DISCUSSING LIQUEFIED NATURAL GAS

Valérie Ducrot, Executive Director of Global Gas Centre

Now let's move to LNG, and we have the specialist, Jean.

Jean Abiteboul, President of GIIGNL (International Group of Liquefied Natural Gas Importers), Non-Executive Board member of Tellurian, Inc. (AMEX: TELL), Founder and Chairman of JA Energy Consulting

Thank you very much. I will try to make it short and simple, some issues have already been invoked by Mr. Abed.

If you look to the right, the main takeaway of this slide is that the demand for energy consumption is growing in the world, but the pace of growth is going down. From 2000 to 2010, the growth per annum was 2.5% and from 2010 to today, it is only 1.5%, so the rate of growth is slowing. At the same time, world CO_2 emissions are still growing but at a slower pace. They were at 2.8% from 2000 to 2010 and are now at 0.7%. The bad news is that CO_2 emissions are growing up, but the rate of growth is going down. This is possible because the pace of development of renewables has increased dramatically from 4% to 7% per annum but, at the same time, natural gas is replacing coal for some electricity generation purposes, especially in Asia, but also in Europe.

I will just focus on LNG, which is growing much faster than natural because there are no new pipe gas projects and the existing projects, such as Russian gas, are going down. The pace of growth of LNG is quite steady and the good news is that it provides a lot of security and flexibility to the world energy system. We saw at the time of Fukushima that all the LNG that was supposed to go to Europe went to Asia to replace nuclear in Japan, and of course, we saw that in 2022 after the invasion of Ukraine, when there was a dramatic shutdown of the pipe gas that was replaced by LNG without need for government intervention. The market was efficient and through the price signals it was able to redirect LNG from Asia to Europe. The main source of the growth of LNG is, of course, the United States, as well as Qatar, and with the exception of Europe because of the Ukrainian crisis, the main market for LNG is Asia, with China and India.

In 2023, a lot of regasification projects were built in two places in Europe because of the Russian gas crisis, and in China where the pace of development of the use of LNG is amazing.

If you compare the growth in the liquefaction capacity and the regasification capacity, you can see that in 2024 to 2025, there is huge growth in regasification capacity, especially in Europe but not only. The liquefaction capacity comes onstream later, mainly 2026 to 2027, and mainly from the United States and Qatar. Today, the rate of utilization of the regas capacity worldwide but especially in Europe is quite low, which again provides a lot of capacity for re-optimization and a significant ability to resist shocks.

I want to give you a snapshot of something that is not talked about much, which is the use of LNG in sea transportation. There is a huge increase in containers, CAC areas, bulk and cruise, in the number of ships that are going to use LNG instead of heavy fuel, which is good news for CO_2 emissions.

I have two takeaways I want to stress and one question I hope will be discussed later today. The main takeaway is that LNG is growing very fast, probably plus 60% over the next 10 years. It provides a lot of flexibility, security and capacity to resist shocks, such as Fukushima and Ukraine. My main question, and I read this in a French newspaper last week but not only, that new liquefaction projects are climate bombs. It is true that if you calculate the CO_2 emissions during the whole life of a liquefaction project, 25 to 30 years, there is a huge number of tons of CO_2 at stake. However, for me the full calculation should also take into account the CO_2 emissions that are avoided by new liquefaction projects. Since it is not possible to replace all the gas projects with renewables or nuclear from one day to another, the only short-term alternative is coal. For me, it is really an issue of communication and if we start to calculate the CO_2 emissions attached to a new LNG project, we should also take into account the avoided CO_2 emissions that would have been emitted by alternative fuel. Today, if we assume that renewables are at a maximum state of development, that is coal.

Valérie Ducrot

Does someone want to react?

Majdi Abed

There is also the issue of carbon capture, which is starting to be a mature process, and I think should also be part of the equation.

Jean Abiteboul

I agree. Carbon capture at the level of gas production and liquefaction. There are all kinds of projects such as the trend to replace natural gas with electric compressors and tracking CH4 methane to avoid methane leaks during liquefaction. Maybe we will also discuss later the project for synthetic methane and LNG, but the economic profitability still needs to be demonstrated, but you can produce synthetic methane with hydrogen produced by renewables and CO_2 sequestration to have a full CO_2 cycle without additional emissions. Today, the economic profitability of these kinds of things still has to be proven but it will probably happen sooner or later.

Nicolas Piau, Cofounder and CEO of Tilt Capital

Maybe one point on avoided emissions, I frankly fail to see how you could justify avoided emissions on such a project. Because unless you can demonstrate that the reference scenario – which I think you were alluding to – is actually coal as the reference technology, then, first you have to do it market by market, and then do the horizontal allocation to say that it is actually LNG that is flowing to the gas power station replacing the coal power station. Like you and as the previous speakers said, I believe that gas is a transition fuel, and I think it will probably take 10 to 15 years, and we could discuss what happens then. However, I think we need to assume that it is a transition fuel, and it is very important not to try to justify it through avoided emissions because I think it will blow back on the industry if we try to green it in a way that is ungreenable.

Jean Abiteboul

I agree and I think you are right when you say it is very difficult to do this kind of mathematical compensation. One way to do it would be to have a world carbon market, which would probably be the easiest way to measure things. It is not an easy concept to implement and today, with the exception of Europe, this idea is not very well-advanced and as long as you have countries like China, India or the United States that will not join the CO_2 market it is really difficult to make progress.

Majdi Abed

I do not want to take the floor too many times, but I just want to react and be sure I understood. Are you thinking that if we have LNG going to Asia and replacing the whole coal industry, it will not be enough to justify avoided emissions?

Nicolas Piau

Of course, it is certainly a direct benefit of that. It is a common topic for all avoided emission calculations, for example, horizontal allocation and I am just asking where the avoided emission start, is with the operator of the CCGT or the supplier of gas? I agree absolutely that it contributes but if you want to have a stable supply of gas you generally need both LNG and pipe gas, you need optionality.

Valérie Ducrot

Thank you, Nicolas. I will give the floor to Jeffery before we move to Igor.

Jeffrey Lewis, Partner and member of the Executive Board of the international law firm of Clearly Gottlieb

I just want to address the timeline for the transition period, and it seems to me that in theory it should be tied to the period required for two things to happen. One is for the technology to evolve to a point where you could have a more fully renewable system, which has two components, energy storage and smart grid systems that allow you to bounce the energy around very quickly. The second part of it is obviously the investment required for the development of renewable energy projects to fulfil the demand. I think Nicolas is probably right

that 10 to 15 years is probably the right time frame for both those things to mature. But we have got a problem, which I just want to throw out to the group, and I agree that natural gas is going to be the necessary stabilizing source of energy during this transition period. The problem is, and I know this because I see it every day as a lawyer trying to develop and finance these projects, that you cannot finance an LNG project unless you have a 30-year commitment for the offtake of gas. The question for the world is how do we balance the need for these projects to come online, and as you say, we will increasingly need them over the next 10 years, without being locked into natural gas for 30 years?

Jean Abiteboul

It is a very good question, and for me it is a question for the industry. I was on the Board of Tellurian, a US based company that has been trying to develop a liquefaction project, and we sold it to Woodside because without long-term commitments from the utilities you need an equity part in the financing of the project that is huge. Typically, a liquefaction project costs between USD 15 billion and USD 30 billion, so if you need 60% or 70% of equity it takes between USD 10 billion and USD 20 billion of equity. Unless the big players can do that there is a significant level of risk. On the other hand, since the market is a world market and you can increasingly optimize flows between Asia, Europe and America, you can make sure that you will have time within the life of the project where you make huge margins on the cost of gas. Today, in the US Henry Hub is 2.5 and in Asia it is 12, so there is room to make profits but without any guarantees, which dramatically changes how the projects are financed.

Valérie Ducrot

Thank you, Jean.