ECONOMICS AND INDUSTRY STANDING COMMITTEE

INQUIRY INTO THE ECONOMIC IMPLICATIONS OF FLOATING LIQUEFIED NATURAL GAS OPERATIONS

TRANSCRIPT OF EVIDENCE
TAKEN AT PERTH
WEDNESDAY, 23 OCTOBER 2013

SESSION ONE

Members

Mr I.C. Blayney(Chair)
Mr F.M. Logan (Deputy Chair)
Mr P.C. Tinley
Mr J. Norberger
Mr R.S. Love

Hearing commenced at 9.17 am

Mr WILLIAM TOWNSEND
General Manager, External Affairs and JV, Inpex, examined:

Mr NIGEL WILSON
Adviser, Inpex, examined:

The CHAIR: On behalf of the Economics and Industry Standing Committee, I would like to thank you for your appearance before us today. The purpose of this hearing is to assist the committee in gathering evidence for its inquiry into the economic implications of FLNG. You have been provided with a copy of the committee's specific terms of reference. At this stage I would like to introduce myself and other members of the committee. I am Ian Blayney, member for Geraldton and the Chair of the committee. This is Fran Logan, who is the Deputy Chair. My fellow members are Jan Norberger, Shane Love and Peter Tinley. The Economics and Industry Standing Committee is a committee of the Legislative Assembly of the Parliament of Western Australia. This hearing is a formal procedure of the Parliament and therefore commands the same respect given to proceedings in the house itself. Even though the committee is not asking witnesses to provide evidence on oath or affirmation, it is important that you understand that any deliberate misleading of the committee may be regarded as a contempt of Parliament. This is a public hearing and Hansard is making a transcript of the proceedings for the public record. If you refer to any document during your evidence, it would assist Hansard if you would provide the full title for the record.

Before we proceed to the inquiry-specific questions we have for you today, I need to ask you the following: have you completed the "Details of Witness" form?

The Witnesses: Yes, I have.

The CHAIR: Do you understand the notes at the bottom of the form about giving evidence to a parliamentary committee?

Mr Townsend: Yes, I do.

Mr Wilson: Yes.

The CHAIR: Did you receive and read the information for witnesses sheet provided with the "Details of Witness" form today?

Mr Townsend: Yes, I did.

Mr Wilson: Yes.

The CHAIR: Do you have any questions in relation to being a witness at today's hearing?

Mr Townsend: No, I do not.

Mr Wilson: No.

The CHAIR: Do you have a short statement to make?

[9.20 am]

Mr Townsend: I do. Mr Chairman, members of the committee, good morning and thank you for the opportunity to appear this morning. I would like to make a short statement, if I may. As I said, my name is Bill Townsend. I am general manager of external affairs and joint venture agreements in Australia. I have worked in the oil and gas industry for nearly 20 years, including the past seven

years here in Australia. Alongside me is my Inpex colleague Nigel Wilson. At the committee's request, Inpex provided a written statement to this inquiry in August. Inpex is Japan's flagship oil and gas company. Today we are involved in more than 70 projects in 28 countries. In these projects across the globe, we partner with many different companies, both as an investor and more recently as an operator. These projects are aimed at providing a staple supply of energy to global customers, essentially but not exclusively in North Asia. Our primary market, Japan, is the world's biggest LNG buyer and now represents approximately 37 per cent of global LNG demand. Inpex is the largest Japanese investor in Australia. In this context we are also the biggest Japanese investor in Western Australia. We have been in Australia since 1986. I proudly call Perth home; our Australian head office is located on St Georges Terrace. Inpex now employs more than 900 people directly in a number of office locations across the city, and our Perth organisation is growing; in fact, we now have more people working in Perth than anywhere else in the world, including our Tokyo headquarters. Inpex makes a significant payroll tax contribution to the WA state government and we engage with a large number of service companies located up and down the Terrace and across the state. We are proud members of the WA business community.

Inpex was one of the early movers in the global LNG industry, beginning with our investment in the Mahakam fields supplying the Bontang LNG development in Indonesia more than 40 years ago. Today Inpex is involved in six LNG projects globally, three of which are here in Australia. This of course includes the Ichthys project, which is being managed from Perth. Inpex has ambitious growth plans, including the desire to more than double our production from approximately 425 000 barrels of oil equivalent per day currently to more than one million barrels per day of oil equivalent in the next 10 years. Australia is increasingly becoming the focus of Inpex's growth strategy as we look for more oil and gas to meet our production targets. Australia is attractive to Inpex as a place in which to invest because it is a stable democracy; the parliamentary system, strong political parties representative of the broad community and the legal and social frameworks that ensure the rule of law. This allows us and our financial backers to be confident that government policies will be framed in a considered and informed manner.

Relating specifically to floating LNG, we are a 17.5 per cent participant in the Shell-operated Prelude FLNG project being developed in Australia. We are also the operator of the Abadi floating LNG project in Indonesia, which is currently in the front-end engineering and design phase, or FEED. Inpex believes that floating LNG represents an exciting new technology; indeed, we see floating LNG as part of the continuing evolution of the liquefied natural gas industry. It will open new options for developing fields which may otherwise be left stranded, create opportunities for local businesses and contribute significant benefits to the community for generations to come. No jurisdiction globally is better placed to take advantage of FLNG than Western Australia; indeed, Perth is poised to leverage floating LNG to maintain its position as a global LNG centre of excellence. Just last week at the launch of the New Century campaign for the University of Western Australia, we celebrated 100 years of achievement which has culminated in the university being ranked in the top 100 universities in the world. But more importantly, we look to the future and what the next 100 years will bring. The New Century campaign seeks to drive growth plus research and innovative solutions to create a better world in the future. The ongoing evolution of the LNG industry through, for example, floating LNG would benefit from such work and at the same time provide excellent opportunities for academics and students to lead and be involved in a truly exciting global industry and continue to put Western Australia on the map. We are not talking about just academic research but the ability to attract and retain professional expertise, build capacity through access to sophisticated engineering and develop new supply-chain networks. Eventually, this may lead to the opportunity to export technology, people and services and not simply develop the resources themselves. One need look no further than our own Ichthys LNG project. Our substantial workforce in Perth to develop the project would likely be similar in size if that project were to be developed as a floating LNG project. Inpex encourages the Western Australian state

government to support floating LNG development and to ensure that WA remains an effective destination for international oil and gas investment. Thank you very much. I am happy to take any questions you may have.

The CHAIR: Abadi, is that FLNG or LNG?

Mr Townsend: It is being developed as a floating LNG concept—FLNG in the FEED phase.

The CHAIR: Because I have read it referred to as both, and so I was a bit unsure.

Mr Townsend: That is a very good point, and for me it touches on something that is central to I think the argument here, which is that floating LNG and LNG are really the same. It just happens to be that floating LNG is an LNG project that is being developed on a ship, whereas LNG projects traditionally have been developed on land, but we do not entirely really make a distinction between them. We do not have a floating LNG department and an LNG department; it is all LNG.

The CHAIR: It is more to do with the cost of it, because if it is FLNG, it is a very expensive FLNG project.

Mr Townsend: Speaking of Abadi, Abadi I think typifies what floating LNG in the first instance is designed to do, which is to enable the development of remote fuels effectively. The Abadi field is offshore Indonesia in a location which does not lend itself well to onshore development, and so floating LNG really just creates an opportunity and an option for us to develop it. Again, that project is not being run out of Perth; it is being run out of Jakarta. I am sure that in looking at concepts, floating LNG emerged as the choice, given the location and what otherwise could be a very difficult remote location for development.

Mr F.M. LOGAN: Bill, Inpex advised the Western Australian community, the Australian community and the Western Australian government some years ago that it had to develop this gas deposit for export by 2014. That was the time frame that the chair of Inpex put on it. What is the time frame now and what happened?

Mr Townsend: The time frame now is that we are targeting first production in late 2016. We had a final investment decision on the Ichthys LNG project in January 2012—so more than a year and a half ago. These are very large complex projects to develop, and getting all the work done to get to that final investment decision, including purchase agreements with customers, including all of the front-end engineering and design work, all the approvals, getting joint venture partners and so on. So it is a very complex and detailed project, as all energy projects are. 2016 is our current date. I think it is just the complexity of the projects really that takes a little extra time. The ambition is always to develop these projects as quickly as possible, usually, but that is not at the expense of doing what we call front-end loading, which is really essential to do the thinking up-front, to get the design right, to get the engineering right, and that takes time and effort. To develop complex projects, you have to give the time and effort that is required. So the short answer to that is 2016.

Mr P.C. TINLEY: Bill, has there been a scope change since when it was talked about?

Mr Townsend: I do not know in what year the 2014 comment was stated. I am not familiar with that. As you will be aware, we did have a change in our development plans, which were initially on the Maret Islands in Western Australia and then subsequently in Darwin, so that is the only scope change we have seen in our project.

[9.30 am]

Mr P.C. TINLEY: In your understanding of that scope change, was that the primary cause of the time for the development to come to market?

Mr Townsend: I do not necessarily believe that is the case. I think it is just the complexity of the project. These are massive engineering projects. The Ichthys project we considered to be three mega projects in one, so we have got offshore facilities. I do not know how familiar you are with it, but

our offshore facilities include what is to be the world's largest semisubmersible platform, the world's longest FPSO, a nearly 900-kilometre pipeline, and an onshore facility with two LNG trains producing 8.4 million tonnes of LNG. The field itself is the largest liquefied hydrocarbon discovery in Australia since the Bass Strait in 1969, so the scale of the project is huge and it takes time and effort to develop. 2016 is actually a very laudable time frame for us. More importantly, I suppose, I cannot speak for the Chairman's comments but I know that going through the project we saw a market window for it in the 2015–2020 range and it was important to capture that at the time, and that is what we have done with the project.

Mr J. NORBERGER: The Ichthys field is obviously very condensate rich, which is great.

Mr Townsend: Yes.

Mr J. NORBERGER: My understanding, and I am happy to be corrected, is that where fields are very condensate rich, it does make FLNG less viable. Is that the case; and, if that is the case, if your field had been not condensate rich, given that it is quite remote—and you have mentioned that you have 900-kilometres worth of pipeline and the like, which is obviously considerable—would FLNG have been an option?

Mr Townsend: FLNG was never an option that we considered. From the start, we made a conscious decision to develop the project using proven technology—the field size also, I think, at the time at least. For the Ichthys reserves our resource estimates are over 12 TCF of gas—500 million barrels of condensate. At the time of discovery, which was 2000, and subsequently development, when we were looking at concepts, that was in the 2006–07 time frame. At that point in time, floating LNG was not quite as advanced as it is today, certainly, and the thinking then was that floating LNG was ideal for smaller fields—"smaller" meaning in the three to four TCF range, as opposed to ours which was over 12 TCF.

Mr J. NORBERGER: Would you say that your thinking has changed since then? You are committed now, but if you came along a similar field of a similar make-up now, given the advances or the changes, if you like, and that years have passed, would you still —

Mr Townsend: I do not think that we would have done it any differently today, no.

Mr J. NORBERGER: And why?

Mr Townsend: I guess this goes to the heart of the question that may be around are all fields in the future going to be floating LNG. That is not my view at all; it is not our corporate view either. For Ichthys, you pointed out the condensate. The concept that we selected, with an FPSO offshore and an onshore processing plant of a more traditional LNG design, suited the characteristics of that particular field. I guess also an important point of distinction to make is that each field is different; each project is unique in that sense. For Ichthys the concept that we selected was the best fit-for-purpose, I guess, at the time, and today I do not see any reason why our thinking would be any different on that. We are happy with the decision that we made.

The CHAIR: Did you do some calculations in there of if it had been FLNG, how much you would have left behind?

Mr Townsend: Because of the way of the timing and because of the up-front decision to use proven technology and our decision to develop it in a conventional manner, if you will, we have not done those calculations. It would be speculation, but there is no reason why we would spend any time doing that type of calculation, because it is not something we ever contemplated. We did not calculate it then; we are not contemplating it now. It would be just an academic exercise really.

Mr P.C. TINLEY: Could Prelude or Concerto have been developed using your Ichthys plant, given the locality of your retention leases inside a mega, mega field called Browse? Was the option of using your pipeline considered?

Mr Townsend: That is actually a question for Shell in the first instance because, if I could highlight, Inpex farmed into the Prelude project one year after they had made a final investment decision. Their final decision on Prelude was in 2011. The concept had already been selected as floating LNG at that point. Inpex's involvement in the project was in 2012. By that point, of course, the concept of floating LNG had well and truly been finalised. So, we were not a party to those internal discussions at Shell. At no point that I am aware of were there discussions, however, between us and Shell on sharing that. Again, I guess it is more just thinking through what the process would be had Shell come to us. We are developing the Ichthys field. As I pointed out earlier, these developments are huge in the first instance and they are very complex. The engineering is specific to the fields and pressures. There are a lot of very specific and unique factors that go into the engineering of these big, mega projects. Had Shell wanted to jointly develop, or develop through the Ichthys project, that would have required going back to the drawing board, restarting the engineering, resizing all of our kit effectively, and I have no doubt it would have led to a delay beyond 2014–2016. You can see where it is headed with the timing again, so you start losing the market window. It is putting additional complexity into an already complex process in the first instance, and that is just on the technical side. There would have to be commercial arrangements put in place, which can be in some instances even more daunting, if you will, than the technical side—just the commercial arrangements between two joint venturers.

Mr P.C. TINLEY: So, commercially it is quite a busy piece of geography, if you like, with all the different players in there. Can you make some comment on what was the motivation for Inpex to invest in the Prelude project?

Mr Townsend: In Prelude, yes, definitely. As was highlighted earlier, we are developing the Abadi field in Indonesia. Initially we had a 100 per cent stake in a discovery and we had decided to develop that as a floating LNG project. Shell is globally renowned as being a world leader in floating LNG technology, so partnering with Shell on the Prelude floating LNG project gives us entry, if you will, into the world of floating LNG, and this innovation will be able to build that bridge in Abadi. I guess I should also highlight that Shell has subsequently farmed into the Abadi project, so they are now our strategic partner, if you will, in the Abadi project as well. I guess it is really the technology and their expertise in that area that affected us to invest in the Prelude project.

[9.40 am]

Mr F.M. LOGAN: Bill, given the length of the pipeline connecting the Ichthys field to Darwin and the complexity of it as well, because I understand it is a very complex process laying that pipeline where it has to go from deep water into Darwin, why did Inpex choose to go to Darwin when they could have had a much shorter pipeline and possibly have been a first mover–investor into the Browse development onshore, which may have helped make a different decision by Woodside and its joint venture partners to go ahead with Browse onshore?

Mr Townsend: Okay. There are sort of two points to make here. First, on the pipeline itself, just a point of correction, I suppose, it is not our view that the pipeline itself is complex and difficult. The water depth at the Ichthys field is about 250 metres, which is not significant in oil and gas terms. The seabed between the field and Darwin is benign and sandy. There are no particular geographic constraints to it, and the pipe-laying process is conventional and well understood, so for us that is not actually a major concern and never was. So, with the pipeline itself there are no issues are there and no concerns.

To deal with James Price Point, that answer is actually a very simple one. For onshore developments there is one critical component, and that is land and access to land. In 2008 when we were looking at options of where to develop the Ichthys field, the closest onshore location suitable for LNG development was Darwin. That is a very simple fact. The fact is that today we would not be out to make a final investment decision on James Price Point because there is still no certainty over access to land for LNG projects. So that is a very simple answer, I guess, but access to land is

critical for onshore LNG developments and there is still to this day no land available in that part of Western Australia that would enable a final investment decision of the magnitude required for LNG projects. Furthermore, the design criteria for plants require that land certainty up-front, so it is not like at the end of the process you design a plant and hope that the land will be there when you need it. You really need, in order to spend the hundreds of millions of dollars required, in the front-end engineering and design phase even before a final investment decision is made, that land certainty; it is essential. We supported the WA government's Northern Development Taskforce. I was personally involved with that. We supported the concept of a hub and we have always maintained that we would consider the hub, if and when it gets developed as a location for onshore LNG development, but that the timing was not suitable for the Ichthys field. And that has proven to be the case. We had a final investment decision on Ichthys, as I said, in early 2012. We would not have been able to make that decision at any other location and we certainly would not be able to make that decision today at James Price Point.

The CHAIR: Did the Territory government give you any useful incentives to build in the Territory?

Mr Townsend: The Territory government has been extremely cooperative, of course, in this process and they invited us to develop there. I was one of the first Inpex people—in fact the first—to go to Darwin when they had proposed the development opportunity in Darwin Harbour. I remember being in a meeting room at NT House in Darwin overlooking the harbour. In the meeting they pointed to the land that the NT government had already identified for Ichthys, which you can see from the CBD. They said, "That land is down for industrial use. It is Territory-owned land. It is close to all the infrastructure required. There is a working harbour. There's roads, power, water, electricity." So they did not do many things beyond just showcase what is available in Darwin. Of course, there is an existing LNG plant already in Darwin, and we are an investor in that as well; we are an 11.37 per cent investor in the Darwin LNG plant. The NT government has been extremely supportive but they have not done anything special for Ichthys that they would not do for anyone else.

Mr J. NORBERGER: Bill, just to maybe unpack something here with you, I understand the original decision for Ichthys, how the FEED and all that pre-dated what you believe would have been a time where FLNG would have even have been an option. I followed that question up and basically said, "Look, if you had your time over again now and you looked at Ichthys afresh, would FLNG be an option now?" You were fairly resolute in your answer, which was no. I just want to unpack that a little bit. The capex, as I understand, for Ichthys as it stands now, pipeline and all to Darwin, is around $34 billion, if I am not mistaken.

Mr Townsend: That is correct, yes.

Mr J. NORBERGER: These are crude figures. I am not a master planner. We know, as you would know as well with your involvement with Prelude, that Prelude is a single FLNG vessel; you are looking at about $12 billion capex, even if you needed two of them to maybe match the tonnage output per year. So even if you needed two floating LNG vessels to perhaps mimic your output from Darwin, you would be coming in at $24 billion, which is one-third less than what you are looking at now. I just want to revisit why you were so resolute to discount that. I know you mentioned proven technology. Do you see sufficient risk in the unproven technology of FLNG for that to be worth foregoing a $12 billion capex discount potentially?

Mr Townsend: First of all, it is easy for us to sit here and say that developing it as a floating LNG project will save $12 billion. I personally do not believe that that is the case. If that were the case, certainly, it would make it an attractive option and one to be considered, but I would be extremely surprised if these reservoirs could be developed at the capex that you are describing. I would put that out there in the first instance. The second is that we are a relatively new operator. In view of a project of the scale of the Ichthys development, we made a very conscious decision that that would

be done with proven technology and that is a decision that we stand by today, so in that sense that is why I can be quite resolute on the side of floating LNG. Again, each project is different, but we mentioned the condensate. I do not know all of the challenges for processing on an FLNG vessel, but we are talking very sizeable condensate reserves in Ichthys. Yes, just the nature and the scale of the reservoirs mean that I think still today we would not change our decision.

Mr J. NORBERGER: I appreciate that. Just one quick follow-on, if I may. Within your submission you have made note, probably more so than some of the other submissions that we received, about the importance of corporate social responsibility within the oil and gas industry and, obviously, your commitment to it, I suppose. You are obviously employing a fair bit of people in Darwin and in WA with what you are doing. So, your corporate social responsibility is fairly important. I just want to seek your opinion on something. If you had a project which is commercially viable or profitable and capable of being developed on land but you had the option of developing it by FLNG as well—FLNG yields a slightly higher rate of return—and if you go with FLNG, does that put you at odds with corporate social responsibility?

Mr Townsend: No, it does not. No is the short answer.

[9.50 am]

Mr J. NORBERGER: If you are happy, a short answer would do because we have got a heap of questions. Are you okay with that, or did you want to talk about it a bit more?

Mr Townsend: I am at your disposal.

Mr J. NORBERGER: We might come back to that issue again, anyway.

Mr R.S. LOVE: You mention before that Shell had taken a position on your other —

Mr Townsend: Abadi, yes.

Mr R.S. LOVE: — Abadi field and you had moved to be involved in Prelude, presumably to get some sort of experience on FLNG. How do you see Shell's position in this? Are they literally the providers of off-the-shelf FLNG technology that a company such as yours will just simply deploy at will to various sites around the world? Because in talking about some of the designs around LNG plants, it sounds like each plant is somewhat bespoke; it is designed specifically for that field. Is that same sort of approach likely to happen in the floating technology or is it going to be much more adaptable or much more portable, if you like, and suitable for a wider range of fields?

Mr Townsend: So the decision to partner with Shell was exactly as you said. They are a global leader. They are renowned in the industry for innovation and technology, and that is true with floating LNG as well as in LNG more generally and in other areas of oil and gas. To deal with the off-the-shelf, I guess, nature of floating LNG, every field is unique and every project is different from a development standpoint. So while there can be commonality and, I would expect, synergies between different floating LNG projects and platforms, I would expect that each one will have unique characteristics. But to the point, I also would expect that there are some synergies to be gained, and Shell has the known stated strategy of "design one, build many", kind of thing, and to tailor it to the needs of each one, so to that extent, I think, that over time there would be some benefit from that replication, if you will. But it is important to stress that each project in oil and gas is unique. Each reservoir is different, and that requires different engineering approaches.

Mr R.S. LOVE: By investing with Shell as a partner, does that give you access to technology in a cost-effective way? Is that part of your thinking?

Mr Townsend: Yes. I mean, the decision to partner with Shell was exactly that; that Shell is a leader in this space. We are a 17.5 per cent stakeholder, so we have got a seat at the table. We are learning as we go, I guess. We have big challenges that we face with LNG. We are simultaneously, in a joint venture with Shell, developing Abadi, which is currently in the front-end engineering and design phase, so that is going through the engineering stage of the study but with a partner who has

done it before, which is of course hugely helpful. I think in my opening statement I highlighted that Inpex has a history of partnering with companies around the world. Total has been a very strong strategic partner of ours for more than 40 years, dating back to the earliest days of the company in the 60s. In Indonesia I mentioned the Mahakam fields. Total is our partner in the Ichthys project. We have been able to leverage their experience both in engineering and project management to deliver the project, so it is the kind of approach that Inpex takes in these projects. Abadi being floating LNG, we chose Shell as the leader and it has experience in that space.

Mr F.M. LOGAN: Thanks, Bill. Can I just come back to the pipeline again? The reason why I am asking questions about it is because of other submissions from other companies.

Mr Townsend: Certainly, yes.

Mr F.M. LOGAN: Can I ask what the expected cost of the pipeline is?

Mr Townsend: That is commercial-in-confidence.

Mr F.M. LOGAN: Can I ask then that Inpex provide that information to the committee but only for the sake of the committee and not for public consumption?

Mr Townsend: Yes, of course.

Mr F.M. LOGAN: Thank you. Therefore, can I just then move on to another question. Would you allow other operators in nearby fields to gain access to your pipeline? For example, would you offer your pipeline as a tolling arrangement, if that opportunity presented itself?

Mr Townsend: In the first instance, we are developing the Ichthys field and our focus is solely at this point on our current development, which is the two-train 8.4-million-tonne LNG development to Darwin. We have, however, designed the pipeline with five connection points along the pipeline with that very concept in mind; that either a third party can gain access or that we have our own discovery and we would be able to tap into it ourselves. Yes is the short answer I guess to that.

Mr F.M. LOGAN: Can I also ask about the expected overall numbers that would be employed on the Ichthys project offshore/onshore overall, because I do not think that was in your submission?

Mr Townsend: No, perhaps not. The overall numbers—we have roughly 300 on the onshore facilities and a similar number offshore. The typical personnel on board—POB—for the central processing facility, I guess, will reach 150 at any given point in time. I think, from memory, we have designed it so that it has up to 200 on each facility. In typical business-as-usual or operations-as-usual, as you will, I believe that number is around 150 on each facility offshore, the additional numbers being for maintenance, upgrades or ground field work that is being done. So when you have to bring in a larger workforce, there is room for that.

To the pipeline cost, if I could, of course we would be happy to provide that, but I would also like to highlight the point that developing the project in Darwin enabled us to avoid all of those pioneering costs, if you will. So we have not had to build an airport, we have not had to build a power station, we have not had to build a harbour—all of that infrastructure. I think it is an important distinction to say that people look and say, "That is a long pipeline. That must have cost you a heap." Yes, it is a long pipeline but we do not have all those additional costs. That is one point. The other point I make is that it is easy to sit here in Perth and think that the Ichthys field being off the Kimberley coast and James Price Point being in the Kimberley, they must be right next to each other. Well, they are not. A pipeline to James Price Point is still 450 to 500 kilometres of pipeline. When you start to look at the difference there, actually the pipeline difference is not 900 kilometres but maybe 400 to 500 kilometres. The infrastructure difference is significant between not having to build an airport, not having to build breakwaters, not having to build a supply base, not having to put in power, water and a lot of people, and find a workforce.

Mr F.M. LOGAN: Just on the final thing about the workforce as well, that is the operating workforce. What is the expected construction workforce; that is, the whole construction workforce or your peak?

Mr Townsend: At peak, over 4 500.

Mr J. NORBERGER: Just a quick one. Bill, a lot of the submissions we have gotten and we have received, and yours is no different—it mentions words such as Perth being ideally positioned to be an FLNG centre of excellence. You noted Shell's commitment to working with governments and industry to help develop WA into a global centre of excellence for FLNG. We hear that a lot. Can you unpack that? What does that actually look like?

[10.00 am]

Mr Townsend: What I would point out is that Perth is actually already an LNG centre of excellence, in my mind. I guess we probably have not worded it properly. Again, I refer to the point earlier, which is that floating LNG is just LNG that just happens to be packaged a little bit differently. Perth is already globally renowned as being an LNG centre of excellence. By that we mean that there is a critical mass of activity here in lots of spaces focused on developing LNG. Some of that which is obvious is through research and development at universities. There are innovation centres being set up at various universities. In the last week I have been at UWA, I have been at Curtin, I have had meetings at Charles Darwin University. All the universities are very clearly interested in advancing technology and innovation. I see floating LNG as being part of that continuum in oil and gas more broadly. So a centre of excellence has that academic side and the research and development, which is of course laudable, but also there is a critical mass of people, and I guess I am representative of that, who come to Perth and who are attracted to Perth for any number of reasons. But the point is that there are really fantastic and interesting jobs happening here and the ability to contribute to these mega projects. I certainly feel very fortunate to be able to work on a project like Ichthys, and I feel perhaps even more fortunate to be able to do it in a place like Perth.

Mr F.M. LOGAN: Not in Nigeria.

Mr Townsend: Yes, or not in some of the other locations where oil and gas is big. So in that sense, it is easy to attract talent to Perth. There is so much happening here in the LNG space, with not just our project because of course Chevron have their major LNG developments, Woodside is the historical LNG leader here, ConocoPhillips. Up and down the Terrace, there is work being done and there are minds dedicated to advancing LNG. So in that sense, that is what I mean by a centre of excellence. And it is not just the oil companies; it is the service providers who gain expertise in LNG; it is the contractors or the consultants. Even on the Ichthys project we employ 900 people in Perth, as I mentioned, and it is growing every day, but we are also employing and engaging consultancies. Perth is the capital of Australian oil and gas, and it is one of the capitals of LNG globally. I think that floating LNG is just a string in the bow in Perth's favour.

Mr F.M. LOGAN: Thank you.

Mr P.C. TINLEY: Previous evidence has shown us the cost structures that form the assumptions around the business cases right across the sector have had a significant increase over the last 10 years. However, we have noted that since 2011 we have seen and heard evidence about a sharp decline in the cost, so much so that with some projects, including across the regional sector too, not just oil and gas, they have pulled work back and then repackaged it and sent it out for repricing and they are getting a discount from their previous quotes of as much as 20 to 30 per cent. Is that your experience? What is your experience in terms of the costs that underpinned your business case assumptions and the costs that you are finding now?

Mr Townsend: Well, I would love to be able to sit here and say we are seeing costs coming in lower than we expected. This is not the case. What we are seeing is that costs are being managed to

our budget but that it is a challenge to keep costs within budget. I am surprised actually by your statement, because in LNG developments I am not aware of any LNG projects that are coming back and saying, "Oh, the costs are actually going down."

Mr P.C. TINLEY: What is the rate of growth of those costs that underpinned the assumptions then?

Mr Townsend: Well, back to the earlier comment, we are meeting our expected costs but there is not a significant change from what our expectations were. If anything, we are seeing upward pressure on costs, not downward pressure. To manage costs we have done a number of things. One was, as I mentioned earlier, that front-end loading, which is getting the design right up-front and doing the thinking ahead of pulling the trigger, if you will, on a final investment decision; spending the time getting the engineering work done, so that when it comes to the time to actually construct the project, you are not having to do significant additional engineering work. That is one aspect. Another is assembling a highly experienced project management team, so for the Ichthys project we have recruited some of the best talent in project management in global oil and gas. The contracting strategy includes, I think, a 70 per cent or so lump sum, so in that sense, we have locked in some of the pricing to a large degree.

Mr P.C. TINLEY: De-risked.

Mr Townsend: Yes, de-risking it in that way. Using the proven technology is also a way that we have been doing it so that you know there are not really surprises in engineering.

Mr P.C. TINLEY: Just going back to the skills of workforce planning, we talked about a centre of excellence, and your comments are noted, but we cannot be doing it all right. So what in your opinion is the state of Western Australia not doing or could be doing to maximise the advantage, particularly in the skills area, for the Western Australian economy, and in that I am talking about jobs? What are we not doing right?

Mr Townsend: In the skills area? I think WA is doing pretty well in the skills area actually. The Challenger ACEPT is a very well-respected program I think by the industry, so in that regard I think that WA is doing well. I do not have a specific suggestion for the skills area.

Mr J. NORBERGER: Just on the Ichthys project, where are you getting the offshore components built for that now?

Mr Townsend: For the subsea production system, there is contract to GE Vetco out of Aberdeen. We also have a contract with McDermott, principally out of Indonesia. It is a US company, but Batam is building the riser support structure. The FPSO is being built by Daewoo in Korea. The central processing facility, which as I mentioned is the world's largest semisubmersible platform, is being constructed by Samsung Heavy Industries, also in Korea. The 42-inch-diameter pipeline is all produced. It is rolled both in Europe, in Germany by Europipe, and then in Japan. So that is the offshore components. In all of that there is no capacity in Australia to do any of that work; in particular, those very large offshore structures like the central processing facility and the FPSO. There is really only a handful of yards globally, and I guess the same will be true for FPSOs. Perth is the centre of excellence for LNG. Korea is the centre of excellence for shipping and shipbuilding. That said, a lot of the engineering work for the shipping is not done in Korea; it is being done elsewhere, including here in Perth. So even though it is not being constructed in Australia, there are engineers working on these projects and working on the design, either in Australia or elsewhere. Houston of course is a major centre.

Mr F.M. LOGAN: Following on from that, Bill, and linking back the comments you made about Perth being the centre of excellence, the question from Jan and also the questions from Shane about work being done here and what Perth is as a centre of excellence, it is certainly a centre for oil and gas companies that are establishing here to exploit resources. But coming back to your comments about where the various components for the Ichthys project are being made and Perth's capacity,

GE have their centre of engineering here for the whole of the Asian area, as you well know. There are many, many subsea companies, like Cameron, FMG and others, that are all well-established here, and there is work being undertaken on subsea Christmas trees, various risers and various other components here in Perth right now, because one of the things that governments of all persuasions have been trying to do is actually capture as much of that work as possible, even though WA does not have the shipyards of South Korea. Why is the work being done in Indonesia for the subsea work when it could be done quite adequately here?

[10.10 am]

Mr Townsend: Maybe I misspoke or it was not properly understood what I meant about the work being done in Indonesia. GE is a major supplier of ours. I met with them even this week. Of course, the Jandakot facility is going be supporting the Ichthys project. The actual work that is being done in Indonesia is specific work. One is to build the riser support structure, which is being built at Batam, and that is a massive structure that sits on the seafloor for the project's life. The umbilicals and risers are draped over it. To put it into perspective, that facility is bigger than the building we are in at 100 St Georges Terrace, which is 22 floors high. It is a big structure. We have, as you might be aware, entered into industry participation agreements both with the NT government and with the Australian government, and that includes a commitment to local content to ensure reasonable opportunities for Australian companies to win work, and Australian companies are winning work and Western Australian companies are winning work on the Ichthys project. I am aware that through our IPP reporting today we have flagged more than $3 billion of commitments to Western Australian companies in the construction phase of the project. I am sure others who have been before you have likely highlighted as well that it is one thing to focus on the construction phase, but the opportunities for Australia are really multigenerational. These projects have lifespans; I mean, the first two phases of Ichthys alone have an expected life of 40 years. So year in and year out our spend on the project is very significant; it is in the hundreds of millions of dollars every year. It is reasonable to expect, and history shows that with the North West Shelf and Gorgon LNG, and Pluto I am sure will be the same, that a large percentage of that, higher than in the construction phase, can be done and is being done by local companies. So when we think about local content in LNG, I urge you to take the longer term view, which is again decades long. It is not infinite but in 100 years there will still be facilities that are on the drawing boards today.

The CHAIR: I have two quick ones. Some companies have indicated that approvals may lead to project delays, and it is one of the issues where people are obviously hoping that the new federal government and state governments will work together better. Inpex had early experience with approvals, particularly with floating facilities. Do you see project risks with approvals for FLNG being difficult, particularly in the areas of environment and safety?

Mr Townsend: Approvals is an area of course where the industry is keen to work with government on how we can streamline approvals, and that of course includes better coordination between state and federal approvals processes. But that is sort of apple pie and motherhood, if you will; you would expect me to say that. For offshore, the environmental aspect of floating LNG, I actually would expect the opposite in the fact that the environmental approvals should, in my mind, be easier than a more conventional one, which has frequently sensitive coastal environments to deal with due to its nature and the footprint you have onshore. So in that sense, I would expect the floating LNG to have an easier, in some cases, environmental approval process.

To do with safety, any time that you are the first of anything the regulators are going to be keen to understand what that technology is, and they will be right to take the time. I am sure that companies appreciate that governments have a role to play in regulating oil and gas and making sure that we are meeting the expectation of the government in terms of safety. Our top priority, not just as an industry but certainly at Inpex, is safety of our personnel and of course all people, so we strive to do things to the highest standard in consultations with various people and an engagement process

which is a structured approach. We have done it with the department of mines and energy here as well. We go through a process where we talk about expectations in different areas, but one of those is health and safety and the environment. I was interested, when we have done that engagement with our stakeholders, to find that most of our stakeholders responded by saying, "Oil and gas is the most highly regulated industry in terms of health and safety." We are satisfied with the amount of regulation that is in that space, and we believe that Inpex by complying with existing regulations will meet their expectations.

The CHAIR: Okay. The other question was: buying a stake in Prelude—will that be beneficial for you to gain a better insight of how FLNG works?

Mr Townsend: Yes, that was at the very heart I believe of that investment—access to floating LNG technology and access to developing floating LNG technology. It was a strategic decision by Inpex to partner with Shell in that particular project to enable us to get a seat at the table and insights into floating LNG, particularly in that we are developing the Abadi field, which is operated by Inpex as floating LNG.

The CHAIR: Thank you very much. I would like to thank you for your evidence before the committee today. A transcript of this hearing will be forwarded to you for correction of minor errors. Any such corrections must be made and this transcript returned within 10 days from the date of the letter attached to the transcript. If the transcript is not returned within this period, it will be deemed to be correct. New material cannot be added via these corrections and the sense of your evidence cannot be altered. Should you wish to provide additional information or elaborate on particular points, please include a supplementary submission for the committee's consideration when you return your corrected transcript of evidence.

Hearing concluded at 10.18 am