKULA — He is going to let Geoffrey London loose on you.

Mr LOCKE — You have a chief architect; I do not know why you need two.

Ms HENNESSY — Just to segue us out of dangerous and potentially career-limiting territory for coalition members — —

The CHAIR — We will give Ms Hennessy the opportunity of actually asking a question.

Ms HENNESSY — I do have another question. Just as an aside, I was very pleased to see that a young woman won the young engineer of the year award. I am interested in the issue of alliancing. Given that the state of Queensland tends to use alliancing more frequently than many other jurisdictions, is it your argument that the use of alliancing in Queensland has mitigated some of these problems, which I think are structural?

Mr WALTON — Erik may have some detail, but this is the challenge. You have hit it on the head, ‘for government’ because, as I said, Treasury wants something simple — 1980s: ‘Let’s come up with this idea. Private sector is more efficient; let’s shift all risk from government to the private sector and it will all work like a beauty’. Of course we are now picking up the pieces of that. It is not to say there is not a lot of good in that; we are not in any way recommending we go back to what we had. It is just now working out what the way forward is. I think most would say to you that the concept of government shifting all risk, through a D and C-type contract, sounds great, but in fact the risk is still borne by the public sector usually, particularly if something really goes on — Lane Cove tunnel in New South Wales et cetera.

There are plenty of examples of where it can just go too far. And of course it all sounds so good, but guess what? They start pricing risk in. If they know there is likely to be a 20-odd per cent blow-out, they either allow for that or price it in. Where is the taxpayer interest? Then poor Treasury comes along and goes, ‘Oh, hang on, what other tool do we have than a blunt tool of competitive tendering?’. That is where we are now searching through this. Queensland said, firstly, ‘We never went for that extreme model, we did not contract everything out and we kept some capacity’, and the BER and other things have shown the result of that; and secondly it said, ‘Hang on a minute, if we cannot beautifully scope everything out, then isn’t there a model where we could actually sit down and, instead of having a constant battle from the day the contract is signed, actually have agreed margins and then have a process where we problem solve, sensibly share some risk and, through the project, also achieve some other outcomes, like innovation, like finding a way to do it even better than we might have originally scoped, finding a way to learn through the process and build skills, et cetera?’. That makes sense to me.

What we have to find, though, is the way to keep Treasury somewhat happy that there is not gouging of the private sector through the process. I think that is where we are now evolving the models into saying, 'Hang on, alliances are certainly a no-brainer if we want public sector to build up capacity, because they are in an alliance team'. You have public sector people working with the private sector, so there is a wonderful skill exchange and sharing. The private sector loves it because they are getting in the shoes of the public sector and understanding the constraints and how the government works; the public sector loves it because they are working with some of the best in the private sector. And you are not fighting the whole time; you actually have an incentive to find a way to bring in an even cheaper, and find a way to innovate and get an even better, outcome. That might not be for that year or five years; it might be for 20 or 30 years of the asset.

So I think Queensland has been, as usual, ahead of the curve on this. But I do not want to sit here and say we do not still need to find a way to ensure there is a way to litmus test or benchmark some of those costs. And guess what we suspect the answer for that is? It is that the public sector becomes an informed purchaser, and then that process can work even better. But we are in this in between at the moment, and it is not an easy spot, you know. I have no doubt there is probably some alliancing that has not been as good as a D and C, but I suspect the majority have actually worked out better overall for the taxpayer.

Ms HENNESSY — Thank you.

The CHAIR — Mr Angus.

Mr ANGUS — Thanks, Chair; I am happy to defer my question to Mr O'Brien, given the time constraints.

Mr O'BRIEN — Thank you, Chair. Thank you for your presentation. You have another sympathetic ear. By way of background, my family has been involved in engineering for a long time. I was in fact a maths and science student who chose not to take an engineering path, for many of the reasons you have identified. Following on with that, my first comment for you to think about is: is the problem you have identified in relation to remuneration for engineers in the public sector one that actually also stems from an undervaluing of engineering in the private sector and the way that major projects and jobs are put together, with, in a sense, most of the money these days going to the bankers, financiers, and lawyers? I see you nodding; do you agree with that concept, and is that part of the problem we have to identify? Even when engineers do well, it is when they have become a project manager or a company owner rather than as a consulting engineer.

Mr LOCKE — I could not have put it better.

Mr WALTON — Our members are their own world's worst enemies because a lot of people do not know what an engineer even does and how important they are. Because they have got such a high professional code of ethics and do their work well, if the work is interesting, they will put up with nearly anything. They will just somehow make do and keep things going as best they can. There is very little awareness because we have not had major gulf oil spills or huge engineering catastrophes in this country. We often say a doctor might kill one person at a time but an engineer could kill thousands, yet they have got such a relatively low standing in the community. There is not a great awareness about them, including in the private sector, although the private sector has higher pay. Even in the private sector, as you said about the financiers and others, we find that within 10 years over half the engineers have left engineering and are in with bankers and other things.

Mr O'BRIEN — That is something, and I am happy to try to work with you on that. The second matter I want to take you to is the concept of the office of engineer. Briefly, would you also agree that architecture and engineering go hand in hand together — that you cannot have good design in aesthetics or architectural quality without good engineering?

Mr LOCKE — Absolutely, that is the case.

Mr O'BRIEN — And you cannot have it the other way round.

Mr LOCKE — Yes. It is important to look at it through this prism. The government is getting scientific advice through the office of the chief scientist, and it is getting architectural advice through the office of the chief architect.

Mr PAKULA — Not that it needs it.

Mr LOCKE — Yes, but scientists basically deal with the ephemeral; engineers deal with the reality. If you are not getting quality engineering advice at a government level, then you are not getting advice as to the practicality of your public policy decisions.

Mr O'BRIEN — Thank you; so the general concept is that they can work together. The other comment in relation to perhaps some of the siloing of government departments — let me think about this — is that I am not sure if we need more new departments, in a sense. It may be that things like major projects, the office of architecture or whatever will work in with that structure, and you could find your elevated role for engineering and the importance of engineering within the structures.

Mr WALTON — I have been turning my mind to this and reading some of the other submissions. I was at a Roads Australia dinner the other night and I spoke to one of the major construction engineering firms, and they have actually got a group of about 20 of their top experienced people who sit above all the projects and are there to mentor and to check and assess everything. I think there is some logic for government to have at least one area which is the real brains trust, the best and the brightest, that is able to have some role in checking the processes and developing it. Whether that is part of the office of engineer or whether it is in Treasury, that is a judgement call. But there is some logic in having a brains trust sitting above department capacity. Frankly, there are some departments that have just got such low capacity now that it will take time to fix that, but the government needs to protect its interests pretty rapidly.

The CHAIR — Thank you very much for your attendance, Mr Walton and Mr Locke. We have obviously been very engaged with you, so I appreciate your time. Thank you for your submission. There are some papers that you are going to table, and I think there was a follow-up question from Mr Morris on which you will get back to us.

Mr LOCKE — It is referenced fully in here, but if you have any problems, give us a call.

The CHAIR — Thank you. I would welcome any further commentary you may have on the proceedings because of course you are accessing the webcast, and I assume you are absolutely riveted by the presentations that are being made. If you have any further commentary, we would be pleased to receive it. That ends this hearing.

Witnesses withdrew.