

**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 TWO**

**Members**

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

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**Hearing commenced at 10.33 am****Mr ANDREW SMITH****Country Chair, Shell in Australia, examined:****Mr STEVEN PHIMISTER****General Manager, Shell in Australia, examined:****Mr IAN GROSE****Commercial Manager, East Browse, Shell in Australia, examined:**

**The CHAIR:** Good morning. 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 a floating LNG. 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 the other members of the committee present today. I am Ian Blayney, the member for Geraldton; my Deputy Chair is Hon Fran Logan; and my other committee members are Jan Norberger, Peter Tinley and Shane Love.

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, which therefore commands the same respect as the 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 the Parliament.

This is a public hearing and Hansard is making a transcript of the proceedings for the public record. If you refer to any documents during your evidence, it would assist Hansard if you would provide its full title for the record. Before we proceed to the inquiry's specific questions we have for you today, I need to ask you the following: have you completed the "Details of Witness" forms?

**The Witnesses:** Yes.

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

**The Witnesses:** Yes.

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

**The Witnesses:** Yes.

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

**The Witnesses:** No.

**The CHAIR:** Thanks very much. Do you have a short statement for us?

**Mr Smith:** Yes. Thank you, Mr Chairman. If I could make a couple opening remarks and then leave it to you as to how you would wish to develop the committee's discussion. By way of introduction, my name is Andrew Smith; I am the country chair for Shell in Australia. With me are Mr Steve Phimister and Mr Ian Grose who first appeared before the committee on 26 June. My

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previous role in Shell was as the head of the downstream business based in Melbourne. I moved here into this role in June of this year.

Mr Chairman, if I could say, Shell hopes the committee's inquiry will widen the public debate around the benefits of floating LNG technology, which we see as a key enabler to keep Australia's LNG sector competitive in the short, medium and long term. In Australia, Shell is a major investor in the energy sector, principally in LNG. We were a foundation investor in the North West Shelf; we own 25 per cent of Gorgon; we have stakes in Wheatstone and Browse; and of course we are the largest equity holder and operator of the Prelude floating LNG project.

At Shell we deliberately invest in innovation. This starts at the very front end in partnerships with universities and other institutions, and continues right across the chain looking at continuous improvement in even our oldest operations. At Shell we are proud of our record of innovation in the energy sector. Shell's firsts include, the first base load LNG plant; the design of the first air-cooled LNG trains—indeed, they were on the North West Shelf; and our dual refrigerant process, which has improved the efficiency of LNG production.

Innovation is fundamental to Shell's success, but the importance of innovation is not limited to Shell in the oil and gas industry. It is also a critical factor in the ongoing development of society. This brings me back to floating LNG, which is what we are here to discuss today.

There has been a debate about floating LNG here in Australia regarding its role and attributes. In our view, FLNG will contribute materially to the Australian LNG sector and to the Australian and Western Australian economies. It will help our industry remain cost competitive against increasing competition, and to capture Asia-Pacific LNG market opportunities against strong competition.

Western Australia has an opportunity to capture significant and lasting benefits from the growth of floating LNG. Many of the resources that have been identified as suitable for floating LNG are off the state's coast. Perhaps, more importantly, the establishment of what is likely to be the world's first floating LNG development, Shell's Prelude project, means WA will be a world leader in floating LNG operations. Floating LNG will bring thousands of jobs to the Western Australian and Australian economies. Shell expects that Prelude will have a local content component of around 70 per cent during its operations. For Australia, we expect Prelude will create 350 direct and around 650 indirect skilled jobs; it will add more than \$45 billion to Australia's GDP and will spend \$12 billion on Australian goods and services.

The potential long-term benefits of multiple Australian FLNG developments for national and state economies are considerable. Three FLNG facilities operating off the Western Australian coast could generate between 1 000 and 1 500 direct jobs and between 3 500 and 4 700 indirect jobs. Shell has already established Perth as the hub of the company's floating LNG operations for Prelude. We have our project headquarters here in Perth, employing more than 500 staff, which will increase towards 1 000 over the coming few years. We have established Broome as the aviation and marine support centre for Prelude's drilling program.

During operations, Broome will continue to support our aviation requirements. Broome will be the home port for the vessels that provide emergency support and tug services in the field. In addition, we have recently announced the world's first floating LNG operations training program with the Challenger Institute at the Australian Marine Complex at Henderson, which will train more than 200 technicians to work on a floating LNG. For some time, Shell has been working with local universities and industry partners to build local capacities to support floating LNG operations.

Our industry is facing more competition than ever with new sources of low-cost supply competing in our traditional Asia-Pacific markets, particularly from Africa and North America. FLNG is a direct technology response to those market conditions, alongside other industry actions—such as, modularisation and lean construction. Shell's floating LNG is a mature design with more than 2 million man hours invested in research, detailed design development and integration of existing

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LNG technologies. Shell's standardised floating LNG design focuses on safety, robustness and high availability to enable continuous stable LNG production. The design has gone through extensive testing programs and simulations to ensure its safety throughout all weather conditions, including cyclones. Safety and reliability is on a par with modern offshore oil and gas facilities.

Floating LNG will not be the best solution in all cases; but it is clear that floating LNG has an important role in the development of Australia's gas resources right now. In many cases, the choice will be to develop with floating LNG or not to develop at all.

Finally, Mr Chair, Shell is committed to working with state and federal governments, other industry players and major institutions in the further development of Perth as an LNG hub, establishing a competitive edge so that WA can develop skills and knowledge that may also be exported to the international oil and gas business. FLNG represents an excellent opportunity for WA to do just that—whether it is training, employment, supply chain and support services or technology development.

Thank you, Mr Chairman. We are happy to discuss our submission and any other questions the committee may wish to raise. There may be areas that are commercial-in-confidence. I would prefer them to be dealt with in camera or closed session but would seek your guidance on how to deal with those issues.

**The CHAIR:** What we have decided is that we would like to just start our hearing and ask questions. Questions that you wanted to be treated as commercial-in-confidence, we would like to put aside so that we will then have to clear the public gallery, I am afraid. Then we can look at those questions. If that is okay, that is how we will proceed.

**Mr Smith:** Absolutely, yes.

**Mr F.M. LOGAN:** Shell is an operator and investor—that is, an operator in Prelude field and an investor in the Browse field. It has been stated on many occasions that FLNG is appropriate for stranded or remote gas fields. In fact, Shell representatives said that themselves early on in the development and proposals for Prelude. Why is this argument now changed to include mega-fields, such as Browse, being developed by FLNG?

**Mr Smith:** Clearly, we look at every—every project is different and the circumstances are different. We do not believe that floating LNG will be the only solution. We believe that it adds to the diversity of options. Clearly, floating LNG allows for a significant cost reduction; we expect something like 30 per cent. And in the case of Browse, it made the difference between a project that would not be economically viable and a project that we trust will be economically viable.

**Mr F.M. LOGAN:** So from what you are saying, Andrew, the argument has now changed from upstream players using FLNG for remote stranded fields to using FLNG on all occasions when it is commercially viable?

**Mr Smith:** As I said, every project is different and each project will be looked at on its own merits. But the reality is that competition has increased for the markets that Australian LNG has traditionally supplied. Costs have increased, and we need to address those issues to remain competitive. Floating LNG is one of the ways that we can address those issues and remain competitive.

**Mr F.M. LOGAN:** Or, as you also stated in your submission, those fields probably would not be developed at all?

**Mr Smith:** Clearly, every project is going to be different and they need to be looked at individually. In the case of Prelude, our floating LNG was clearly the best way to develop it.

**Mr F.M. LOGAN:** But just coming back to your submission and the statement you just made to the committee, in some cases it will be the use of FLNG or no development at all?

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**Mr Smith:** In some cases, it will be that we will always look for ways to develop, we will look at different opportunities, and in some cases it will be floating LNG or the gas will remain in place.

**Mr F.M. LOGAN:** Just a final question: do you think, Andrew, that the federal and state governments should put that to the test and take the field back and put it out to market to see whether another upstream company would develop it?

**Mr Smith:** Look, we have ongoing discussions with governments around conditions, and the way that we develop fields is done in agreement with governments.

**Mr J. NORBERGER:** You stole my question!

**Mr F.M. LOGAN:** Sorry, mate.

**Mr J. NORBERGER:** We need to coordinate better! Where was the coordination?

Gentlemen, thanks for coming. From the outset, just very quickly, I want to say that there is an element of where I actually want to commend Shell in many respects in regard to the technology that you are developing. I think what we have heard from a number of industry players and situations that there are well and truly some fields out there that, because of their location, because of their make-up, that this technology will no doubt allow us to unlock those resources that otherwise may not be unlocked. In that regard, there is no issue.

Where it becomes a little bit more contentious is where we believe it is being applied in lieu of another viable land-based option, admittedly to yield a higher return, but potentially it comes out of costs of local employment, local content; at state level—because that is what we are looking at as well—royalty income. No doubt you have heard within the media as well, some information that we received was that the James Price Point land-based development was profitable: i.e., it was not going to lose money; it had a rate of return. The information we have is that obviously by you implementing an FLNG solution you will yield a higher return, so you will make more profit.

[10.45 am]

I suppose the real question is, if FLNG technology had simply not been an option, be it through policy or the technology was not ready, or it never even existed in the first place, if your only option was to do it at James Price Point on land because FLNG did not exist, would you have looked upon James Price Point favourably? Would you have still gone ahead with it, given that it still had a positive rate of return within a few percentage points of the rate of return for FLNG?

**Mr Smith:** Thanks for the question. Let me be clear: our view was that James Price Point onshore development was not economic. We do not recognise some of the numbers that have been put around the economics of an onshore development, and in a commercial-in-confidence discussion we would be happy to share more. Woodside had independently done work to get the James Price Point option to work, and spent around \$2 billion in those studies in around four years, and that showed that it was not economic, and the joint venture partners independently looked at that and agreed. We do not recognise the numbers that have been shared around, but we would be very happy to share our numbers on a commercial-in-confidence basis. I would also say that when you are making decisions around projects, there is a variety of factors, other than just one number, that go into that valuation.

**Mr J. NORBERGER:** I agree. Just by way of a very quick follow-up, I know that every project is different and every project has to be looked at on its own merits, but you have got other companies, and we have had Inpex in here prior, which is spending \$36 billion federally and on a smaller field with a lower production output. So it is only \$8 billion—I know it just rolls off the tongue, admittedly—shy of the projected capex for James Price Point, which is in a much larger field. Certainly, the information I have had was that the budget for James Price Point was \$42 billion. If that has changed, I am happy to be corrected. But that being the case, as Fran has indicated, we are talking about a mega field and the opportunity for, I would say, higher output as well. When I asked

Impex whether it had considered FLNG, it just did not want to go near it. I know that that is different, and they were quite adamant that it was unproven and that it was a fact that they want a proven technology. But you are looking at a capex that is not completely diametrically opposed. It is lower than what we would have looked at at James Price Point, but you have got a much larger field. I know you are saying it was not economical, but would it be fair to say that, obviously, each company has its own appetite for risk, so what your joint venture might deem commercially unviable may not in fact be deemed commercially unviable for another operator.

**Mr Smith:** Okay. There are quite a few points that I would like to mention there. I guess the first one is that some of the numbers that you mentioned are very, very different from how we would see the numbers, so we really would look forward to the opportunity to share the details with the committee on an in-confidence basis. Secondly, different companies have got different levels of technology. Floating LNG is a technology that we have been actively developing for 15 years. Our view is that it is about putting together well-understood technologies into a new format. So we are very confident around the operation of floating LNG; of course we are. We are investing tens of billions of dollars here. We need to be very confident. So, clearly, when different companies look at field development plans, they have got access to different technology, and different people will look at it in different ways, though I would come back to the fact that all of the companies in the Browse joint venture did their own evaluations on the basis of the work that Woodside had done. Remember, they spent \$2 billion doing that work—it is a considerable amount of work—and everyone independently decided that it was not an economically viable option, and we would look forward to sharing more details with the committee.

**Mr J. NORBERGER:** Sure. We appreciate that.

**Mr P.C. TINLEY:** In your Shell submission and in your opening remarks, you mentioned that WA would become a hub for the global LNG sector, if indeed it was not already. You talked about the many years and many hours of design into FLNG technology, but that design work for Shell's FLNG was not done in Western Australia. Given this, in Perth, how are we in a position to become this hub that you talk about? In particular, I am talking about skilled jobs as we move more towards a knowledge-based economy—a service sector developed economy. We know from other evidence both here and in other inquiries that if you are not involved in the design of some of these projects, it is very difficult to get involved in the construction of these projects, and it becomes a disadvantage at times to be involved in the through life support of these projects. So if you are involved in the design, the procurement decisions come from that. We did not design it here; what is in it for us?

**Mr Phimister:** Thank you, Mr Tinley. Yes, it is a very important question, I believe, around the future of Perth in this area. First, we should really look at the scope, so in the case of Prelude FLNG, we have said quite clearly—and we are in the contracting phase right now for the operations and maintenance phase—over 200 contracts over \$200 million every year of local expenditure in the operations and maintenance phase. That would go into all of the work to support the operation of the facility itself and its maintenance and supply basis, logistics et cetera. If you upscale that, if there are multiple FLNGs off the coast of WA, you can then see the extent of work and jobs and expansion that would occur predominantly in Western Australia. So, like many other oil and gas companies, our experience shows, and we subscribe to the point, that local businesses are well placed, if not best placed, to support the operation and maintenance phase. What does that mean? It means that when you have a facility—a multiple facility—sitting out there, there is a significant amount of work day in and day out to support them and maintain them. That includes engineering and other maintenance activities; technicians, electrical and mechanical; welding and whatever. There is a significant level of maintenance activity around multiple facilities.

If I may just point for a second to other experiences we have seen that I am sure the committee will have looked at globally. Particularly in Europe and the US, you see good examples of environments

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that have gone through a similar process, where innovation technology has come in and it has caused a bit of an upset for a while. Those environments, through industry and government and also tertiary education, because it starts back in the grassroots innovation, have kind of harnessed that, grabbed it, found a way to make it their own, and built up an environment—they call it clustering or hubs—and invested in that, whether it is through incentives or investment directly in the technologies, and they are now exporting that capability. It takes a long time. I think we have to acknowledge that. It can take many, many, many years to develop that, but I do think that we have a golden opportunity here to do something similar.

**Mr P.C. TINLEY:** A quick follow-on, if I can: you are probably well down the track of your workforce planning and the skill sets identification and so on. How many, if any, do you see of those skilled jobs having to be imported by either 457 or some more permanent structure?

**Mr Phimister:** If I may follow on, in the case of Prelude, where we are more advanced in manpower planning, we are looking at roughly 350 people directly involved in the operation and maintenance on the facility or the supply, and 650 supporting through the supply chain and maintenance and so forth. We estimate that about 80 to 85 per cent of those would be skilled work, so that is probably only 10 per cent at tertiary university level, but 70 to 80 per cent at a level of skill that requires qualifications, so they may be technicians, welders and the like, and our current planning shows something in the order of 70 or 75 per cent of those jobs based here in WA.

**Mr P.C. TINLEY:** So it is 70 or 75 per cent of what—of the 350?

**Mr Phimister:** Of the total.

**Mr P.C. TINLEY:** Based in WA.

**Mr Phimister:** Yes.

**Mr P.C. TINLEY:** But sourced from Western Australia or sourced from skilled migration programs?

**Mr Phimister:** Our current manpower shows very, very few overseas or offshore skilled workers.

**Mr P.C. TINLEY:** How few?

**Mr Phimister:** Maybe 10 per cent.

**Mr P.C. TINLEY:** Maybe—is it the high end or is it the low end?

**Mr Phimister:** Ten per cent is an approximate figure. For the majority, as I said—70 or 75 per cent—we see the capabilities within Western Australia and the balance from interstate.

**Mr P.C. TINLEY:** Okay. Of the 10 per cent that you would have to import from various places and/or through different mechanisms, what sort of skill sets are they?

**Mr Phimister:** They may be more related to the specialised equipment, or any specific specialised equipment.

**Mr P.C. TINLEY:** Like turret maintenance or —

**Mr Phimister:** Yes, for example.

**Mr P.C. TINLEY:** What plan do you have to transfer that knowledge to Western Australia?

**Mr Phimister:** We have put in place already a training program specifically for operators and technicians for Prelude FLNG—I think Andrew referred to it in the opening—down at ACEPT. We expect 200 to 300 technicians and people to go through that facility. What we can see is a knock-on or follow-on from that. It spins out work and training will build around that. We are involved with a number of the major institutions on the innovation side and in employment and training, so the likes of UWA, Curtin and CSIRO. So that gives you an opportunity and basis, as you grow and as you decide where the key work needs to be and the key competencies, to grow a base and a facility to train these people.

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[11.00 am]

**Mr Smith:** Another thing I would highlight is that this project has got a very long life. It will be running for over 25 years and you want a very stable workforce, so you want a local workforce. There is an opportunity to bring competency in through this project, but our interests are around having a local workforce that will work on this project for a long time.

**Mr R.S. LOVE:** I know you have got interests in other FLNG projects that might be developing around the world. In particular, you have chosen Prelude as the first to be developed in this way. How confident are you that the design will work, for a start, when you get out here and running? Is there anything in particular about Australia's taxation structure that makes it a more attractive place to develop a new technology like this with some inherent risk of at least an element of failure or cost overrun?

**Mr Smith:** We are very confident in our technology. As I said, this is a very large project so you would expect that we would be too. The taxation arrangement for projects is the same for all sorts of projects, whether it is onshore or offshore. Australia is a place that is very important to Shell. We have been here for over 100 years. We want to keep investing in Australia. The fiscal regime is one that is important to us. We look forward to having a stable fiscal regime and Australia has been a good place for us to invest and we want to keep investing, but we need projects that are economic and we need the fiscal regime to be stable, predictable.

**Mr R.S. LOVE:** In terms of where you see this heading in the future, do you see Shell as being a primary user or developer of this technology into the future or do you expect others to come in and take those types of technologies and develop them themselves? Where do you see the business model going?

**Mr Smith:** One of our core business principles is we believe in the market; we look forward to competition, because competition is what keeps you sharp. Currently we are the only people who have taken, together with our joint venture partners, an investment decision on a floating liquefied natural gas facility. I have no doubt over time others will come up with their competitive responses. I suspect some people have come along and spoken to the committee about their ideas. Competition is good because it keeps us all sharp and drives innovation and the Australian LNG business needs it because we have this next wave of investment in North America and Africa that will compete for our market so we need to keep sharp.

**Mr F.M. LOGAN:** Just coming back to the investment decisions on Browse. Was Shell encouraged or supported by either commonwealth government bureaucrats or MPs including ministers to proceed with FLNG?

**Mr Smith:** The decision to proceed with Prelude, the project taking FID on, is one that is taken by the partners. We obviously engage with a wide group of stakeholders, but the decision is one taken by the investors.

**Mr F.M. LOGAN:** True, but you did not answer my question. I asked was there encouragement or support from the commonwealth government bureaucrats?

**Mr Smith:** As I said, we engage with a lot of stakeholders.

**Mr F.M. LOGAN:** Of course you do, but I am specifically talking about commonwealth government bureaucrats and MPs.

**Mr Smith:** We talk to many people. We talk to state government ministers and members of the public service. We talk to the federal government. We talk to external stakeholders, suppliers and a wide variety of people and proceeding —

**Mr F.M. LOGAN:** I am sure you do, Andrew, but the question is specific to one group of those people that you talk to.

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**Mr Smith:** Clearly, I have a lot of discussions with a lot of different people and they are private discussions.

**Mr F.M. LOGAN:** Maybe we will talk about it in camera then.

**Mr J. NORBERGER:** At the core of our terms of reference is identifying the impact of FLNG. We know that certainly within the construction phase there is no dodging the bullet; there will be a difference between the two models. When we spoke to Woodside, Mr Cole indicated that under an FLNG model for Browse, there was an estimation of around 1 000 direct jobs during construction. So, we are talking the construction phase, not the operation phase. So, given obviously there would have been advanced modelling done for James Price Point—in fact, you mentioned \$2 billion was spent just on evaluating it—are you able to advise the estimated man count for construction for James Price Point? Also, are we able to have that in dollar terms as well? Under FLNG how much money are you spending on local goods and services versus if James Price Point had gone ahead; not just a head count but whatever sort of dollar amount would have been spent on local goods and services.

**Mr Smith:** I guess the first thing I would say is that if the Browse development had had to be James Price Point, there would have been no jobs in construction because there would have been no project.

**Mr J. NORBERGER:** That comes back to my first question. If FLNG had not been an option and clearly James Price Point or land-based development was not viable, would that have meant you would have given up your leases?

**Mr Smith:** It is a hypothetical question; I cannot answer that. But in answer to other parts of your question, around the construction jobs for floating liquefied natural gas you were asking for some details there, we know there will be around \$500 million spent largely in Perth around the project management for Prelude with an additional \$700 million spent in Australia for things like wells, subsea, logistics and supply base. That sort of money creates considerable jobs, and that is during the construction phase.

**Mr J. NORBERGER:** Look, Andrew, I do appreciate that you mention that James Price Point got to a point where the investment decision would have been negative, but even so, the modelling that would have taken you to that point would have included a head count. So, just entertain me; even though it would not have gone ahead, what sort of head count are we looking at if it had gone ahead?

**Mr Smith:** I do not want to mislead the committee. There was no economic project. There would have been no jobs.

**Mr F.M. LOGAN:** Can I just follow up on a statement you made just then, Andrew, about the supply base? What was the reasoning behind Shell's decision to put its supply base in Darwin and is Shell considering putting a supply base or even encouraging the other joint venture partners in the Browse project to establish a supply base in Western Australia?

**Mr Grose:** I will take that. In regards to the Browse project, we are very early stages. They are starting the basis of design and Woodside as operator will make recommendations to the JVs around where the supply base needs to be. For the Prelude project, at the time that we looked at it, we needed to come up with a location that could support the maintenance requirements of the FLNG facility. You remember that one of the challenges of floating LNG is maintaining at a distance. So, we needed to have access to industry capability workshops that could do the maintenance-type tasks for the FLNG facility. Darwin gave us that capability because there is already an FLNG plant operating there under ConocoPhillips. On top of that, Darwin has good marine infrastructure in terms of a wharf, spare capacity and regular shipping coming into there with customs clearance. We looked at Broome and although it is closer, that was not the overriding factor in that Broome has a relatively low level of industry capability; it is more of a tourist town

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and likes to be that way. Its wharf capability is quite constricted. It really could do with a second jetty to free that up. So, all on balance, we decided that where we needed to put the plant was in Darwin and that then we can feed the work out to local industry.

**Mr R.S. LOVE:** Just following on from the question that was asked about James Price Point and your statement that there was never an economic project there, I am wondering—I know that we have discussed that you might talk further about those matters later—to what extent did external factors like the complexity of the environmental approval processes, the land availability, the political climate around some of the goings on in terms of that project as opposed to the purely financial costs, influence your view?

**Mr Smith:** Clearly, when you make decision around a project you look at various factors. I think the oil and gas industry and Shell is used to working in difficult environments. Gorgon is a good example of working in an environment with complexities. But, at the end of the day, you have to have an economic project to sort of make it worthwhile for the efforts there. In the case of James Price Point, that was not the case.

Just picking up part of your question there, I am not sure that I would agree that at no point in time was there never an economic development for James Price Point. I think we all need to recognise that things have changed over time. It made sense to stick build North West Shelf train 1 to 3. By the time we got to train 5, modular construction was occurring. Partly in response to cost pressures, to opportunities and so on. Things have changed from there as well. There are additional cost pressures. We have this competitive reality of new sources of supply for our markets. So, what may have once made sense—and indeed the fact that we spent \$2 billion developing the James Price Point project, you do not do that if you do not think you may be able to get an economic project. Things have changed and in our written submissions to the committee there is I think a fascinating chart that shows you how the cost of FLNG plants has changed over time. If you go back to the left-hand side of that chart you see the early projects in the North West Shelf and the cost progression has been enormous.

**Mr R.S. LOVE:** Looking into the future, would you see it being a purely economic decision that would make it more attractive to develop, perhaps, FLNG in larger numbers off the coast, or do you see the simplicity of the decision-making process that when you reduce the scope of the project back to purely at the field and do away with all the necessary approvals and interface with the coast—when you put all those factors together, do you see floating technology as being the only offshore future for Western Australia?

**Mr Smith:** No. I think that floating LNG just adds to the options that will be. I do not think it will be the only way development occurs going forward. I should acknowledge that I do think the reduction in environmental footprint is one of the benefits of floating LNG and there are people in the community who recognise that as well. It is not just the reduction of the environmental footprint. You use fewer resources to build a floating LNG facility. Quite a lot of these gas fields are quite a way offshore so they involve long expensive pipelines. They involve dredging; civil work et cetera. One of the benefits of FLNG is you do not have to do that work.

[11.15 am]

**Mr J. NORBERGER:** Just a quick one. I am looking forward to the closed session when you can talk about some of the costs more clearly. The \$42 billion I mentioned for James Price Point is what is in the public domain at the moment. Obviously, if that is incorrect, I am happy to be corrected. You mentioned in your submission that the FLNG could be about 35 per cent cheaper than that, which would bring it in at around the \$32 billion to \$34 billion mark. Again, you have the exact figures. I am just working with what is available to me, and with my limited mathematical skills that is where I am arriving at. Obviously, Shane did talk about environmental approvals, and you indicated that, very quickly, James Price Point was not viable. We know that environmental approvals have a cost, we know there is a cost in labour and we know you have a cost in your

manufacturing, even if it is done internationally. So how far off in dollar terms, irrespective of the source—whether it was red tape, green tape, local labour costs or international labour costs—was James Price Point from being viable in dollar terms?

**Mr Smith:** I think we would be best placed to be able to share our exact view for that discussion.

**Mr J. NORBERGER:** I will just put that on record then.

**Mr Smith:** Yes, that is okay.

**Mr P.C. TINLEY:** You said you have been working on FLNG for 15 years in an active sense—probably that has ramped up in intensity as you have got closer and closer to refining it—and it has taken two million hours-ish to develop it. What is the estimated cost of that whole investment?

**Mr Grose:** As to the development work over the period, two million hours was spent on front-end engineering design, which is what we referred to in our submission. That is some \$350 million or —

**Mr P.C. TINLEY:** Ish?

**Mr Grose:** — something of that order of investment just in engineering design, yes.

**Mr J. NORBERGER:** Not for Browse, but for your whole floating technology?

**Mr Grose:** No, that was generic.

**Mr P.C. TINLEY:** So that is the base technology?

**Mr Grose:** Generic.

**Mr P.C. TINLEY:** How much of that is going to get written off against this project?

**Mr Grose:** I do not know the details to that. The generic design was done by Shell in The Hague and in Paris—related generic design; they then did a Prelude-specific engineering design, and that would be part of the cost of the development of the project.

**Mr P.C. TINLEY:** My question is—you can see where I am going here—how much has the taxpayer of Australia underwritten the R&D for Shell International?

**Mr Grose:** I do not believe that that is the way you could see it. We have undertaken a research and development and front-end engineering design for a generic FLNG design that is capable of being put anywhere around the world. The extent to which the Prelude project has had to pay to access that technology is part of the cost of building the project.

**Mr P.C. TINLEY:** Sure.

**Mr Grose:** To that extent, it is a normal project design.

**Mr Smith:** If I could just to add that. I think it is worth bearing in mind at this point that our expectation is that the Prelude project will pay something like \$12 billion in taxation. It will generate some \$45 billion of revenues, and we will spend around \$12 billion on Australian goods and services. So I think when we think about what is the economic impact of Prelude, we need to bear that in mind. These are massive sums of money that come to Australia from a resource that would not have otherwise been developed.

**Mr P.C. TINLEY:** Okay.

**Mr Smith:** It does make the development cost seem rather small.

**Mr P.C. TINLEY:** I take your point. We keep working around the assumption that this field would never, ever have been developed if it was not developed through FLNG. That leads me to the point that there is a bias within Shell to actually, after 15 years of developing a technology, see it deployed, and the guinea pig is Western Australia.

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**Mr Smith:** So when Shell looks at how to develop fields, as you would expect, we consider economics and we need projects to be economically viable. So it is not about, “Oh, which bits of research can I implement?” It is about having economically viable projects.

**Mr P.C. TINLEY:** But if you have spent so long just developing your technology, is there not an overwhelming desire to deploy it? If all you have is a hammer, you will see every problem as a nail.

**Mr Smith:** We have, to use your analogy, many hammers and many nails, and —

**Mr P.C. TINLEY:** We would like to see a spanner here.

**Mr Smith:** We have some of those, too, and, as you can see, we have used them. North West Shelf is the first air-cooled LNG plant; that is just an example of the way we use innovation to create new opportunities. Of course, this is really important for everyone: for us it makes a project more profitable, and it may be the difference between making a project happen at all. It also, by a project being more profitable, means more revenues for government.

**Mr R.S. LOVE:** I was just wondering what Western Australia as a state could do best to take advantage of the floating liquefied natural gas technology and industry as it develops. Where would you see infrastructure investment or government investment or private investment in Western Australia as being best targeted to get that benefit? Particularly where on the coast, for instance, would you think it was most likely that you would like to see some sort of infrastructure investment partnering with the state to drive those efforts?

**Mr Smith:** We do see the fact that the world’s first floating LNG plant will be built off the WA coast as providing a great opportunity for us all to take advantage of. I might get Steve to talk about some of the particular opportunities there. We did make some recommendations in our written submission about things that may be considered. But, Steve, do you want to add any more?

**Mr Phimister:** Yes. To come back to Mr Tinley’s earlier questions around the long-term future and talking about decades, I think the key areas are support for employment and training in the training space, and I would see that in the whole hub or clustering concept. The federal government is already investing through CSIRO in various programs for floating technology research. So through that whole tertiary education and government, together with industry and the supply chain, there are ample opportunities, as well as employment and training people through the whole supply chain. That has worked in many other countries. It has been tried and tested, and those countries are now exporting those skills left, right and centre throughout the oil and gas business. As I said earlier, it takes a wee while to build that up, but you kind of have to have that vision and invest in it. That is one of the key areas I think industry and government can work together.

**Mr Smith:** Keeping Perth a great place to live, because having it as a really attractive place for people to stay and live is really important for driving innovation centres as well. Clearly, that is something the state can really help drive.

**Mr R.S. LOVE:** Regionally, are there opportunities for the people of the regions? I am thinking back to the last question of Woodside—to be fair, it was a while ago—but the Aboriginal people at James Price Point were in the mix in receiving a fair deal of benefit from the development in the Kimberley.

**Mr Smith:** Yes.

**Mr R.S. LOVE:** Do you see the regional areas being able to join in that in any way? And, is there any specific type of activities or industry support that you could see that might facilitate that?

**Mr Grose:** I can only really speak at this point on the Prelude project, and for that we have been undertaking some social investment over the last few years as we have been developing our project. We have been working with Indigenous community volunteers and the David Wirrpanda Foundation, focusing on education, in particular the science focus. We are looking to see where we can find opportunities for Indigenous and those in the Aboriginal community to participate in the

employment for the services industry, and indeed out on the FLNG facility itself in the longer term. But it will take some time; as you know, it is not an easy area to work in, but we have made quite a good start.

**Mr F.M. LOGAN:** If I can just come back to your statements in response to the question by Peter Tinley about taxation. You indicated that the Prelude project will deliver \$12 billion in taxes, most of which is PRRT, and very little, if any, will come to Western Australia. Against PRRT, as you know, companies can write off research and development and various other costs. I think what Mr Tinley was driving at was what, if any, of the R&D costs for Prelude or Browse for example—because you are involved in both—would be written off against PRRT? Can I just take you to a specific example? This is not to do with R&D, but the other type of costs as well. For example, the chair that has been created at UWA into research and development, and the other investments that Shell is making with university research and development, are they going to be written off against PRRT?

**Mr Phimister:** I think the key thing to know is that this development—Prelude I am talking about specifically—is no different to any other oil and gas development in Western Australia, or in commonwealth waters I should say. It is subject to all the same tax legislation and operates in exactly same way. The legislation tells us what direct costs associated with that project are eligible for depreciation reduction, and that is exactly how it will be done. It will be very similar, if not identical, to the treatment of other commonwealth developments.

**Mr F.M. LOGAN:** I am sure, Steven, but I was specifically asking about the development costs, because that was, effectively, the question Mr Tinley was asking. What, if any, of the development costs of either Prelude or Browse would be written off against PRRT; and would those—for example, Shell's investment into the university professorships or —

**Mr Phimister:** I think the direct costs associated with the project are of course eligible in that project cash flow and in that tax regime, so the direct engineering for Prelude, yes. But as it relates to the chair and the others, they are investments by Shell and other companies—because all the other oil and gas companies do similar with the tertiary institutions here in WA at a number of the universities—they are all about investing in R&D and innovation for the good of the future and generating that capability here in WA. I am not familiar with the exact treatment of that, but what the companies are doing and the industry is doing is investing in the future and innovating for the benefit of the future of WA, which will mean new technology, new innovation, new jobs and new work in WA. That, I think, is a good thing.

**Mr F.M. LOGAN:** I do not disagree with you, Steven.

**The CHAIR:** If we are enjoying ourselves, can we go a bit longer? Do you have to be somewhere else?

**Mr Smith:** No.

**The CHAIR:** We do not have to be in the house until midday. Peter, do you have another question?

**Mr P.C. TINLEY:** Yes, probably looking more towards the benefits. The turret around the FLNG technology stays on point on station—it is a one in a 10 000 year event—so basically the design is quite significant. A lot of it seems to centre around the turret—I am happy to be corrected in the technical sense—but it does seem to me that we have the turret being fabricated in Dubai, I think, designed in Paris or Monaco, Europe anyway, and the Middle East. To my knowledge, Dubai has never made a turret before, even for an FPSO—again, I will be corrected on that. Could that turret have been made here in Western Australia?

**Mr Grose:** I doubt it in that that turret is a very large structure of 30 metres in diameter and 150 metres in length, comprising six different modules. It was designed by STM, a worldwide company, and they, as the subcontractor to Technip, looked to where they could fabricate it and had a shortlist

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of a number of shipyard-type sites because it is a significant fabrication. Dubai Drydocks World was the successful tenderer.

**Mr P.C. TINLEY:** Given that we have become a hub of international activity around FLNG—certainly as an early mover—in Western Australia we could see as many as 10 or so of these vessels off the coast into the future with this project and others, Shell technology or not, what strategy, if at all, is there to have those turrets made here and transferred? We do have a common-user facility that has the capacity to do that.

**Mr Smith:** When we look at contracting for things, the three main criteria are capability, cost and safety. They are the sort of three main criteria we will look at across all the areas. I think we need to focus on where we are going to be competitive. Like many companies, we have Australian participation plans, and the guiding principle there is about providing full, fair and reasonable access.

[11.30 am]

**Mr P.C. TINLEY:** So there is no ambition to assist Western Australian industry to build subsequent turrets and/or associated equipment as a deliberate strategy?

**Mr Grose:** Perhaps I could just add that we are participating in the local content round table with government to try to look to where there are further opportunities for Australian industry to participate in projects. But it is not our ambition to develop a turret fabrication facility in Australia; our ambition is to develop a floating LNG facility. But we are more than happy to discuss. We worked very closely with AusIndustry and with the Industry Capability Network to try to maximise local content in the project. We see that, for the next three years, some \$700 million worth of work is going to flow to Australian companies delivering for the project in subsea, logistics, supply base, wells, drilling and so forth.

**Mr F.M. LOGAN:** Just following on with local content, I am aware that one of the companies that Shell has given contracts to in terms of the control systems is Pressure Dynamics, a local company, which is very laudable by Shell. But given the three components of what Shell looks at in terms of assessing where they are going to source their equipment from, Shell, which has been operating out of Western Australia for such a long period of time, is well aware of the capabilities of Western Australia in the fact that Western Australia has designed and built four LNG trains of yours on the North West Shelf. It has invested in a modular fabrication yard. That was the government thinking with the industry to actually capture modular construction for where LNG was going by spending half a billion dollars on building a yard capable of the modular construction of topsides, for example. Western Australia has built topsides for very, very large FPSO vessels and has also built platforms and exported platforms. It has the capability, as you know, to be able to compete for a significant amount of work within any project in the world, but it is a question of getting the opportunity to do that. Shell internationally does support countries developing their capability in those countries; for example, some African countries that it is involved in. What support will Shell give to Western Australian companies—we can talk only about the jurisdiction we are operating in—to be able to compete particularly for engineering work and design and fabrication work for FLNGs into the future?

**Mr Phimister:** The process that we are employing, Mr Logan, which was employed in Prelude and presumably will be employed in future projects is, under our local content policy, entirely consistent with the Australian industry participation framework. We work closely with ICN in WA and NT. It is a process in which, in the case of Prelude, for example, I think there were over 300 packages put out to market, over 250 engagements in local industry, and 20 formal engagements in industry right through the tiers. I know you have an appreciation for how that all fits together. We have had those direct engagements together with ICN in WA. That, then, is an open and competitive process in which companies put into that. I know that you are very familiar with that. That is a full, fair, transparent and reasonable process consistent with the requirements. We strongly support that as a

company policy. Based upon those criteria mentioned by Andrew, the companies with the best proposition and safety and cost and competency and capacity are those awarded the contracts, and that is a process that we follow throughout all of our projects.

**Mr J. NORBERGER:** We started to talk about cost. You mentioned what you look for when you look at awarding tenders. I believe it was capability, cost and safety. APPEA and a number of industry bodies keep laying at the footsteps of Australia that notion that we are nominally expensive or that the costs have gone up significantly in Australia. It is certainly made very plain in your submission that you believe that our local Australian costs are growing exponentially. When I asked Woodside the same question, they went to great pains to tell me that, with LNG, 70 to 80 per cent of the cost increases are happening internationally; that was Mr Cole. I asked that question and he basically said that it is not just costs in Australia; costs internationally are going up and, with LNG, 70 to 80 per cent of that is happening overseas. Yet within your own submission, you make it really plain that it is Australia. That was a bit of a preamble. There is the issue of rework. When we have talked to some of our industry participants and some of our manufacturers and the like, it has become very apparent that a lot of the equipment and modules that have been done overseas and are coming here are, anecdotally, not meeting safety standards, interestingly enough. They are not meeting the capability standards; they require a fair amount of rework, which in Australia we then do to exacting and high-quality standards to get those ticks. Is that cost then being accounted, if you like—I know it is just moving it around on paper—back to the original place where it should have been done correctly in the first place? All those costs are being parked in Australia, so that when you look at it, you say, “Gosh; look at all this money we are spending in Australia”, when actually it seems that a good chunk of that is actually fixing up potentially inferior manufacturing from overseas.

**Mr Smith:** I must say I do not recognise the experience that other people may have shared with the committee. Clearly, there are different places that people are having modular construction done. It is in our interests that there is a very high quality of work done in the modules yard. In the case of Prelude, that is in Korea. We are very comfortable with the quality of work being done on the modules involved in the Prelude project. I appreciate other projects in other industries may have other issues, but I do not recognise that in our projects. Indeed, we have a great interest to make sure that it is done right the first time, as you would imagine.

**The CHAIR:** We will have to shut down the discussion. The Chairman is going to take the chance to have the last question, which is the only one he has asked! I am curious to know about the ratio of fixed costs and operating costs. When you go for a land base, you have a bigger up-front cost, but your operating costs are lower; whereas when you are offshore, your capital is obviously less, but your operating costs are higher. Some people have expressed to us a concern that that ratio will mean that you will be leaving more behind in the gas bill at the end of the day because it just will not be economic to take it out. Have you got a comment to make about that?

**Mr Smith:** Yes. Our view is that the ultimate recovery from fields is much the same, whether it is floating LNG or an onshore development. Just to explain to you a simple reason, with the floating project, you do not get the pressure drop that occurs in that quite frequently very long line that goes onshore. Overall, the number ends up much the same.

**The CHAIR:** So you think it balances each other out?

**Mr Smith:** It balances each other out. Capex and opex are something that we do consider very carefully in project evaluation. What I would say is that a 30 per cent difference of tens of billions of dollars is such a large difference in the capex cost that it more than offsets small differences in operating costs over the life of a project.

**The CHAIR:** Thank you very much for that. 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 the 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. We did not get through all of our questions, so, if it is okay, the committee will write to you and request the answers to those.

**Mr Smith:** Yes.

**The CHAIR:** Our staff will be back in contact, because we would like to organise a separate meeting to look at the material that you consider to be commercial-in-confidence. Is that okay?

**Mr Smith:** Yes; that would be great. We look forward to that opportunity.

**The CHAIR:** Thank you very much.

**Hearing concluded at 11.40 am.**

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