

**ECONOMICS AND INDUSTRY
STANDING COMMITTEE**

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

**TRANSCRIPT OF EVIDENCE
TAKEN AT PERTH
FRIDAY, 15 NOVEMBER 2013**

SESSION ONE

Members

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

Hearing commenced at 10.30 am

**Mr DAVID LESLIE,
Director, GE Oil & Gas Australia Pty Ltd, examined:**

**Mr STUART JAMES McLAGAN
Communications Manager ANZ, GE Oil & Gas Australia Pty Ltd, 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. The purpose of this hearing is to assist the committee in gathering evidence for its inquiry into the economic implications of FLNG. You have been provided with a copy of the committee's specific terms of reference. At this stage I would like to introduce myself and other members of the committee. I am Ian Blayney, the Chair. Next to me is Fran Logan, the Deputy Chair and the member for Cockburn. Then we have Jan Norberger, the member for Joondalup, and Peter Tinley, the member for Willagee.

The Economics and Industry Standing Committee is a committee of the Legislative Assembly of Western Australia. This hearing is a formal procedure of the Parliament and therefore commands the same respect given to proceedings in the house itself. Even though the committee is not asking witnesses to provide evidence on oath or affirmation, it is important that you understand that any deliberate misleading of the committee may be regarded as a contempt of 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 provide the full title for the record.

Before we proceed to the inquiry's specific questions for you today, 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 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: Before we get to the series of questions we have for you today, would you like to make an opening statement to the committee?

Mr Leslie: Yes, I would, Mr Chairman. First, thank you for the opportunity to appear before the committee today. My name is David Leslie, and I am Director of GE Oil & Gas Australia Pty Ltd, General Manager of GE Oil & Gas Australia. As an active participant in the oil and gas sector throughout Western Australia, Australia and globally, General Electric shares the Parliament of Western Australia's desire for a healthy and prosperous resources sector.

Mr Chairman, I would like to first explain a little about GE's history in Australia. Our first project in Australia was in 1896 when GE motors were used for the Brisbane tramway project. Then in 1902 we developed the electric traction motor for the Pyrmont Bridge in Sydney, which is still used today—so a long history in the country.

GE Oil & Gas is a tier 1 business unit of General Electric and it has been active in the Western Australian oil and gas sector since the 1980s when our first LNG train was installed in the Karratha gas plant as part of the North West Shelf development. That LNG train is still in operation today, and over the years our presence at that plant has expanded to five LNG trains. In addition, in 2006, we commissioned the Darwin LNG plant liquefaction train, and just last year we started up the Pluto LNG train, also in Karratha. Indeed, GE is a major player in global LNG production. According to our internal estimates, our equipment is used to produce approximately 85 per cent of the world's LNG capacity through the use of GE compression technology. In addition, 100 per cent of the world's LNG capacity is powered by GE gas turbines. This represents in total, globally, 77 compression trains installed or under construction, of which 19 trains are in Australia. That is equivalent to the number of trains in the Middle East.

As outlined in our submission to the committee, GE has established a growing commitment to the development of the region's gas reserves. We are currently working on 100 per cent of the LNG projects under development in Australia today. Our equipment is used in the upstream gas gathering areas, both subsea and surface; upstream and downstream compression; and we also provide a range of instrumentation and control equipment for both the upstream and downstream sections of the projects.

As regards floating LNG, which is the subject of this committee, globally we are working on three LNG projects that are in process right now, with Shell's Prelude project, FLNG, one of those. Specifically on the Prelude FLNG project, GE is providing two 60-megawatt steam turbines together with centrifugal compressors for the gas liquefaction trains, a turbo expander for gas recompression and control valves for general service machinery, safety and cryogenic purposes. While GE is not supplying the subsea infrastructure for the Prelude project, it is important to note, as we pointed out in our submission to the committee, that the subsea infrastructure requirements remain substantially the same regardless of the liquefaction infrastructure being onshore or floating facilities. To this end GE is actively involved in the provision and ongoing enhancement of the major subsea infrastructure utilised across the industry. This continued involvement in all the LNG projects has been the catalyst for GE's decision to establish dedicated service and maintenance facilities, as well as administration and skills development centres, at Jandakot here in Perth. This commitment alone underpins an infrastructure investment of some \$120 million to support our operations. In terms of employment, GE Oil & Gas has increased almost sevenfold its in-country staffing in the region, from 64 staff in 2010 to 550 now. By year's end we anticipate a total oil and gas Australian–New Zealand region workforce of almost 600 staff, and have forecast that number to continue to grow to 1 000 employees as the projects move into operation and maintenance phase. One year ago this week, Mr Chairman, GE opened its custom-built skills development centre in Jandakot. So far we have been able to deliver training in a combination of upskilling our customer staff and our staff to more than 1 200 individuals, which has resulted in excess of 3 000 trainee days delivered in the past 12 months. Without those projects that I talked about to underpin that investment, that training would have previously been conducted overseas.

In line with our investment and employee growth, GE Oil & Gas has continued to increase the local expenditure from its Jandakot operations. In 2013 through to the end of October, we had purchased around \$34 million of equipment and service locally, which is more than double what we purchased in 2012, and that number continues to grow. We have also on-boarded more than 250 local Australian suppliers to our procurement systems to support the needs of the projects here. These investments in people, services and equipment are all direct benefits of GE's role to support our customers in the construction now and, later on, operation phase of LNG developments.

Now, Mr Chairman, I would like to talk a little about GE's commitment to research and development and how it furthers best available technology. We believe that investing in technology is the key to enabling our customer's development of resources. Annually we invest more than \$10 billion dollars to launch new products and build global capability. Over the past decade we

have doubled our R&D investment to about six per cent of our industrial revenue. This decade we will launch 10 new gas turbines. That is significantly more than in previous times, and we make these investments with the full benefit of GE scale. An example of such an investment is the CF6 aircraft engine which was developed in the 1960s, originally used for the old DC-10 and DC-11 aircraft.

[10.40 am]

Then it was further modified as the preferred engine for the Airbus A300 and the Boeing 767 platform. Then it was developed into a power plant for warships such as the Anzac and Adelaide class frigates and is now the engine for seven of the new LNG trains that are being built in Australia today. This would not have been the case if we had not been able to double the original capacity of that engine, reduce the emissions and do the development and innovation made possible by the GE scale and the number of applications for that engine. In effect, we are taking the best technology advancements that we develop at a global level and delivering them locally for our customers.

GE supports free markets and free trade. In support of our customers, many of whom have already appeared before you, GE believes that governments at all levels can and should do whatever they can to streamline the complex processes that companies have to go through to bring projects to fruition. This must, of course, be in line with appropriate environmental and regulatory frameworks, while encouraging companies to utilise the best available technology. How these projects are developed and what is the best available technology can ultimately be determined only by the company that is making the investment commitment. All projects bring rewards to governments and, as a result, their communities in one way or another, as I have talked about, when they are developed. No-one benefits if projects do not proceed, and government must carefully balance that equation. As known commodity reserves become more remote, options such as floating LNG technologies can be expected to play a greater role in overcoming the increasing distances and costs of transporting gas ashore. The long distance and escalating costs overall that we have seen relating to the development of onshore facilities can potentially be minimised by using FLNG technologies.

There are obviously numerous other issues relating to the oil and gas sector and floating LNG technologies, and I am more than happy to respond to your questions accordingly. Thank you.

The CHAIR: Thanks very much. It was very interesting.

Mr J. NORBERGER: Thanks, David. There is one question that I want to get out there. I know that your submission has the statement—you have just reiterated it—that you are very supportive of the view that companies are best placed to make the decision about how a project should be developed and, if I can paraphrase, basically government should stay out of it. Keeping in mind that, as members of Parliament, we represent the people and the natural resource belongs to all the people of Australia, it is really our job to make sure that the best economical outcome is achieved. I would like to put a scenario to you, because that statement that you have made, and it is in your submission, is unqualified. You have not identified any circumstances at which point a government should step in; it should just be purely up to profit-seeking companies. I have nothing against profit-seeking companies; that is what you guys exist for. You have a project and it can be developed in one of two ways. The first option will give \$9 profit. I will keep the maths simple. If you develop it under option A, option A will employ 100 people. With option B, you will make \$10 profit and it will employ three people. Should government just totally step back, not do anything and let the companies choose? I would suggest that a company, looking after their shareholders, will choose option B. Why would they not? They will go for the one that will give them 10 per cent more profit. What is your view on that?

Mr Leslie: First of all, sir, I do not think it is as simple as \$10 profit with three people.

Mr J. NORBERGER: Yes, but in your statement, you are saying that no matter what we are talking about, government should never get involved; it should just get out of the way of private

industry. I come from private industry, so I know the decision that I would make. I am just saying that, given that it is our responsibility to look after the betterment of all Australians, do you not think that the government should maybe come in and say, “Hey, guys; we would prefer if you went with option A. You’ll still make some good money and 100 people will get a job as opposed to three”?

Mr Leslie: First of all, with all respect, sir, I did not say that government should get out of the way. I said that we should try to streamline some of the complex processes that companies have to go through to bring projects to fruition. I think that companies should be entitled to look at the best available technologies for a certain circumstance. They can be extremely complex and a number of factors can be at play when you are looking at a certain project.

Mr J. NORBERGER: I am quoting from your submission, which states that companies not governments are best placed to determine which developments are commercially viable, subject of course to environmental regulatory requirements. I am not for a moment advocating that it should be the complete opposite either; it just seems that your statement did not leave any middle ground for government to say, “Let us work this out together.”

Mr Leslie: I think the point there is that the companies are determining whether or not it is viable and under what circumstances it is viable, not that the government should get out of the way.

Mr F.M. LOGAN: Can I come back to the choice that GE made to set up its operations here in Western Australia? One of the questions that the chairman will put to you is about an opportunity for the committee to come down to Jandakot. Luckily, I have had two opportunities to come down and see you.

Mr Leslie: Thank you for that, sir.

Mr F.M. LOGAN: It is the Asian centre for engineering for General Electric. It is one of the hubs for GE’s global engineering facilities. Why did GE choose Perth for that? I think we have discussed this before. GE could have gone anywhere; it could have gone to Kuala Lumpur, Hong Kong or Singapore.

Mr Leslie: First, just to correct you, sir, we do have a number of engineers at Jandakot. We have a number of subsea engineers. I do not think we characterise it as our global engineering centre. Yes, we could have chosen somewhere else. The fact of the matter is that we have a lot of customers in Perth who are very important to us. As far as Australia is concerned, it was a great place to centre our operations and service our customers.

Mr F.M. LOGAN: Would there have been any impediments in establishing your operations here in Western Australia or concerns by GE globally? The reason I say that, David, is that companies look at Perth as being the most isolated capital in the world and a long way from anywhere, when, really, it is not. If you are here, as you know, you are actually in the centre of things. Would there have been any concerns raised initially by General Electric about why it was establishing its operations here in Perth?

Mr Leslie: I was not here when we made the decision. I have been here for a couple of years. I think we saw Perth as the centre of where our customers are to do a lot of project development. Given what we would need to put in place to support those projects, it made sense to build our centre in Perth.

The CHAIR: Following on from that, do you provide the service for your turbines that are on these FLNG vessels or, in the case of, say, Shell, would that be a Shell responsibility, or do you do all of that?

Mr Leslie: Typically, we will do all of that. Typically, the way these turbines operate is similar to your car. You would take your car in for a 10 000 or 15 000-kilometre service. The turbines will run for a certain number of hours and, typically, after they run for a certain number of hours, we have to

do certain inspections on them. After a number of hours, we do what we call major inspections on them and, typically, our teams of people would do those inspections.

[10.50 am]

The CHAIR: And would you have the same system as the one that you have for aircraft, where you have a control centre somewhere—probably your centre in Jandakot—that can look at how every one of those engines is operating at any one moment?

Mr Leslie: Yes. We have what we call remote monitoring diagnostic centres that can monitor the operation of those turbines. We have one in Jandakot that can do that.

Mr F.M. LOGAN: I understand about the servicing of turbines, having been in that game myself. From your experience and knowledge about the use of turbines in LNG plants around the world, how often are the turbines taken out of LNG trains and replaced? I know it does happen. Mostly, the turbines are serviced in situ. How often are they actually removed?

Mr Leslie: I do not want to get too technical, but we have generally two types of turbines. We have what we aero derivative turbines, and we have heavy duty gas turbines. Woodside's Karratha gas plant has all heavy duty gas turbines. Typically, where the industry is going is that heavy duty gas turbines are maintained in situ.

Mr F.M. LOGAN: Because of the size?

Mr Leslie: Yes, because of the size. By way of example, earlier this year we did a major shutdown for Woodside at Karratha on one of its trains, and over a 30–40-day period, we, GE, had over 200 people on site doing the shutdown of that gas turbine. During the shutdown, we will take the machine apart, we will inspect many of the components—the blades, the buckets and the rotors—and we will determine whether something has a crack or some sort of problem. If we deem that a particular part needs to be changed out—in other words, it will not make it to the next maintenance cycle—we will remove it and replace it with a serviceable part, and that part will then come back to Jandakot and we will repair it and re-service it at Jandakot and then send it back to Woodside for the next shutdown. That is on the heavy duty side.

On the aero side, these are smaller machines, and I am aware that some of the industry is moving to what we call modular replacement, so we will have a module standing by at the site, and when they do the major inspection, they will unbolt the flanges of the turbine, take the old one out and put the new one back in and get it running again, and then we will, offline, do the maintenance of that module that we took out back in Jandakot. Sorry if that is a bit complicated.

Mr F.M. LOGAN: No; that is not complicated at all. I want to now extrapolate to FLNG that description of what GE does to the turbines. What size turbines will you be providing to Prelude? Will it be the heavy industrial turbines such as those that are used on the North West Shelf, or will they be aero derivative turbines; and how will those turbines be serviced offshore?

Mr Leslie: First of all, I am not at the detailed level of how we are going to service them. For Prelude, they are 60-megawatt steam turbines.

Mr F.M. LOGAN: So they are marinised?

Mr Leslie: Yes. So when I was talking before about heavy duty at Woodside, they are a derivative of a gas turbine. The Prelude turbines are actually steam turbines. There are very long maintenance cycles for a steam turbine. My hunch is that we will do major inspections on the vessels and we will check out all the normal stuff we do. If there is a part that has a problem, we will pull it out and replace it with a part there, and we will then bring it back to Jandakot to service it.

Mr J. NORBERGER: You will not be able to get 200 people onto the FLNG vessel for a shutdown, will you?

Mr Leslie: Yes, that is a logistical challenge.

Mr F.M. LOGAN: You know the confined space that you will have on FLNG compared to the lay-down area that you have onshore to spread out your workforce and your components.

Mr Leslie: Yes. Let me just respond to the comment around 200 people on the vessel. That is obviously clearly related to the size of the train and the size of the turbine. A steam turbine is considerably less complex than a gas turbine. So although I do not know the exact number of people that we would require for a major on the vessel, my hunch is that it will not be 200.

Mr P.C. TINLEY: You have scaled up your operations in Western Australia in recent years, and you have the backing of a Fortune 500 company—the fourteenth most profitable company in the United States—and all that sort of stuff, which is not insignificant, so it has been relatively easy for you to be a major supplier to and supporter of the oil and gas industry. But what concerns this committee as well is the economic benefit of what appears to be potentially a big shift in the way the endowment of Australia is being exploited in the form of FLNG. You have been working with your suppliers and your other businesses in Western Australia now for a while. We are looking for the opportunities for Western Australian businesses in FLNG. What in your opinion is the fitness of our industries to participate in FLNG?

Mr Leslie: On the back of the projects that we have won here, we have increased our staff complement from, as I said before, 60 to 550, and that is still growing. We have also increased our buy from Australian suppliers—I am sorry, but I cannot differentiate whether they are Western Australian or otherwise—and I think we now have more than 250 local suppliers on our procurement system. So, within reason, that industry is there and it supports us, and I would say it is in great shape to support us where we need the support.

Mr P.C. TINLEY: Sure. What about more broadly within the sector?

Mr Leslie: It is hard for me to comment on other companies and their needs.

Mr P.C. TINLEY: Is there anything in FLNG that Western companies could not participate in?

Mr Leslie: I do not have total knowledge of what goes into building an FLNG ship, so it is tough for me to answer that question specifically.

The CHAIR: It is not a ship, by the way; it is a barge.

Mr Leslie: Yes, a vessel.

Mr P.C. TINLEY: There will be more of these FLNG vessels off the coast, and I am sure you guys would like to be involved in each and every one of them. How will you be servicing those vessels? From what land base do you think you will be servicing those vessels?

[11.00 am]

Mr Leslie: I think it depends on where the vessel is located.

Mr P.C. TINLEY: Browse?

Mr Leslie: We have not been selected for Browse yet, but we are building a base in Broome. Chances are that if there is a vessel up there we would service it out of our Broome base.

Mr P.C. TINLEY: With a land-backed wharf?

Mr Leslie: Are you asking the location?

Mr P.C. TINLEY: What style of facility are you building in Broome? Is it a wharf?

Mr Leslie: No, it is kind of a small scale of what our Jandakot facility looks like.

Mr P.C. TINLEY: So it is light industrial.

The CHAIR: If the government was to say it wanted to build a really serious supply base in the Kimberley, obviously you would be expecting to be a part of that, if you are already committed to Broome. That is good to hear.

Mr Leslie: The Ichthys project is in the same basin. That is what we are going to be servicing through our Broome base initially—part and partial.

Mr J. NORBERGER: There have been a lot of media reports about how highly paid Australian workers are. There are stories about us having the highest paid train drivers in the world. We have certainly heard evidence from some of the major oil and gas companies that we have spoken to that one of the reasons that they look overseas is because wage costs in Australia are very high and that acts as a barrier to investment. I am interested to know your view, or the view of GE Oil and Gas, in respect to that criticism, particularly given that you have gone through a fairly quick expansion here recently—which is great by the way. What is your personal experience of this? You have gone from 64 staff to 500 and are looking at going to 1 000. Have your operations been more costly than you expected or is it pretty much running at what you budgeted for? What is your feeling in regard to the wages in Australia—within the industry in particular?

Mr Leslie: We approach it from the perspective of how we can be the most productive and have a highly productive and highly efficient workforce. By way of example, when we design our facilities, traditionally we design the facility as a one-line production line process where a part comes in at one end and exits at the other after getting repaired. We looked at the design of that facility and said to ourselves that that is not the most efficient way to do it; let us redesign it around cell-based repair, which is far more efficient. Rather than having a hierarchical workforce we have hired what we call a self-directed workforce. We can argue about the cost of wages et cetera in Australia which are generally higher than some other countries; we are definitely not what we would call a low cost region, but we attack the problem in different ways. We look at how to make the workforce way more productive as an example.

Mr J. NORBERGER: Would you classify your personal workforce as productive? From a productivity point of view, are you fairly happy with what you have been able to achieve?

Mr Leslie: Yes.

Mr J. NORBERGER: I know costs are not easy to compare. Dave, you represent GE Oil and Gas in Australia and no doubt you get together every now and then with your other country heads and whatnot, because obviously, GE is global. From a productivity point of view, how do we rate compared to some of the other areas where GE Oil and Gas is working?

Mr Leslie: Once again, let me use the term “machinery service shop” as an example. We have those service shops in a number of different locations globally—Houston in the US, Qatar in the Middle East et cetera. We have not proofed it out yet, but our intention is to make our Jandakot-based service shop a world class facility with the highest productivity within the GE system. We have that intention.

Mr J. NORBERGER: Good on you.

Mr F.M. LOGAN: Very good. You could even become a model for Australia, with delegations going down to visit and see how you have laid the place out.

Mr P.C. TINLEY: You would have to have a tour guide.

Mr F.M. LOGAN: Speaking of the facility; GE, apart from being in turbines, is in a whole series of different areas of work at the Jandakot facility, including subsea oil and gas, for which you have a large facility there. Again, coming back to the point that Peter was making about the opportunities for local content arising from oil and gas development offshore, subsea is one of those areas for opportunities for Western Australia. I do now know that as we speak, there are a number of subsea pieces of equipment under fabrication and construction around various shops here in Western Australia. What opportunities do you see for Western Australia in future subsea manufacturing? For example, if you look at the FMC Technologies plant in Houston, it is a large facility and a big manufacturing facility of their subsea equipment. I believe they have a smaller one in Malaysia. As

you know, there has always been a push by governments in Western Australia to capture a larger share of that market. What opportunities do you see Perth being able to achieve?

Mr Leslie: That is a great question. In a subsea system for one of these gas field developments there are many different kinds of subsystems, or components you might say that form part of the whole system such as Christmas trees, manifolds, well heads, termination points, hydraulic power units, control units et cetera. I think the opportunity to build some parts of those systems is definitely available in Western Australia. We are doing that with a couple of different projects that we are working on. There are local machine shops and fabrication shops that have the capability to do that. It just depends which parts of the system you are talking about.

Mr F.M. LOGAN: David, what do you think a government or a government agency could do with subsea companies such as GE to stimulate that further? As you know, your competitors are here in force around the southern metropolitan Perth suburbs. They do a lot of the work you just described to varying degrees; some do more than others here in Perth. What would be the next step for a government to encourage or stimulate companies to expand this sub-sea fabrication in WA?

Mr Leslie: You have seen some of those components in our shop. When you look at them, they appear to be big and clunky bits of steel and iron. But in fact, there are very, very high technology components in those systems. It is very high technology. Whether it is in some of the materials that we are using, materials that are in contact with the gas for example, and materials that we use for valves and seals et cetera. From GE's perspective, a lot of it starts from the basic technology that goes into it. I would think that if the government could do as much as it can to enable companies to develop some technology that is unique on a global scale that would be an example of what the government could do to help some of the companies here gain global technology.

Mr F.M. LOGAN: I will ask one more question, again about subsea, but not a sensitive one. It is about GE's innovation because you pointed out the amount of money that GE spends globally on innovation. We have seen LNG develop over the years from the early 1980s where it was a bit of a weirdo-type energy source with onshore LNG trains, which not many people concentrated on as a globally traded commodity, to the next phase of technological development in offshore FLNG. You often hear rumours of subsea, not just subsea delivery of gas from the wellhead using subsea turbines and subsea processing where you get rid of the topside FLNG and the onshore facilities nearly altogether. Is any work being done in that innovative space of doing further compression and processing closer to the wellhead itself?

[11.10 am]

Mr Leslie: Yes. We are working with a number of companies on what we call subsea processing, as you call it, or subsea compression. At the moment all of the work is around compression and not liquefaction. There are a number of technological hurdles, shall I say —

Mr P.C. TINLEY: I do not doubt it. Thirteen hundred metres' depth might be as hard as working in space.

Mr Leslie: Exactly. It is not easy.

Mr P.C. TINLEY: You got the pressure bit right!

Mr Leslie: We are working in that area with several different companies.

Mr P.C. TINLEY: Here in Western Australia?

Sorry, if you are concerned about any sensitivities about what you might want to say, I am sure there is a process by which it can be redacted.

The CHAIR: We can go into closed session so that whatever you say stays within the committee.

Mr Leslie: I cannot talk about specific customers in an open forum.

The CHAIR: If you do a bit of reading you will discover that particularly in the new fields off Brazil, this is where they are heading. They have to do it because they are so deep and they are relatively low pressure. They have to shift it.

Mr P.C. TINLEY: It is relative to the field.

Mr Leslie: It is relative to the field, the pressure that the gas comes out of the reservoir. There are a number of factors.

Mr P.C. TINLEY: You are working with customers —

Mr Leslie: With several customers.

Mr P.C. TINLEY: You have talked about a \$20 million investment with CSIRO related to the skills development centre. I know that is more skills related, but is there some aspect of that or some aspect of what you doing here in Western Australia that is talking about this development and these technologies or working around these new developments?

Mr Leslie: If I understand your question correctly, the skills development centre is for upskilling both our customer staff and our staff.

Mr P.C. TINLEY: Around current products?

Mr Leslie: Around current products and, for that matter, future products; but generally current products.

Mr P.C. TINLEY: How much of the R&D work that you are doing is done in Western Australia?

Mr Leslie: We do a lot of project engineering in Western Australia for Western Australian projects. We are on a specific project—let me step back. For example, a subsea project. The subsea infrastructure on a project is typically because of the idiosyncrasies of a particular field, whether the gas has high CO₂ or low CO₂, the oil–gas mix, oil–water mix; the components are not standard components; they are bespoke for that field. Where a certain project requires a certain type of valve, as an example, we will do a lot of the design of that valve here, supported by our global research centres that do more of a fundamental design.

The CHAIR: A quick question about the CSIRO: the new federal government has affected CSIRO, with a lot of its staff on contracts, and I think the government has directed that no contracts be renewed. Has that had any effect yet on that research with CSIRO, do you know?

Mr Leslie: No. As far as I know, no. Not from a GE perspective.

Mr F.M. LOGAN: In your training facility, could you give us an idea of the types of skills that are being delivered by GE and what you believe would be a future skills set needed in Western Australia for FLNG or an expansion of subsea equipment?

Mr Leslie: Sure. The training we do varies from what is called pure technical training in the operation of our turbines or subsea equipment through to kind of more the maintenance side of our turbines and subsea equipment. We also offer fundamental leadership training to our staff as well; across the board-type training. I think that is a pretty good example of what we need to continue to do to upskill the workforce here. A talented workforce is not just technically talented; they can lead teams and work with global teams—manage people. That is where we are training as well across the board.

Mr F.M. LOGAN: Do you see any particular skill shortage or skills demand going forward given the introduction of FLNG and the expansion of LNG onshore as well? I would say that in the mechanical fitting area you are probably not going to have too much of a skills shortage given that WesTrac just let 600 people go yesterday. I imagine the market will be flooded very shortly. In all seriousness, the area of offshore and onshore oil and gas work is quite specialised. What do you see is the demand for skilled work going forward?

Mr Leslie: One of the big areas that we see is in engineers graduating from Australian universities. I think I read an Institution of Engineers' report last year that said we have demand for 15 000 or 16 000 graduates a year, and we are graduating 9 000. The demand is driven by the number of engineers that are moving towards retirement very quickly. We have, for example, a graduate engineering program where we bring on graduate engineers. Curtin and UWA come in. We want to expand that program as much as possible to build a pipeline of young engineers that can move through our workforce. It is very important because those young engineers go into design roles, field service roles and management leadership roles. There is a big need for talent in engineering.

Mr P.C. TINLEY: You were talking about modular replacements. Increasingly, modularisation is the principal method of construction for a lot of these projects. Within that modularisation, do you think there are any opportunities for Western Australian manufacturing in the areas that you are familiar with to get involved in it? I know you have touched on it—do you think there is a greater opportunity?

[11:20 am]

Mr Leslie: To go back to my earlier example, there are many different components around a subsea system. Many of these systems are composed of a number of subsystems. What we have to do is look at subsystems in which Australian or WA companies can offer a competitive advantage through technology. A number of companies are working in this area and I think it is where we have to focus and figure out the niches where they can have a competitive advantage.

Mr P.C. TINLEY: Western Australian companies?

Mr Leslie: Yes.

Mr P.C. TINLEY: Could you not just say that we could do all subsea work? Or could we? It has come up several times now that subsea is the one place where we could play and play well.

Mr Leslie: Just saying that we could do all subsea work is pretty naive. There are certain elements where you would choose the best place to build it—here, there or somewhere else—based on the technology going into it, what is required et cetera.

Mr P.C. TINLEY: Through-life support.

Mr Leslie: Exactly.

The CHAIR: Linked to that, can you give any idea of the percentage of your turbine and subsea business that is locally sourced and the percentage that comes in from overseas?

Mr Leslie: I do not have those figures with me today but I can look at it offline, if that is okay?

The CHAIR: You can provide information as a supplement to your evidence.

Mr Leslie: I can take a look at it.

The CHAIR: That would be appreciated. Any more questions? You have answered all their questions.

Mr Leslie: Thank you.

The CHAIR: I have a closing statement. Do you have anything else you would like to add?

Mr Leslie: Would the committee be interested to come and take a tour of our facility at Jandakot and, kind of, touch and feel the products that go subsea, or whatever? I would be happy to host the committee.

The CHAIR: I think it is the committee's intention to do that in early February; if that is okay?

Mr Leslie: By that time, we will have our gas turbine shop running, which is the last element we are putting in place. We would be happy to host the committee so it can see what we are actually doing there.

The CHAIR: Just as an aside regarding your turbines, on aircraft now, quite often with the turbines, the company that builds them continues to own them and just leases them to the aeroplane. Do you do that with the turbines you are putting into these? Would you expect that that model might be used with FLNG?

Mr Leslie: No, we do not lease the ones that are in Australia. The ownership is with the client. We have had discussions with some customers. I talked about the aero turbines where there are elements of what we call a gas generator. We would own the gas generator and we would exchange it out with different customers. But we are not doing that yet. So far, the customers want to own those capital spares themselves.

Mr P.C. TINLEY: Sorry, one thing I forgot to ask. Why did you choose Jandakot as a piece of dirt as opposed to Henderson or anywhere else for that matter? Was it because it was federally controlled land?

Mr F.M. LOGAN: It was easier.

Mr Leslie: Not at all. Jandakot was a great compromise between closeness to the city, where all our customers are; easy access to the domestic airport via Roe Highway, for when we need to fly people in and out; and access to the ports at Fremantle and Henderson. At the time, it was the best compromise because of the strategic locations around.

Mr P.C. TINLEY: It has always intrigued me.

The CHAIR: Have you got room to grow there?

Mr Leslie: We do. A number of oil and gas companies have established themselves there as well.

Mr F.M. LOGAN: After you, they came.

Mr P.C. TINLEY: And ERGT?

Mr Leslie: ERGT is there as well and Halliburton.

Mr F.M. LOGAN: Do the steam turbines on the FLNG require steam boilers? We have not had a detailed look at the FLNG—we have looked at various images of FLNG but we have not had a physical breakdown of exactly what bit is on which part of the ship. Are those boilers going to be on the deck, which is where the turbines will be, or in the barge, as it would be on a ship?

Mr Leslie: I do not know the answer to that question. But the turbines are on the deck.

Mr F.M. LOGAN: Yes, of course, they would be on the deck. I am just trying to think where the boilers would be.

The CHAIR: Down in Hades.

I would like to thank you for your evidence before the committee today. The transcript of this hearing will be forwarded to you for the 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 it is not returned within that period, the transcript will be deemed to be correct. New material cannot be added by 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 the corrected transcript.

It is possible that we might have some other questions. Is it okay if we just write to you and you give us a written response?

Mr Leslie: Sure, no problem.

The CHAIR: You are going to give us some indication of local content?

Mr Leslie: Subsea versus turbine.

The CHAIR: That would be appreciated. Thank you very much for your time today.

Mr Leslie: You are welcome.

Hearing concluded at 11.27 am