Transcription for TECHNIP

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Kimberly STEWART, TECHNIP

Good afternoon, ladies and gentlemen. Thank you for participating in our first of several technical workshop conference calls that we plan to host each year. I am joined by the other members of the Investor Relations team: Apollinaire Vandier and Chuan Wang and we are delighted to introduce to you our guest today, Philip Hagyard, who is the Senior Vice President of Technip's LNG/GTL Business Unit. Philip has worked at Technip for 29 years, most of which was spent working on LNG. He is by far too modest to tell you that he is recognized as one the world's leading experts on the Liquefaction of Natural Gas. For the past few years he has been intimately included on FLNG: from the conceptual phase to today's reality which he will present to you shortly, after the required legal Safe Habour statement: Therefore, I must remind you that statements made during the conference call, which are not historical facts, are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Readers and listeners are strongly encouraged to refer to the disclaimers, which are an integral part of today's slide presentation, which you may download from our website: technip.com. Also, an audio replay of today's call will be available from our website approximately two hours after the call ends. Please note that this is a technical workshop on Floating LNG and Technip's expertise in this field. The intention of the call is not to go into financial questions, either on Technip generally or concerning Prelude. For Prelude, as you know, we are under confidentiality obligations towards Shell. For Technip, please feel free to call us in the IR team after the call. I would also like to take this

opportunity to remind you that on July 28th Thierry Pilenko and Julian Waldron will host a conference call at 10am Paris time on release of our second quarter 2011 results. I now hand you over to Philip Hagyard, Senior Vice President of Technip's LNG/GTL Business Unit.

Philip HAGYARD, TECHNIP

Thank you, Kimberly. As Kimberley said in her introduction, we will present to you the FLNG market based on all the work performed by Technip over these last few years. We need to start with a review of the world gas market and LNG demand. I will then introduce to you the fundamentals of LNG and FLNG projects to identify the challenges related to those projects, And before finishing with a quick presentation on today FLNG business environment, I will present to you the fundamentals that make Technip the leader in this emerging market. FLNG is part of the LNG market, which is a subset of the International gas market. The International Energy Agency (IEA) recently suggested the world could be entering "A Golden Age of Gas" in a special report that is today freely available if you are interested. In this report, we see that Natural gas demand is projected to increase by 50% between now and 2035. This energy should see the strongest growth in demand amongst all energies, with around 2% growth rate per year. This demand is driven by the uncertainties in the energy sector, in particular after the Fukushima nuclear crisis, the rapid urbanization and growth in China, India and other regions such as Middle East, the substitution of all the fuels by gas for power plants and transportation. The reserves of gas in the

world are huge, but as you can see on slide 6 there is a geographical mismatch between the reserves and the demand. The Former Soviet Union (mainly Russia) and Middle East (Iran, Qatar) represent over 70% of Natural Gas reserves, which needs to be transported to the final consumers. For short distances, high pressure pipelines are a good solution. But for longer distances or when the water depths are great, LNG is the most economical solution to transport gas to the consumer. This is because the cost of a pipeline mainly depends on the distance to be covered, while in LNG the liquefaction plant and reception facilities require a large CAPEX investment, and the marginal cost for additional shipping distance are relatively small. This difference between installed LNG production capacity and future LNG demands shows a need for investment in new LNG facilities beyond 2015, according to a Wood Mackenzie study that was published a year ago. This gap in production is one of the drivers for Final Investment Decisions in Australia. We believe these figures are conservative especially if we compared them to IEA forecast, because they implies a 5% growth in LNG demand beyond 2014, whereas in the past decade or so we have been used to a 7% annual growth. This view does not reflect either the possibility that China will turn away from coal, and towards gas. It does not reflect the effect of the Fukushima crisis. Nor does it include any allowance for the possible use of LNG as transportation fuel on any significant scale. Therefore, we have a very positive view of the LNG business, and the investments are made to meet demand from 2015. On slide 8, we see the LNG Supply Chain. We can see that it is complex and capital intensive. For the offshore reserves, the gas is treated before transportation and is send via a high-pressure pipeline to the onshore plant,

where it is transformed into liquefied natural gas (LNG) in order to be easily stored and transported by ship. To be liquefied, the gas must be cooled to –162°C. The volume of LNG is therefore reduced by around 600 times and stored in large highly insulated, non-pressurized tanks. The tank is then transported by sea to a reception terminal, where the LNG is re-gasified at high pressure and exported via the distribution network. A FLNG is the combination in one facility of the upstream platform, the gas treatment facilities, the liquefaction, the storage, and the export terminal to load the LNG carriers. Let me now explain to you in more detail a LNG plant and the challenges related to the installation of a liquefaction facility offshore. Natural gas liquefaction is a complex business that is difficult to master. The first challenge is related to energy consumption. Liquefaction can consume at approximately between 8% to 12% of the feedstock in the liquefaction process, essentially driving the refrigeration system. And Technip has been at the origin of a number of initiatives to improve liquefaction efficiency, over the years. The plants have low temperature, which requires special steels. The large piping arrangement brings a lot of challenges in piping installation. The equipment that is used is high end, often at the limit of what our supplies can provide. And pre-treatment units have to be adapted to gas composition coming from the source of gas. The feed gas is mainly composed with methane but it also contains light hydrocarbons and unwanted impurities. So the front-end of the LNG plant, the gas and condensate are separated. The separated gas is treated to remove components that are either toxic (H2S) or corrosive (Hg) or that could freeze at low temperature (CO2, water, heavy hydrocarbons) and possibly plug cryogenic equipment in the liquefaction section.

The purified methane gas is then liquefied by cooling to -162 °C before being sent to storage. If nitrogen is present at high levels it is removed from the LNG before shipping because nitrogen is a low value inert gas. The principle of the liquefaction units relies on mechanical refrigeration, very similar to the principles use in a domestic refrigerator mechanism but on a large scale, over ten millions times greater. The equipment is consequently very large. The refrigeration compressors for example would usually range between 25MW to 80MW .For your information, a TGV requires 8MW. The extra large main exchangers can have diameters around 5m and be 50m high. The dominant processes are C3MR and the pure component cascade for onshore plants. For the offshore LNG, the fact that we are on a moving platform and a confined environment favors the two processes that are currently being used: DMR Mixed Refrigerant processes and Nitrogen cycles. The first challenges when we take liquefaction plants offshore are volume and weight. To give you an example, the capacity of one train of Yemen LNG (Picture on the left) is nearly the same capacity of the Prelude FLNG. If we take the equivalent facilities, in Yemen we need around 20ha, whereas the Prelude deck represents a little bit more than 3ha. So it is obvious that the process must be adapted and we do this in steps. So we look for processes to reduce the number of equipment items and then, when we have selected a compact process, we select equipment types that are as compact as possible. Following this we have to re-arrange the layout to stack the equipment in successive decks, and during this time we have to carefully control the position of the center of gravity and the overall weight of the topside to ensure the floatability of the vessel. Process units on a floating facility are faced with many challenges

coming from the marine environment. For example, the industry had to develop specific mechanism to export LNG from a FLNG to a visiting LNG carrier at sea. Thanks to Technip's LNG experience and the capability of our Subsea segment we developed an LNG loading system using cryogenic flexible pipe: the so-called "ALLS" system, "A" being for "Amplitude". It is one of the systems that can be used on future FLNG. Today, all work performed on FLNG have solved these issues. Here is an example of floating LNG layout. We performed a study in 2009, and this is a usefully way to assist us in describing the main principles of layout. The first consideration and the main consideration is safety of the operators. So accordingly, the living quarters for the operations and maintenance staff is located upwind from the operating units. With the exception of a few utility systems, the deck supports everything: interfaces with the subsea wells, the natural gas pre-treatment units, the liquefaction plant itself, Power generation and utilities, and Offloading system shown here at the back of the vessel in a tandem loading configuration. Alternatively LNG can be unloaded from the side of the vessel in what we call a side-by-side configuration. I am now going to highlight three of Technip's skills that are Strengths when taken individually but are Unique when combined together in one single Company. In the last 5 years Technip has completed LNG projects that add up to approximately a quarter of installed capacity worldwide, in Yemen and Qatar. Our history in LNG goes back more than 45 years with the first LNG unit ever built, the Camel plant in Algeria started up in 1964. We developed a strong know-how, introduced many concepts that are widely used in LNG such as the Wieland technology and we built both mega production capacities in Qatar and mini LNG

plants in China. Thus, we have the technical know-how of a licensor with the experience of an EPC contractor in every size of LNG plants. In the last six years Technip has delivered, in parallel with the LNG projects, some extraordinary offshore projects. In 2009, In the US Gulf of Mexico, the Perdido spar for Shell was designed, built and installed by Technip in 2,400 meters of water - a world record that is still on, Technip was also in charge of Akpo FPSO in Nigeria, the world's largest FPSO installed in 2009 for Total. And finally, we built the P-51, P-52 and P56 delivered to Petrobras in Brazil. These include the largest topside float-overs onto semi-hulls in the world with integrated decks weighing over 30,000 tons. On slide 18 you will find a table provided by Infield in 2008 presenting FPSO built by planned year and weight of the topsides. You can notice that the weight of the majority of oil FPSO's is below 15,000 tons and that Technip is leading a small group of companies with experience in large oil FPSO's. Technip worked on N'Kossa, the very first large FPSO offshore Congo, and then a little bit later on Girassol offshore Angola, on Akpo, the largest FPSO ever built and on Dahlia offshore Angola. This experience is most important in the context of FLNG because the construction sequence and techniques are similar. What makes Technip Unique is our Paris center of excellence for FLNG, where teams with a strong experience in Onshore/Offshore/Subsea are working together in the same building. Engineers for these different projects come from the same department. This facilitates the interaction which is essential for successful project management, risk management and interface management and this proximity has no equivalent among our competitors. It is the result of years of cooperation on many contracts that makes this configuration particularly difficult to replicate. We have over

750 people involved in our current FLNG projects at Technip. Our unique combination of expertise is also significant in that it extends to many of our operating centers. Kuala Lumpur is already contributing to the Prelude and Petronas projects. And if the Petronas FLNG project goes ahead, it will be performed at execution stage directly from KL. Rio is playing a similar role with Petrobras FLNG. In Paris, we have a centre of expertise for conceptual, process and large floating facilities that support all our centers on FLNG projects. Let's now have a look to FLNG market. Despite being in its naissance, the FLNG market is already very active. FLNG provides new opportunities for gas production. First the possibility to develop offshore gas fields that are remote or too technically complex to produce by pipeline. This could be that the pipeline route is too long, or it passes through very deep water, or that it crosses subsea trenches that are geologically unstable. Small offshore gas fields with insufficient reserves to justify an onshore LNG plant can also be now produced using the redeployment of the FLNG. FLNG is also of interest for oil producers, as it is a way of monetizing associated gas. Gas associated to oil, such as in Brazilian pre-salt, was up to now re-injected as flaring is no longer allowed for environmental reason. And last but not least, FLNG has almost no impact on the onshore coastal environment. So in areas with heritage sites, coasts with significant urban development or with security issues, FLNG can be an interesting solution. Above all, FLNG is driven by economics and this is helped by the strong demand for LNG. FLNG is a technological breakthrough for the energy industry that opens up offshore gas resources once considered too remote to tap. As we look at FNLG today, we see it from a perspective where we have experience in large FPSO's, we know that

open sea transfer of LNG is now possible with several qualified technologies, and the processing challenges on moving platforms are understood. Technip is now involved in three FLNG projects: Shell's Prelude has just made its Final Investment Decision. We delivered the Petrobras FEED during the 4th quarter of 2010 and we started to work on Petronas FEED early this year. We see today Africa, Canada and the Arctic as being in a long term market for FLNG. Brazilian FLNG is very specific as it is an enabler for oil production, at least at this stage. Brazil has to find a solution for all pre-salt associated gas, coming from FPSO operating far offshore in deep water. Other areas with interesting prospects are South East Asia but we see FLNG projects being primarily (but not exclusively) located offshore Australia due to the existence of many sizeable remote fields. Then, there is the confidence of investors in developing LNG there and the proximity to the Pacific basin market. There is the sensitivity towards conservation of the natural environment and architectural heritage. And finally there is the ability of FLNG to avoid any significant infrastructure onshore in a country with high construction costs. So that ends the presentation. Thank you for listening, and I will now be happy to answer to your questions.

Q&A session

Mr Andrew DOWING, JP Morgan

Two questions, please:

1. I acknowledge your involvement in very large floating production facilities as you outlined in the presentation but I guess floating LNG is something new. Does it concern you at all that your first venture in floating LNGs is through a very large unit: is it necessarily much more complex in terms of the technology involved? That it is a very large capacity unit rather than a small unit?
2. Have any decisions been made on the type of risers you are going to use for floating LNG? Do you anticipate using flexible or is that decisions yet to be made? Thank you.

Philip HAGYARD, TECHNIP

Your question is specifically about whether we are concerned about the large size of the units?

Mr Andrew DOWING, JP Morgan

These are large projects. I guess it needs a large facility. It would have been a lower risk option even though I know it is not really an option, but I was trying to get the sense of how much more difficult or complex it is. I know it concerned you that it is such an enormous unit that is going to be used, the first time this type of facility is being built, that it is such an enormous unit.

Philip HAGYARD, TECHNIP

The unit is much bigger. It is more complex than the FPSOs that we have seen, but of course the project has come through extensive and very careful planning where the H project got the support of their clients and first class partners including SAMSUNG and the particular case of PRENDI which is the best qualified shipyard in the world for this type of work. The challenges on this project are handled in very much the same way as we handle them on any engineering project. When there is any novelty such as increased size, there is a mitigation plan that is put in place, with risk reviews, management plan, discussion with our partners. Today we have these satisfactorily covered. As for the type of risers, that depends on the water depth and the application. This will usually be flexible risers.

Mr Guillaume de La BILLE, Société Générale

Good afternoon. Two questions, please :

1. If I had to sum up, could you tell me what makes a TECHNIP offer unique vis-à-vis competition. Is it your liquefaction technology, your offloading technology? What is the debate and what are the other alternatives in terms of technology both for liquefaction and for offloading.
2. Similar as the first one, regarding big versus small units: I would like to know if you expect the economics of a smaller unit to be better in terms of return than a big unit?

Philip HAGYARD, TECHNIP

In the presentation I tried to show that what makes TECHNIP unique is that project management expertise has long and deep background in liquefaction floating production systems and subsea production systems, the key skills that need to be mastered to execute an FLNG project successfully. Your question was specifically about liquefaction technology, offloading and other technologies. TECHNIP is first and foremost a project company. In other words we execute projects with technology that can be sourced commercially from people who license their technology, that we bring ourselves or that our client has. Today TECHNIP is not offering any specific liquefaction technology. We had the habit of working with products, but the liquefaction technology is generally selected by our clients. For the offloading system we have often talked about OLS offloading system, which is indeed an excellent offloading system for the severe sea states we meet in Brazil, for example, and which is based on a flexible technology, it's a special flexible pipe that is designed to work at LNG temperatures, cryogenic flexible pipes. We are in other cases being asked to work with technology which is supplied by the companies, until the extent that we can validate the use of that technology in our projects. We have been doing so and quite happy to do that. There are projects where the technology is being brought completely by our clients, other projects where we are being asked to put together a technological offering. In such case we are using usual supplies, supplies we have a long-track record with, we have confidence in and who we know is having

developed specific solutions for production floating platforms. We build the technological components of that project using these solutions from the market. There are today in FLNG several technologies available for most of the technical challenges these products are faced with.

About big versus small; I think it was more of an economic question. It is not possible to give any statement on this. The capacity affects the economics of a project but the price depends on many things that include the rule gas composition and the pre-treatment that is necessary, the market environment, the market conditions at the time when the project is launched.

Mr Tom ACKERMANS, Barclays Capital

Goof afternoon. A couple of questions, please:

1. On the learning for these projects: I am looking at SHELL's PRELUDE project which will take about five years to start up from now. If I look at subsequent similar projects, what sort of development time-frame are we looking at?
2. On the scalability of the current solution: I understand that the SUNRISE projects could be potentially larger than PRELUDE. What are the current limits you are looking at?
3. In terms of the organization, how many projects can you execute at any one-time going forth?

Philip HAGYARD, TECHNIP

Your first question is about schedule and learning. For information about the schedule on PRELUDE specifically, please refer to information SHELL have put in the public domain about their expected delivery times. As the FLNG industry goes forward, the thing that probably could change most is the schedule, particularly in terms of repeat designs. This is something our clients have often mentioned: repeat designs will bring gains in terms of the time to do, engineering and critical procurement.

Whether SUNRISE is bigger or not, I decline to comment on that. The generic FLNG design has been the object of a contract between the TECHNIP SAMSUNG consortium and SHELL that was signed in July 2009. The generic design is intended to cover all likely scenarios with a range of gas compositions in a range of sea states. The generic design will be adapted as it has been the case for PRELUDE to following projects including SUNRISE, should SHELL decide to go ahead with this with their partners.

How many projects can we handle at once? We have mentioned today we have large teams working on these projects. We are continually updating forward views of workload. We will take on these contracts when the time comes, in conformity with our risk portfolio which favours diversity in project type and regional distribution of projects.

Mr Ryan KAUPPILA, Citigroup

Good afternoon. I was wondering if carbon capture was ever seriously considered for PRELUDE and how you see the state of things with being able to integrate carbon capture to further FLNG projects?

Philip HAGYARD, TECHNIP

By carbon capture you mean removal at the price of carbon dioxide. /in.TC.38'15./ in the world had fluids, for elimination, reinjection in the rock. We understand it could have been at one stage. You can refer to SHELL's public communications on the subject which are available on Australian government sites about the environmental impact of the project. It is fully explained there.

Mr Ole SLORER, Morgan Stanley

Sorry to come back on the same subject of small versus large floating LNG facilities: we are getting some interesting claims in respect to cost by some people involved in more kind of small scale standardized floating LNG project, PNG in particular. I am sure you know what I am referring to. They are arguing they are using a 2 million ton per annum facility. If you are going to standardize a lot of products, you can build them in a sort of standard ship-building environment, nothing unique. As a result you can come with costs that are significantly lower than the costs of making a 4 million

or 3.5 million ton per annum facility. You are involved of course in the whole-size spectrum. Would you agree with those statements? If not, what do you think people are missing when it comes to these comparisons. Why are they not apples to apples?

Philip HAGYARD, TECHNIP

I think it is very difficult to talk about other people's projects…

Mr Ole SLORER, Morgan Stanley

It was a general observation. I am sure you are seeing the same claims for this spectrum cost. Are they apples to apples or are there other significant differences that mean they are not comparable?

Philip HAGYARD, TECHNIP

We just don't know what the claims are based on. We can read the communications of the people you are referring to. We just don't pay a great deal of attention because it's not possible to work out exactly the validity of what is being considered in the cost figures that are proposed. When it comes to standardization, of course TECHNIP, as an engineering company with thousands of references in process plants of all sorts, knows all about standardization of equipment, specifications,

construction techniques, reuse of trust, tried and tested processing schemes and so on. Standardization is a natural feature of any FLNG project whichever client. Wherever possible we will try to, when this is economic, incidentally, try to reuse designs and equipment and not re-invent the wheel. The FLNG projects, as already said, are very, immensely, in terms of weather, installed: the sea state is considered, the construction yard or the shipyard which is selected to do the construction, the type of gas, whether or not relocation is required, whether or not disconnection is required, or the type of mooring system more specifically. I think if you look closely at some of the claims, it is usually possible to see how the claims have been made. On precise figures we are certainly not going to make any comment. What we can say is that in terms of our understanding of the cost base for our projects, it comes from experience with FPSO projects, with experience from a huge procurement network, knowledge of the procurement market, knowledge of the shipyards we have been working with the best part of a decade in most cases. We are confident we understand the investment levels.

Mr Ole SLORER, Morgan Stanley

Based on what you see from your perspective, do you see a cost advantage and a kind of a suite post around a small unit or do you think there is positive economies of scale in general.

Philip HAGYARD, TECHNIP

It is too early to say. It may become clearer as the years go by what is the optimum but today we're seeing economic projects at all capacities. It depends on the field size, on the water depth. For the investor it depends on its well costs.

Mr Ian McPherson, Stevenson Company

I have one question about Brazil: I wondered if you could share with us your thoughts on how you see PETROBRAS progressing from FEED to FID, and how you see your competitive circum theatres in that arena? Are you competing primarily with an alternative development solution for the associated gas? Are you going to be competing with other contractors who could execute your FEED on a cheaper basis and technique, or something else? Do you think PETROBRAS is likely to pursue a long-term frame agreement with the preferred contractor SHELL? or if it is going to be more 'jump ball' as we move through the years?

Philip HAGYARD, TECHNIP

Your question relates far more to the intentions of their clients which is PETROBRAS and PETROBRAS' partners BG, GALP and REPSOL, and not sufficiently to take his own plans for me to be able to answer I am afraid.

Mr James Thomson, JP Morgan

I have a quick question: given the space challenges we have on SPSOs, we find that they generate pretty sensitive variations in the fluid's composition. I was wondering what is your perception on how sensitive floating LNG is going to be. This is going to be quite delicate.

Philip HAGYARD, TECHNIP

I think your question is relatively technical: we have had a lot of experience producing oil from oil wells and gas from gas wells. Gas production with the gas reaching LNG plants is by large fairly slow to change in composition and nature over time. I am not too sure what you are referring to but the water, cap rates, temperatures... but the FLNG during the designs... we have there projects which we are going through in extensive FEEDs: the reception of the well fluids onto the platform is an integral part of those FEEDs. We have engineers who are skilled in working in the offshore sector, well-head platforms and primary treatment of well fluids, looking at these issues to make sure the FEED-gas is as stable as possible. In the pre-treatment units which come downstream of the primary gas operation, each individual treatment unit is built with this type of problem in mind. In other words, the highest expected level of carbon dioxide is used to design the carbon dioxide removal unit. In practice we normally expect the carbon dioxide level to be lower than the design value. When the carbon dioxide varies, there is enough flexibility in

the carbon dioxide removal unit to provide a constant quality of gas to the liquefaction section of the plant.

Mr Alex Marie, Exane BNP Paribas

Good afternoon. Two questions, please :

1. About the construction capabilities: you have mentioned SAMSUNG is one of the best partners available on the market. Do you think it will be critical for getting contracts in the long-term to associate such construction capabilities within the engineering capabilities of TECHNIP. If so, does it make sense in the long-run for a company like TECHNIP to actually have a partnership with a construction company like SAMSUNG. Is that something you may consider?
2. On the FLNG units: are they going to be potentially reusable in different fields than for the filed for which they have been designed. Is this something you have taken into account or you will develop further when going forward?

Philip HAGYARD, TECHNIP

I mentioned SAMSUNG HEAVY INDUSTRY as a consortium partner in the SHELL contract SHELL FLNG. I remind you we have a 15-year frame agreement with SHELL which associates with SAMSUNG. We've been very careful to build this partnership with SAMSUNG during the engineering of the project and this will

continue through execution. Whether it is necessary to build a partnership for other projects, for other clients, I prefer not to comment.

About your second question on the redeployment of FLNG: it's an obvious advantage of a movable liquefaction facility. It can be used to produce over a relatively short period, a relatively small pocket of gas and then move on to another pocket of gas. To be able to do that is somewhat speculative. It's speculation on their part. It's certainly going to be possible, provided that the gas in the follow 1 reservoir is sufficiently close in composition, or fits within the design envelope for which the FLNG was originally designed. Economically the cost of drilling the extra wells, moving and so on, can justify this reuse. Yes, we realize there is an interest in redeployment. The projects that we mainly deal with are for long-term production.

We would like to thank you again for attending this conference call. Have a very good day.