

**ECONOMICS AND INDUSTRY
STANDING COMMITTEE**

**INQUIRY INTO THE ECONOMIC IMPLICATIONS
OF FLOATING LIQUEFIED NATURAL GAS OPERATIONS**

Please note: this transcript of evidence has been made available by the Committee for the purpose of assisting those who might be in the process of preparing a submission in aid of the Committee's inquiry into the economic implications of floating liquefied natural gas operations.

**TRANSCRIPT OF EVIDENCE
TAKEN AT PERTH
WEDNESDAY, 26 JUNE 2013**

**SESSION ONE
CLOSED SESSION**

Members

**Mr I.C. Blayney (Chair)
Mr F.M. Logan (Deputy Chair)
Mr P.C. Tinley
Mr J. Norberger
Mr V.A. Catania**

Hearing commenced at 9.13 am**DWYER, MR DAMIAN****Director, Economics, Australian Petroleum Production and Exploration Association, examined:****WELCH, MR ADAM****Senior Analyst, Economics and Operations, Australian Petroleum Production and Exploration Association, examined:**

The CHAIR: On behalf of the Economics and Industry Standing Committee I thank you for your attendance this morning. The purpose of today's session is for the committee to receive a briefing in aid of its inquiry into the economic implications of floating liquefied natural gas operations from the representatives of the Australian Petroleum Production and Exploration Association.

The Economics and Industry Standing Committee is a committee 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 houses themselves. This is a closed briefing and Hansard will be making a transcript of the proceedings. If you refer to any document during your evidence, it would assist Hansard if you could provide the full title for the record. Before we begin I need to ask you a series of preliminary questions. Have you completed the "Details of Witness" form?

The Witnesses: Yes.

The CHAIR: Do you understand the notes at 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 in advance of today's hearing?

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: I invite you to begin your briefing.

Mr Dwyer: Thank you very much, Chair, and thank you very much for the opportunity to provide a briefing to committee members this morning. To respond to the request we received from the committee Chair on 14 June, I propose to spend my time this morning going through five key issues. They are listed on the screen as an overview of the Australian oil and gas industry and Western Australia's role in that industry; a focus on liquefied natural gas developments; the global LNG market and Western Australia's current and prospective role in that market; the role of current and potential floating LNG developments; and, preliminary observations on the committee's terms of reference. I am more than happy to take questions at any point during the presentation. I should note at this stage that I will not provide detailed comments on the committee's term of reference for the inquiry. We will respond to the recent call for submissions and will make a submission to the inquiry in August. Of course, we will be more than happy to continue to participate in the committee's deliberations, including a hearing at the appropriate time.

Before I get to the detail of the presentation, I will describe APPEA for those who may not have had significant dealings with us in the past. The Australian Petroleum Production and Exploration Association represents the collective interests of the upstream oil and gas industry in Australia. APPEA is funded by subscriptions from its member companies. Those member companies produce around 98 per cent of Australia's oil and gas. We are in the fortunate position of being the one peak industry association for the industry across the nation. We have four offices across Australia, including quite a substantial office just down the road in Perth. We are headquartered in Canberra and also have offices in Brisbane and Sydney.

[9.15 am]

I turn now to a little bit on the topics. I will start with a quick overview of the industry in Australia. Members can see the numbers there and I should have mentioned I will provide, obviously through the committee secretary, a copy of the presentation later on today. The industry is responsible for around 65 per cent of Australia's primary energy consumption. The Bureau of Resources and Energy Economics—BREE—has recently projected that this contribution will grow strongly over the next 20 years, particularly in the case of natural gas, which is obviously our focus today. These numbers also tell a different story depending on whether you focus on oil or natural gas. In the case of oil, the numbers tell us we have around 13 years of oil reserves at current production levels. I note that we have had around 13 years at current production levels for a number of decades! That reflects the ongoing exploration efforts of the industry. In the case of natural gas the story is quite different. The industry is very confident of natural gas reserves for more than 70 years at current production. If we include the resource potential, particularly of our onshore industry—primarily coal seam gas in the east of Australia and shale gas in central and western Australia—the numbers are significantly larger and may well be into many centuries of gas supply at current production levels.

I turn to a little bit of detail about WA and the WA story. The oil and gas industry accounts for a very significant share of primary energy in the state and, according to BREE, natural gas itself provides 55 per cent of primary energy in WA. On the supply side, the majority of petroleum produced in Australia is, of course, produced in the west, primarily in commonwealth waters offshore from the Western Australian coast. The exploration figures tell a similar story with as much as 88 per cent of the nation's investment in petroleum exploration in 2012 occurring in WA. With that in mind, I will talk about the Australian gas story before we get into some of the details about LNG.

Australia has significant gas resources, as I have outlined. Gas is the third largest Australian energy source after coal and uranium noting, of course, that most of our uranium is for export purposes and that we do not have a nuclear power industry in Australia. Natural gas plays an important growing role in Australia's energy security. In WA, as I mentioned, significant gas resources are located off the north west coast and are being developed both for domestic use and export as LNG. Some smaller resources exist offshore closer to the south west and, as was indicated to you in your DMP briefing last week, potentially very significant resources also exist onshore. The fields in the north west are very large, but more expensive to produce from and to reach than conventional offshore or shallow water gas fields. Developing them requires a significant scale of investment and, in many cases, requires very large export contracts to underpin those developments. Those very large offshore fields could not be developed for domestic use alone. Taken together though gas resources offshore from WA and onshore in Western Australia could total more than 444 trillion cubic feet of gas with as much as 300 TCF onshore. I think you got some numbers from the DMP presentation last week. This compares to annual WA gas consumption in the state of around half a TCF. Obviously it is a very significant resource that is available to the state. In addition, significant gas resources exist onshore in eastern Australia and they, too, are being developed for domestic use and to export.

Before I get into the LNG industry, I will provide just a little primer on liquefied natural gas that I hope will be helpful to the committee. The world, of course, has enormous quantities of natural gas, and around the world we are discovering that we have even more than the best expectations of a couple of years ago. I will come back to what that means for Australia and WA in particular. Much of it is located in areas far from where the gas is needed. To move this cleaner-burning fuel across oceans, natural gas must be converted into liquefied natural gas through a process called liquefaction. It is important to know that before this technology was developed if gas was too far from the market to be transported by pipeline, it was effectively stranded. LNG became a way for countries to liberate gas resources that they might not otherwise have been able to and to move them to markets that were more distant than technology could reach. Liquefied natural gas is natural gas that has been cooled to minus 161 degrees Celsius at atmospheric pressure, which changes from a gas into a liquid one six-hundredth of its original volume, which is obviously very important for the cost effectiveness of transportation over long distances from the north west of WA to say Tokyo, for example. This allows the gas to be shipped safely and efficiently aboard specially designed LNG vessels.

After arriving at its destination, essentially the reverse process takes place. The liquefied natural gas is warmed back to a gaseous state and can then be delivered to the pipeline system of the country in question to consumers in that jurisdiction. This is a little diagram of the LNG production chain and five major steps that occur in that production chain. Natural gas and liquefied natural gas projects are produced in a conventional manner, like any form of natural gas, from either onshore or offshore, and then pipelined to the liquefaction plant itself. The liquefaction plant consists of one or more production lines known as trains. You may have heard that term, I am sure. The first stage removes hydrogen sulphide and other soft compounds, carbon dioxide, water and heavier hydrocarbons, such as butanes and pentanes. It is particularly important to remove anything from the gas that might freeze and cause blockages in the cooling process, which is something you want to avoid at all costs. After treating the gas it is mainly methane, with small amounts of propane, ethane and nitrogen. Some propane and ethane is removed from the gas stream for use as a refrigerant in the cooling process. Liquefaction plants are based on the same principles as a refrigerator and freezer that you have at home. The compression and expansion of refrigerant fluid removes heat from natural gas. This typically requires several stages of cooling to reach the temperature at which methane becomes a liquid. The liquid is then stored at atmospheric pressure in isolated double-walled stainless steel tanks. If you have seen pictures of LNG facilities you would have seen large storage tanks on site. Because some heat enters even the best insulated tanks, a small amount of LNG is continually boiling off. This evaporation serves to keep the rest of the contents chilled. The boiled off natural gas is captured and fed back into the production process at the liquefaction plants themselves.

The third stage is LNG shipping. LNG tankers are loaded and unloaded through insulated pipes. The double-hulled ships are typically more than 300 metres long and carry five or more insulated double-walled stainless steel LNG tanks. In a similar way the natural gas boils off in transit from the LNG tanks. It is captured and mixed with the fuel of the ship's power boilers, so it serves as a source of fuel for the vessel itself. Import terminals store the LNG in insulated double-walled stainless steel tanks that are very similar to the tanks at the liquefaction plant. When required the liquefied natural gas is returned to a gaseous state and enters into the distribution and transmission system in the country in question. That is the liquefied natural gas production chain in a nutshell.

I will focus now on Australian liquefied natural gas. I am conscious you have had some briefings from DMP and DSD on some of this, so I will go through it quickly and will try to not repeat that, but will bring out a few things from an industry perspective. As you would be aware, Australia's export LNG industry is currently built on three projects—two in WA, which are the North West Shelf venture and the Pluto LNG project—and one in the Northern Territory, the Darwin liquefied natural gas project. A large amount of Australia's export liquefied natural gas story is concerned

with its future. As you will see in a moment, there are numerous projects at various stages of construction—seven in total. There are two offshore from WA—the Gorgon and Wheatstone LNG projects—one in commonwealth waters offshore from WA, which is the Prelude FLNG, and others are under active consideration. Some are well advanced, some less so. Together those under construction amount to capital expenditure of around \$200 billion and many thousands of new jobs across the country. For example, to talk about that, because I know it has been a theme in some conversations, a report was launched at the APPEA conference in Brisbane in late May by McKinsey and Company, a copy of which I will make available to the committee later today. The report is entitled “Extending the LNG Boom: Improving Australian LNG productivity and competitiveness” and it estimates that existing and committed projects across Australia—I will go through those in a little more detail in a moment—are expected to contribute \$520 billion to the national economy between 2015–2025. To put this in perspective, these projects will add 2.6 per cent to the Australian gross domestic product or \$5 500 per household per year and support 180 000 jobs. They will also increase the tax take by \$11 billion or around \$1 100 per household. Additionally, if all the projects I will go through in a minute that are on the drawing board are realised, that would create further capital investment of more than \$180 billion. This would contribute an additional \$320 billion to the economy, which is 1.5 per cent of GDP, or \$3 300 per household, create 150 000 new jobs across the country and increase the annual tax take by \$5 billion or \$400 per household between 2015–2025. There is a significant amount of activity underway and there is a significant prize, if I can put it that way, that remains out there for the Australian industry and economy to grasp.

Very quickly, I refer to a map roughly showing the existing LNG plants, although I note that they are not inland! Australia is currently the third largest liquefied natural gas exporter in the world. We account for nine per cent of global LNG supply. We export the majority of LNG to Japan—around 77 per cent last year—with smaller volumes going to China, South Korea and Taiwan. Seventeen per cent of our LNG goes to China, four per cent to South Korea and one per cent to Taiwan. Overall in 2012–13 we will export 24 million tonnes of liquefied natural gas worth around \$16.2 billion.

[9.30 am]

Just under 90 per cent of that will come from the two projects in WA. Since beginning in 1989—and you have heard this from DMP—Australia has produced 342 million tonnes of LNG, generating around \$68 billion in taxes and royalties. The growth rate in LNG production from that time, from 1989 to 2012, has been 10 per cent per year; so, it has been quite a spectacular growth over an extended period. This represents an extraordinary success and Australia is well poised for future growth, given its substantial gas resources, which I have spoken to you about before, and its proximity to Asia, which is obviously the region of largest demand at the moment. I will come back in a little while to some of the challenges that might face us in realising that opportunity.

So, those are the existing and committed plants, those under construction, and, as I mentioned before, there are seven further projects under construction: Gorgon and Wheatstone, the Prelude FLNG project, the Ichthys project, and the Queensland Curtis LNG, Australia Pacific LNG and Gladstone LNG on the east coast. Together these projects include the largest resources projects ever undertaken in Australia, and indeed some of the largest capital projects that have ever been undertaken in this country—projects that will feature natural gas from coal seams to LNG developments for the first time in the world, the world’s first floating LNG project, the Prelude FLNG project, which I will come back to, and the world’s largest greenhouse gas storage project as part of the Gorgon LNG development.

As you will see in a moment, once these are constructed and in operation, they could also make Australia the world’s largest LNG exporter with around 25 per cent of global market share. It would diversify our export base with Japan remaining the largest customer, but China and South Korea

taking a larger share and new customers, such as Malaysia and India, coming into the Australian scene.

According to McKinsey and Co, the report that I mentioned and will be providing to the committee, this growth will also see our national export base diversified and its resilience increased. For example, while iron ore and a very important Western Australian export, metallurgical coal, a very important east coast export, are driven by the steel market, LNG prices are mostly linked to crude oil, which is subject to different market dynamics. Further, gas is a natural competitor to thermal coal with some economies switching to natural gas as part of a lowering of CO₂ or as part of an air pollution drive, which I know is a very key focus for China, for example. Once these projects are completed, export capacity in WA will stand at over 45 megatonnes, compared with around 21 today; or around 53 per cent of what at that stage will be a much larger industry. The final map shows the range of projects under consideration for the next wave of development; that is the \$180 billion I mentioned before. As noted, they could represent a substantial slate of future investment, but I will come back to the challenges facing those projects in just a moment to give you a sense of what is out there.

Very quickly, I think this is one I encourage you to have a look at when we go through. This is just a listing of the projects, the various stages they are at, the volume they will represent and the estimated investment that they represent as well. I have highlighted in sky blue some of the projects that are relevant from the WA perspective, so that you can see the dominance of the state in that slate of investment projects.

Just to summarise for WA then: over \$65 billion in current investment projects, a further \$94 billion in projects under construction and more than \$90 billion in projects under consideration. That points to an industry that has invested, is investing or plans to potentially invest over \$250 billion in WA; it is a quarter of a trillion dollars. It is quite a big investment the industry is planning to make or is making right now.

I want to pull back a little from that now and talk a bit about the global gas trade, the global LNG market and where Australia might fit in. This map is a little bit busy, so I encourage you, I guess, when we provide the hard copy, to have a look at it. Global gas trading patterns in 2012 continue to show a large shift of LNG towards Asia with Asian LNG imports accounting for 69 per cent of global LNG imports, up from 62 per cent the year before. Australia is one of 16 countries that export LNG; those countries being the US, Peru, Norway, the Russian Federation, Oman, Qatar—the largest exporter—the United Arab Emirates, Yemen, Algeria, Egypt, Equatorial Guinea, Nigeria, Brunei, Indonesia and Malaysia. You can see that it is a pretty eclectic list of countries. I struggle to think of a unifying factor that would lead you to list all of those countries in one group, apart from being LNG exporters. Twenty-six countries import LNG. Again, I will not go through all of those in detail, but I will note that China, India and Japan were the major drivers of Asian LNG input growth with Japan remaining the world's largest LNG importer, and it takes around 36 per cent of global LNG. Australia is the major supplier of LNG to China, accounting for 31 per cent of China's LNG demand. China is a relatively small importer at the moment, but has very large growth plans. We are the second-largest supplier of LNG to Japan with 17 per cent of the Japanese market, which puts us one percentage point behind Malaysia as the largest exporter to Japan. As Australia's new LNG plants come online, the ones I spoke about to you before, our market share is likely to increase.

This gives you a sense of the global LNG map and where Australia, led by WA, fits into that global map. What it shows is that over half of all global LNG construction is underway in Australia right now. By 2025, we expect that lift in production from 24 megatonnes currently to around 89 once all of the approved projects are developed; and we will be up there, as I mentioned before, with Qatar as the world's largest LNG exporter; and higher again if the other projects I mentioned also come to fruition.

Let us talk about the global market and what it looks like going further. A major opportunity, as I mentioned before, lies for WA in the fact that demand for LNG is set to increase over coming decades, and that most of that new demand comes from an area within Western Australia's own backyard in the major Asian growing economies. Global LNG demand is expected to grow towards 470 million tonnes per annum by 2030. Existing projects, like the ones in Australia and those already under construction, will provide 250 million tonnes of that demand. That means that to satisfy the remaining 220 of unmet demand in 2030, there are around 60 projects under consideration in 22 countries. Those projects represent about 340 million tonnes in capacity, which not surprisingly is a fair bit more than 220 that are outlined in this demand scenario by McKinsey and Co. The challenge, therefore, for Australia lies in ensuring that individual companies make the substantial commitment to continue to invest in Australia to meet that demand, and such commitment depends on Australian projects being sufficiently competitive against those other LNG supply options in those 21 other countries that are considering LNG developments. So, a theme then is that competition is fierce and growing in the LNG space. It has always been thus, but it is probably growing even further if you look forward.

The previous slide showed you where the next LNG developments are globally, including planned and speculative capacity. It shows the top six countries of those 22, and represents 75 per cent of the global capacity on the drawing board. So, that is our competitive space. As noted before, the combined output of all the projects under consideration exceed the expected growth in LNG demand; so, square peg, round hole means that not all of those projects are likely to be realised. In choosing which projects are developed, it is the case of course that project owners consider cost, risks including country risk, and ability to access the resources—all key factors.

In the past, Australia in general, and Western Australia in particular, has been very well positioned on each of those dimensions. It is the case, however, that in the past decade our relative competitive position has faltered. That is due to several factors, and I am going to highlight two or three that are quite important for this space. The emergence in North America of LNG exports and potential LNG exports are driven by the development, obviously, of shale gas in the US and in Canada. North America, particularly the US if you go back a couple of years, was considered to have a substantial need to import LNG, and there were Australian companies actively considering export opportunities within the US. Fast forward to 2013 and the industry in the US is now poised to become quite a substantial exporter as a result of its shale gas position. And you will be aware, I think from the DMP briefing, that the second export LNG terminal was recently approved. The second big change for North America is the potential for gas prices to be linked to Henry Hub, a major gas pricing source for domestic gas within the US, rather than to international crude oil prices. At today's Henry Hub prices, this could lead to downward pressure on LNG prices around the world, and if it did so, that would exert further pressure on LNG project costs within Australia. So, those two developments have changed LNG dynamics quite substantially. How substantially they change though will depend, I guess, on further development of LNG projects in the US and how much they get involved in the export space.

The second one is potential supplies from East Africa. Seventy-six trillion cubic feet of gas has been discovered in East Africa in the past five years. The companies involved, which include some of those also involved in Australia, are planning to export this gas to Asia. East Africa is on the Asian side of the continent, and so it has access to the same sorts of markets we do. Projects totalling 33 million tonnes per annum are on the drawing board already in those countries, potentially Mozambique and Tanzania, where five years ago there was none. This represents a new source of competition into Asian markets, as I mentioned.

We also have the perception of an increased Australian risk. An uncertain investment environment has emerged, and this has increased Australia's risk profile. I am happy to expand on that. A further competitive dynamic plays out in Russia and Nigeria. Russia has extensive plans for developing LNG facilities. They too would be destined for the Asia-Pacific region, but access for international

oil companies is difficult in Russia. Likewise, although Nigeria is relatively accessible, it has a very different risk profile to Australia, and it is better placed to serve the Atlantic rather than the Asian market. So, it is really those two LNG regions, North America and East Africa, which have open access to companies that also invest in Australia and are relatively well positioned to serve the Asian market that form a major competitive threat moving forward. If Australia convinces operators to develop LNG facilities here in Australia, and Western Australia in particular, rather than in East Africa or North America, the landed costs of LNG to Asia need to be competitive with those alternative destinations.

The McKinsey and Co analysis that we will share with you shows for a variety of reasons that the landed cost to Japan of Australian LNG going forward is around 20 to 30 per cent higher than a potential North American competitor. So, Australia has a relative disadvantage in costs, driven primarily by higher taxes, labour productivity costs, materials and freight, and equipment and infrastructure specifications. We will come back to you, as I mentioned, in a more detailed way in our submission to the committee going forward, and obviously we would commend the McKinsey and Co report to you when it is provided.

So, where does FLNG fit into this story? I have given you a sense of the global LNG market, the competitive situation in which Australia is competing and in which FLNG projects may have a role to play.

In addition to the competitive challenges outlined above, developments in offshore WA have become more costly in recent years because new fields are generally in deeper water, they are further from the coast, containing less of the valuable liquids that you always like to find when you are exploring for gas. A number of the fields have a high level of impurities which adds to costs involved in processing those gas fields.

[9.45 am]

Floating LNG becomes a technology that can allow project proponents to access offshore gas fields that would otherwise be too costly or difficult to develop. A key thing to note, I guess, is that it is part of the evolution of technology. I mentioned when we spoke before that before the world's first LNG shipments took place in 1964, gas that could not be transported by pipeline was stranded. The development of LNG as a technology in itself allowed natural gas to reach more distant destinations and more distant markets. Australia, through the Prelude floating LNG development, will see the world's first FLNG development. I note that there have been floating LNG receipt terminals—so at the other end of the production chain, operating around the world for many years—but this will be the first on the production side.

It is a 3.6 megatonnes per annum development. To put that in context, it means that of the nearly 62 megatonnes of LNG capacity under construction in Australia, less than six per cent will be produced from this technology. Once all 10 projects are up and running—that is the three that exist right now and the seven under construction—just over four per cent will be produced from the FLNG project. I understand some project proponents will provide the committee with more detailed briefings on current and potential FLNG developments. It is my understanding that Shell Australia will be providing a briefing to you later on this morning.

I promised some preliminary observations on the inquiry's terms of reference. This is where I will finish up. As I noted at the start, we will not at this stage go into detailed commentary on the inquiry's terms of reference. Our submission and subsequent engagements with the committee will go into that detail. However, let me offer some preliminary observations. As you have heard, development of LNG projects, including FLNG technologies, have and will continue to have a range of enduring benefits for Western Australia including benefits relevant to the matters outlined in the inquiry's terms of reference. FLNG can reduce project costs and the environmental footprint of an LNG development and contribute to Western Australian and Australian economies through tax revenues, creating hundreds of jobs and providing opportunities for Australian businesses. In the

case of Prelude, for example, Shell Australia has noted—I am sure they will expand on this for you later—the benefits for Western Australia and Australia could include the ability to develop gas that would otherwise stay in the ground because of its lower development costs; lower environmental footprint of an FLNG development; in the case of Prelude, create around 350 direct jobs and 650 indirect jobs; provide billions of dollars in tax revenue and billions of dollars in Australia in capital and operating expenditure. Many of those benefits will flow to the WA economy.

Committee members, with your indulgence, that brings me to the end. I want to conclude by thanking you for the opportunity to provide a briefing this morning. I hope it has been useful. I am happy to take any questions that you might have in the time remaining. As mentioned I will arrange to provide the committee secretariat with both this presentation and the material that I have referred to as we have gone through. With that, thank you very much.

Mr P.C. TINLEY: Maybe this will come back to us in your subsequent submission to the committee: is there any understanding about US energy policy, given that that seems to be the biggest competitor, if you want to talk about that, or influence in world supply?

Mr Dwyer: Sure. There are two or three points I would make very quickly. You may have seen President Obama make a presentation overnight on American climate change policy. He spoke very strongly about the role that natural gas will play in reducing emissions in the US economy. There are very strong plans within the US for a growing contribution of natural gas. It has been driven obviously by the incredible developments in shale technologies in recent years. On the other side of that—I referred to it a little bit in the presentation—growing interest in export LNG projects. We have two projects approved in the US and under construction, or assumed to be under construction. There are as many as 20 under consideration by the US Department of Energy. Whether all of those come to fruition is one of those scenarios that I guess is much like our own projects under consideration. There is a story that has US LNG becoming a very major player in the world global market. They are having a significant influence on the dynamics within the market. There is another scenario that sees growth in demand continuing to be very strong and the US becoming a new competitor but adding to the slate of competitors that Australia already faces. There is a range of scenarios there.

Mr P.C. TINLEY: But you do not see any evidence in their energy policy about strategic reserving and putting constraints on export?

Mr Dwyer: Not of natural gas; not at this stage. They have just approved one. They go through a process to consider those opportunities.

The CHAIR: Will they not only export to countries they have a free trade agreement with?

Mr Dwyer: No. The project that was most recently approved will export to Japan. The US does not have a free trade agreement with Japan. If you propose to export to a country with a free trade agreement, there is a very minor process to go through. If you are proposing to export to a country with whom the US does not have a free trade agreement, there is more of a process to go through. How that plays out, I guess, is something that we are actively watching at the moment. But the evidence to date suggests that they are proposing to approve LNG exports as and when they come before them.

Mr P.C. TINLEY: Relatively unconstrained.

Mr Welch: Just to add to that: the 20 projects that Damian mentioned that are in the slate in the US, those projects already have existing approvals to export to FTA countries, so there are no limitations there. It just allows those projects to apply for approval to non-FTA countries to give them diversification in where their market goes.

Mr J. NORBERGER: Thank you for your briefing. I guess we are already seeing now, whether it is onshore or offshore, the impact of modularisation. I guess it makes economic sense for the proponents, but obviously it does have an impact to us here. That will continue, I would suggest.

You guys are the peak body representing these companies. If you do not know the answer straightaway, I would certainly be really interested in your response in relation to your submission: are there any plans to improve access for Australian engineers in particular, especially in the feed section of a project development? If we are losing, if you like—no-one says we are happy about it—if we are not getting as much of the blue collar or the manufacturing work because of the modularisation, will we at least be able to see some of these engineering firms or the white-collar technological advancement side of things being incorporated? From what I have seen, it might be said that at the moment our capacity is too small to do an entire project. Maybe even in a joint venture form where we are giving our engineers and our experts exposure so that they can build that knowledge base which would allow us to become a bit of a centre of technological excellence in this area?

Mr Dwyer: It is a good question and a key point. I think you will hear from Shell later on about their plans for FLNG, for example; a centre of technical excellence in Perth. There are certainly plans in that space. More broadly, though, I think one of the key points of focus for us is looking at ways to ensure that Australian industry more broadly, including those in high-end engineering fields, can be a competitive supply source for these projects. It is the case that floating LNG and LNG technology more broadly is a high-end field of endeavour. There are only a discrete number of companies around the world with the expertise to develop those projects. That said, Australia has a proud history in engineering excellence across a whole range of fields, not just oil and gas. I would not be surprised if there are a number of Australians involved in these projects anyway; just maybe not located in Australia—it is a global industry. Certainly a key focus for us is to look for opportunities to improve, ensure that the competitiveness of Australian industry is such that it can compete actively for these opportunities. I think the industry has a fairly strong and proud record in that space. FLNG represents a new frontier, a new evolution in the technology as I mentioned. Our hope very much with that evolution in technology comes an evolution in the ability of Australian industry to compete for opportunities in that space. We will come back to you with some more detail in our written submission and in our post-submission hearings, for example.

The CHAIR: Are you aware of anyone who is doing a comparative study—I suppose I am specifically talking about Browse—of what the economic picture looks like if that project is built onshore versus FLNG and the implications for employment and government revenue? Are you aware of anyone doing such a study?

Mr Dwyer: I cannot speak to that in detail, Chair, not because I cannot but because I am not sure of whether that is underway. I know the project proponents are required now to look at a range of development options for Browse, but that is probably as far as I can go in that space. I guess you have set out one development option and a counterfactual—FLNG versus an onshore development. That is one way to come at the analysis. The other thing to look at is what the alternative counterfactual might be. In the case of an FLNG facility like Prelude, the alternative is the gas stays in the ground and is not developed. Whether that is the appropriate counterfactual for Browse is not something I can comment on, but it is something I guess the project proponents and governments would be considering: is that the way to have this gas resource monetised versus, “We know it’s there but we can’t develop it.” That is something I guess the project proponents will be considering as well. To answer your question: no, I am not directly aware of that sort of analysis going on but I would not be surprised if it was.

The CHAIR: Would it be likely to be public or is it private, do you think?

Mr Dwyer: Again, it will be part of the processes that the project proponents have to go through to satisfy the regulatory requirements they have in relation to the leases that they hold over the facilities. How public is that made? I do not know that level of detail. That is something that maybe the proponents themselves could come back to you with more detail.

The CHAIR: That is about all we have time for. I have a closing statement. I would like to thank you for your attendance before the committee today. A transcript of this briefing 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.

Hearing concluded at 9.58 am
