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Headwinds for LNG: Cooling Markets, Warming Planet

A global gas glut, weak demand growth, and rising concerns about methane leaks were deflating the global LNG boom even before COVID-19 hit—and things have just gotten worse since. Will LNG rebound, or are the headwinds too strong?

Speakers:

Clark Williams-Derry, IEEFA Energy Finance Analyst

Bruce Robertson, IEEFA Energy Finance Analyst – Gas/LNG

Moderator:

Suzanne Y. Mattei, IEEFA Energy Policy Analyst

Archived presentation: bit.ly/2Xss6sl

YouTube: youtu.be/w3_GxjGGLOs

Q & A*

What's the position of Qatar in the global LNG market? It recently expanded LNG production and [invested] \$20 billion for LNG shipping? Is it a wise move for Qatar?
(Sayeed Mohammed, Research Associate at Qatar Foundation)

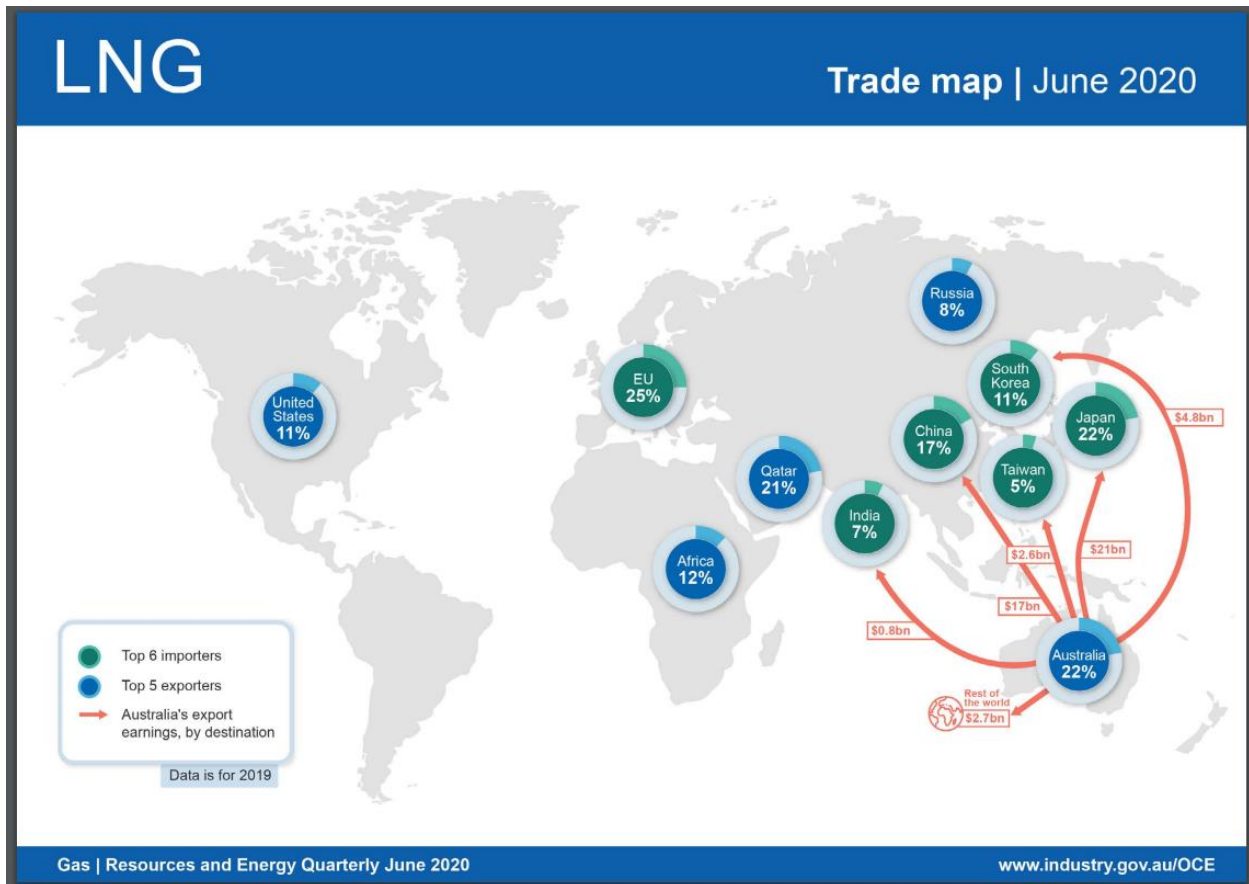
Clark Williams-Derry

Qatar is still the world's top producer and exporter of LNG. And as Bruce mentioned, is planning to expand production – largely because Iran has committed to developing its

half of the North Field, and if Qatar doesn't develop its half, much of the gas will simply flow over to Iran's side.

Bruce Robertson

Qatar is the equal largest producer of LNG along with Australia. The US is by far the quickest growing exporter, as Clark pointed out. It is important to note that in many markets such as China and Europe, much of the gas is supplied by pipeline, not LNG.



What would you say to someone who told you they want to invest in new U.S. gas?
(Bryndis Woods, Researcher at the Applied Economics Clinic in Arlington, MA)

Clark Williams-Derry

I think I addressed this in the Q&A. I don't give investment advice, but the big question I'd ask is: what is the investor's tolerance for risk? No matter what part of the industry

you invest in – upstream (production), midstream (pipelines), downstream (e.g., gas plants), LNG – you’re in a high-risk environment. There’s simply too much gas right now, so the industry faces fierce gas-on-gas competition. It also faces stiff external competition, particularly from wind and solar. Plus, there’s the rising risk of assertive climate regulation, and many parts of the global gas industry will face significant regulatory and market risks as a result. Etc.

Another way to answer this question is: because there’s such fierce competition from both within and outside the industry, **you have to know exactly what you’re doing** when you invest in gas. There’s no “safe” or “default” investment, you need to know the whole landscape to pick and choose effectively. The supermajors have racked up a spotty track record in gas investments – just look at some of the major write-downs that have been announced recently. So, you have to out-invest the supermajors to have a hope at a payday here.

Bruce Robertson

Investors in gas face three headwinds.

1. Emissions are becoming a much bigger issue. Even in gas-producing states, such as New Mexico, new emissions regulations are raising costs:
<https://www.reuters.com/article/us-usa-new-mexico-methane-idUSKCN24M30J>
The greenhouse gas satellites are circling the globe measuring methane emissions, exposing the gas industry lies:
https://ieefa.org/wp-content/uploads/2020/03/Is-the-Gas-Industry-Facing-its-Volkswagen-Moment_March-2020.pdf
Carbon tariffs will likely be imposed by Europe in 2023, further exposing the industry.
2. Large write-offs and persistently poor results are crimping the industry’s ability to access debt and equity markets.
3. Gas prices are too low for the industry to make money. If prices rise, the industry will face increased competition from ever-falling renewable energy prices.

Has anyone looked into suing a key gas industry player for lying about their greenhouse gas emissions? Under false marketing laws...or taking it to advertising standards bodies?
(Alex Wilks, Senior Strategist, Sunrise Project)

Clark Williams-Derry

I don't have any specific information on this, but I imagine that U.S. lawyers are thinking very hard about this.

Bruce Robertson

Its only a matter of time before some smarty-pants lawyer gets hold of this.

Globally, what is the LNG being used for? I know in the US, gas use is about 1/3 each: buildings, power, and industry, but is that true in other major importing countries, like Japan or other countries in Asia? (Meredith Wingate, Program Director at Energy Foundation)

Clark Williams-Derry

I haven't looked at this issue too closely, and it's actually a complicated question because the use varies, and specific LNG use in China and India will likely be somewhat different than the overall gas market. So, I'll have to be general. In Europe, most LNG just gets added to the general gas supply. Europe is basically the swing purchaser in the global gas market: it buys LNG when spot prices are cheap, but sticks to pipeline gas and EU production when prices are more expensive. The EU's gas consumption profile is broadly similar to the US, but I don't have details at my fingertips. In China, LNG goes to the major coastal population centers, often in the southeast, where pipeline costs are higher than in the northeast. Gas consumption in China overall is a little more weighted towards industrial and transportation use than residential/commercial and electricity. [Data here](#). Data for South Korea – almost entirely LNG – [is here](#): a little under half goes to electricity, and “town gas” is split roughly 1/3 industrial, 2/3 residential + commercial.

Bruce Robertson

I think that Clark has answered your question!

Is renewable natural gas as feasible, sustainable, and worthwhile as the gas industry claims? (Sagal Alisalad, Researcher at Applied Economics Clinic)

Clark Williams-Derry

Again, I haven't looked at this issue too closely, but my understanding is that renewable natural gas may suffer from problems of scale and cost. That is, the easy supply is limited, and as supply scales up, costs escalate.

Bruce Robertson

Renewable natural gas is currently a niche producer. I am unaware of any projects at scale.

How is the Marcellus/Utica shale factoring into export strategies of the oil/gas industry?
(Philip Johnson, Senior Program Director for Environment & Health, Heinz Endowments)

Clark Williams-Derry

Great question! So far, to my knowledge only the Cove Point LNG facility in Maryland directly sources from Marcellus/Utica. There's a smaller-scale LNG export proposal in New Jersey, which would source from an LNG facility in Wyalusing, Pennsylvania. The Elba Island LNG facility in Georgia, I'm not so sure about – possibly a mix of sources. But more generally, the entire US LNG buildout hinges on **low cost gas**. The more US gas costs rise, the harder it is for US LNG supplies to compete on the global market. As a result, the US gas buildout likely hinges on continued overproduction in the Marcellus/Utica. Conversely, after the recent collapse [in prices and demand], the gas industry may need higher prices to stimulate drilling. Marcellus/Utica rig count is now down about 56% from one year ago, and down 31% since the beginning of the US coronavirus-related lockdowns in March.

What I'm suggesting here is that the interests of the LNG industry and of gas producers aren't quite in sync. The LNG industry needs prices to stay low, and the gas industry wants prices to get higher. The "Goldilocks zone" – prices not too high, not too low – depends on various circumstances, but at the moment, I'm not sure that there's much of a Goldilocks zone at all.

"Associated gas" production – that is, gas production that's essentially a byproduct of oil production – throws a monkey wrench into things. Oil drilling in the Permian and Bakken has fallen more dramatically than gas drilling. If associated gas production falls

at the same time that international LNG prices rise, that could filter through as price volatility and spikes for US gas.

Bruce Robertson

A comment to add on the US market is that with the operating rig count down 73% year-on-year in the US it is likely that US production will fall considerably late in 2021. This could lead to a considerable price spike.

The US fracking industry is imploding

- Essentially the number of operating drill rigs in the USA has fallen **73% in the last 12 months**.

Area	Last Count	Count	Change from Prior Count	Date of Prior Count	Change from Last Year	Date of Last Year's Count
U.S.	17 July 2020	253	-5	10 July 2020	-701	19 July 2019
Canada	17 July 2020	32	+6	10 July 2020	-86	19 July 2019
International	June 2020	781	-24	May 2020	-357	June 2019

- There have been 14 North American oil & gas bankruptcies in Q2. A total of 19 oil & gas bankruptcies so far this year, restructuring US\$13.1 billion in debt. **Total Oil and Gas bankruptcy debt since 2015 is US\$135 billion**

<https://rigcount.bakerhughes.com/>
https://www.haynesboone.com/-/media/files/energy_bankruptcy_reports/oil_patch_bankruptcy_monitor.ashx?la=en&hash=D2114D98614039A2D2D5A43A61146B13387AA3AE

Question for Clark—is it the shortage pipelines, or terminals? Or financial constraints?
 (Zorka Milin, Senior Legal Advisor, Global Witness)

Clark Williams-Derry

Actually, I'm not sure of the question here. Right now, in my opinion, there's too much of everything. Too many LNG terminals, too much gas, too much pipeline. Everything is in such a state of oversupply that profits have vanished. The only place you can say that there's "not enough" pipeline is in parts of the Permian where methane is being simply flared or vented, with disastrous climate consequences. Even there, the right solution might be regulation and limits on excess/unneeded oil production, rather than new pipelines.

Hi, I just came off an LNG industry webinar on prospects for global floating storage and regasification units - LNG's plug and play infra. They were not mega-bullish, but still confident. For FSRU [NB: Floating Storage Regasification Unit] financing in developing countries, they are pinning a lot of hope on the multi-lateral development banks and export credit agencies. This is like a rewind to post-crisis 2009 and the MDBs/ECAs piling in to support thermal coal. Where are we at with making coordinated headway on the public FIs and LNG? The industry's long-standing crazy economics are no barrier to the sovereigns continuing to prop it up (see Mozambique LNG recently). (Greig Aitken, Wood Mackenzie)

Clark Williams-Derry

Great question, but I should probably defer to someone who knows the public FI space better. As discussed in the Q&A, my own sense is that many public FI's are still happy to subsidize questionable projects, but I honestly can't provide more detail than that.

Bruce Robertson

In developing countries, often the problem is not the FSRU import terminals but the ability to use and pipe the gas once it is onshore. In many countries basic pipeline infrastructure simply doesn't exist.

Peak fracked gas seems to be on the books fairly soon. What will happen to the global LNG market that happens? Gas can't really compete on many markets in the long run unless it's super cheap, can it? (Kjell Kühne, Director, Leave Fossil Fuels in the Ground Initiative [LINGO])

Clark Williams-Derry

I'm not going to comment on whether I think a "peak" in fracking is imminent. I'll just say – maybe! As for what happens then – it's actually hard for me to say. But in general, the higher US prices go, the less competitive US LNG becomes in global markets, compared to lower-cost supplies in Qatar, western Australia, and elsewhere. So "peak fracking" would likely have two effects: first, it would slow/stall the US LNG build-out due to higher US feedstock prices that crimp profit margins; second, it could reduce the long-term global LNG supply glut, potentially lifting LNG prices & making international LNG spot prices more volatile.

But really, a lot is going to hinge on global gas & LNG demand trends – and most of those forecasts have to be revised and recalibrated post-COVID.

Bruce Robertson

I think that this chart illustrates where we are pretty graphically

US liquefied natural gas exports have declined by more than half so far in 2020



I think that with the rig count down 73% this year and exports down 50%, it will take a long time for the USA to return to the production records set this year.

Given that the climate impacts of fossil gas (and especially LNG) are still systematically underestimated by industry and financial players, and therefore not priced in, does fossil gas face especially acute stranded asset risks? I'm thinking especially of LNG infrastructure, given how capital-intensive it is. (Jason Disterhoft, Senior Campaigner, Rainforest Action Network)

Clark Williams-Derry

That's a really interesting point. As I mentioned today, US LNG facilities are currently running at about 25-40% capacity; for the time being they're "stranded," though the contracts are still providing revenue.

Longer term, I think there's real risk in places that implement carbon or emissions pricing of LNG simply getting priced out of the market, particularly in certain jurisdictions. Even without a carbon price, LNG faces various climate-related regulatory risks. I suspect, but do not know, that some of these forces & risks will come into play when the current round of US LNG contracts begins to expire.

Bruce Robertson

Yes. Stranded asset risk will be compounded by the methane-measuring satellites that are currently in operation. Europe is also looking at introducing carbon tariffs in 2023.

Analysts are very bullish on future LNG demand growth, in India especially. They tend to see the LNG glut easing by the late 20s due to rising demand in south and southeast Asia especially. Are they too optimistic? (Lorne Stockman, Research Analyst at Oil Change International)

Clark Williams-Derry

Before COVID, we were seeing analysts predicting a global LNG shortfall by the mid-2020s. Some are still saying the same thing.

I'm no expert on India. But my own opinion is that India's demand is going to be particularly price-sensitive, because from what I've read, the country actually needs to build out a LOT of infrastructure to support the "bullish" scenarios for India's gas demand. That's different from, say, Japan or South Korea, or even parts of China, where

the basic infrastructure is already there. India would need to build pipelines, industrial facilities, power plants, etc. That makes gas demand growth more capital-intensive in India than elsewhere, which in turn, makes the entire project more sensitive to long-term LNG price assumptions.

Bruce Robertson

The Indian market is particularly price-sensitive and historically, demand from this market has come and gone with price fluctuations. Demand for LNG in India will rise strongly with current prices and fall next year when prices rise. The infrastructure problem is particularly acute in India. They simply don't have the gas pipelines to reticulate the product.

If drillers need higher prices to be profitable, and more gas diverted to exports pushes up Henry Hub prices, it seems reasonable to assume US domestic gas prices will rise. But will that then hasten an energy transition as renewables undercut gas in power generation? (Nicholas Cunningham, independent Journalist)

Clark Williams-Derry

I think this is right! It's one of the many inherent contradictions in the gas market: the market needs low prices in order for gas demand to grow, and it needs higher prices in order for gas producers to produce the cash they need to service their debt and reward investors. I like to think of a 'Goldilocks zone' where prices are low enough to stimulate demand, high enough to produce profits, and not so high that they encourage the alternatives. I don't know what that "zone" is anymore – but it strikes me that it's shrinking, and may actually no longer exist. That said, the "Goldilocks zone" isn't a fixed price, and can depend on various external forces: the pace of technological shifts, environmental policy, tax policy, etc.

Bruce Robertson

The gas industry is in a cleft stick. At current prices they can't make money. If prices rise too much, then renewables will eat them.

If the industry can't make money at these prices and yet renewables are now competitive with gas in much of the world, when gas prices rise, how will they compete with renewables? (Justin Mikulka, DeSmog blog)

Clark Williams-Derry

Great question, and I'll give the same answer that I gave to Nick Cunningham above.

Bruce Robertson

As above

Projects that are not yet financed are obviously vulnerable to collapse. What are the risks to LNG projects like Mozambique LNG which have already secured full financing and are in (their) construction phase? (Douglas Norlen, Program Director, Friends of the Earth Action)

Clark Williams-Derry

I'm probably not telling you anything you don't already know, Doug, but the risks of a project collapse are lower if the funding is fully committed and construction has started. From a financial perspective, project developers look at any money they've already spent as a sunk cost, meaning that they ignore anything they've spent so far.

For example, look at [Shell's Prelude floating LNG project](#), which went 45% over budget and was recently impaired by billions of dollars. The project's problems were well understood for a long time, but Shell plowed ahead anyway in part because of its "sunk cost" problem. (As poker players say, *In for a dime, in for a dollar.*)

Bruce Robertson

LNG is a very capital-intensive business. Once the costs of an LNG plant are sunk, generally they operate right down to their marginal costs. On the East Coast of Australia, the three Coal Seam Gas to LNG projects have seen write-offs of over \$20bn with no end in sight.

How do you evaluate disruption risks on (the) demand side for gas (and hydrogen) use in heating and in heavy industry – e.g. from efficiency or new processes? Power seems to be the easier part of the story. (Lisa Fischer, Senior Policy Advisor, E3G)

Clark Williams-Derry

Just an opinion: I think that there are potential “technology leapfrog” risks to bullish LNG demand scenarios. Growth scenarios tend to assume that developing economies (southeast Asia, for example) will follow the same trajectory as other developing economies did a few decades ago (e.g. South Korea). Yet I think it’s at least plausible to think that over the next two decades we’ll see technological improvements that allow developing economies to skip over some phases of fossil fuel demand. For gas, I think this is especially true for areas that don’t have much need for space heating. But I’m certainly no expert here, I’m mostly just thinking out loud.

Bruce Robertson

Technology is always hard to evaluate, all that we know is that the changes it wreaks can be rapid and deep.

What predictions do you have for the impacts of rising prices on the petrochemical buildout in the US? How much will prices need to rise to drive off new investments in facilities relying on (m)ethane as a feedstock? (Jordan Luebke, associate attorney, Earthjustice)

Clark Williams-Derry

Great question, but I’ll leave that to my colleagues who follow petrochem more closely than I do!

Bruce Robertson

Likewise

Given some of the stranded LNG assets still make money due to off contracts: what is the possibility for triggering force majeure linked to COVID? (Heike Mainhardt, senior advisor, Urgewald)

Clark Williams-Derry

Depends on the contract. In the US, the contracts I've seen are very clear: the buyers still have to pay liquefaction fees even if the buyer never takes delivery of LNG. This encourages LNG buyers to think of the liquefaction fees as sunk costs.

In other markets we've seen some force majeure declarations and contract renegotiations that could have some impacts on LNG producers that don't have strong contracts.

Bruce Robertson

Contracts vary from project to project. In Australia most have some quantity variance and force majeure clauses. To date there have not been total defaults and volumes are holding up better than in the USA.

Clark: Rhodium Group recently assessed that low gas prices, over longer term (10-20 years), undermines US domestic build-out of REs (and continuation of existing nuclear). What do you think? (Alan Yu, Director of International Climate Policy, Center for American Progress)

Clark Williams-Derry

Yeah, sustained low gas prices could be bad for renewables. 😞

The questions then become – how low, for how long; how stable, how reliable are the low prices; and what are the costs for renewables? We're quickly approaching the point where renewables + storage outcompete gas on price in some markets & locations, and renewables costs keep dropping.

I'm not an expert enough to know at what gas price points we're likely to see slowdowns in renewable uptake.

**Note that questions were submitted by attendees online during the live Q & A session. Answers were provided post-event by presenters. For further information, please contact IEEFA Strategic Communications Director Vivienne Heston (vheston@ieefa.org).*

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