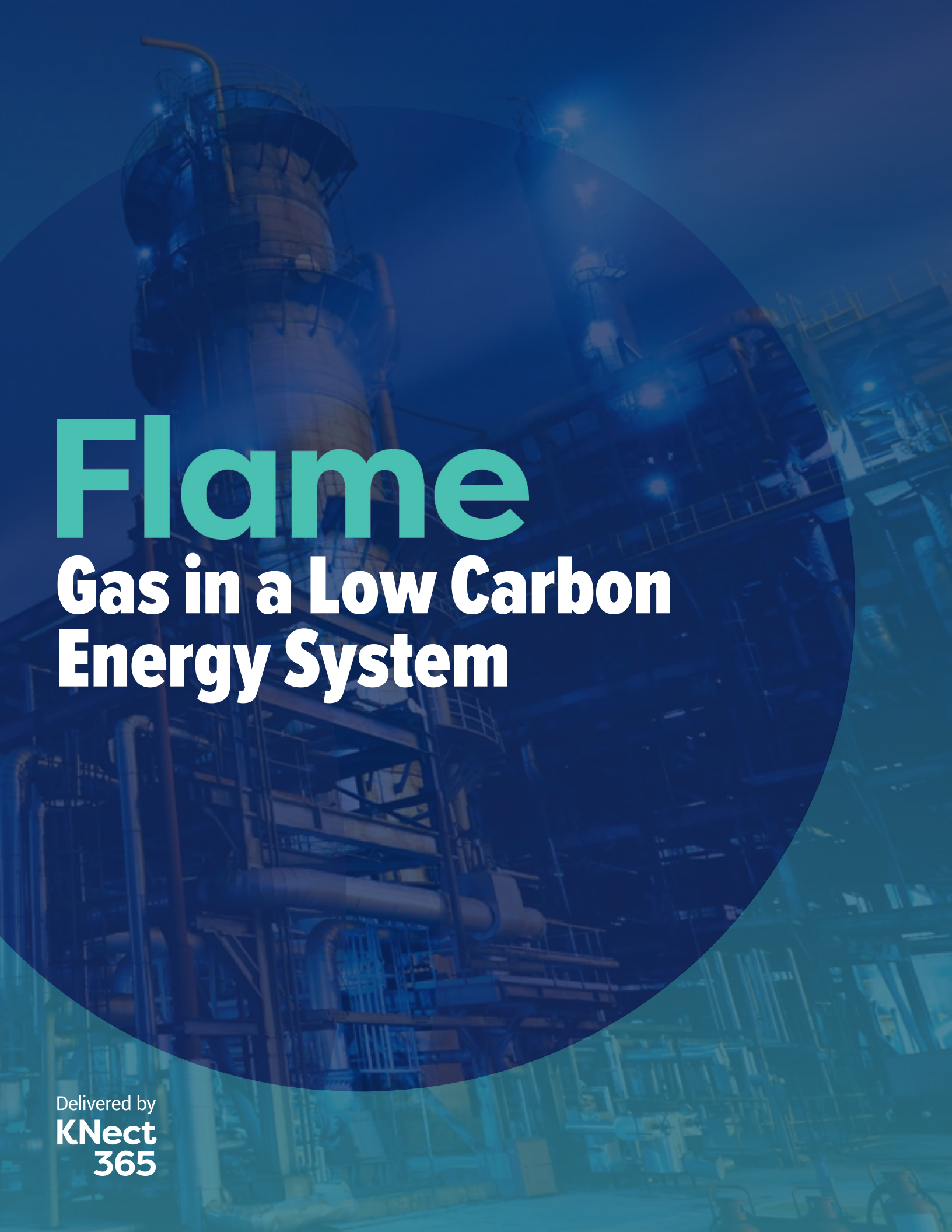

Flame

Gas in a Low Carbon Energy System

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CONTENTS

UPCOMING EVENTS:

LNGgc

29 – 31 October 2018

Offshore Vessel Connect Global

5 – 6 November 2018

OPT

26 – 28 February 2019

An Interview with Tim Boersma

Tim Boersma, Director of Global Natural Gas Markets at the Centre on Global Energy Policy

Q: In a future in which renewables play a much greater role, natural gas is often cast as a back-up energy source, providing extra power when demand is at its highest or when the supply of renewable power is at its lowest. Is this an accurate characterisation of the role gas will play, and are battery technologies a threat?

A: I think this is an accurate characterisation of one of the roles gas will play, not necessarily the only one. The role described predominantly focuses on the power sector, which is what most policy debates tend to do. In power generation, batteries do pose a long-term challenge, but to become a truly existential threat to gas-fired generators, costs have to come down further to make large-scale commercial battery storage economically viable, or we need to change the traditional centralized utility business model completely to make distributed generation coupled with on-site (or home) batteries the dominant form of electricity generation. Electric vehicle batteries can play a role in battery storage as well, but we will need smart grids and smart gadgets and smart policies to manage this at a system-wide scale.

It is very important to emphasize that only about 1/3 of Europe's gas consumption takes place in the power sector; the rest is in the industrial and residential and commercial sectors, with a small fraction also coming from transportation. The fuel mix in these sectors is of course subject to change as well, with a focus on curtailing GHG emissions as much as possible, so the share of gas might decrease in some sectors, but in others we might see some growth.

Q: Are there reasons to be sanguine about the growth of wind and solar?

A: The cost curves for the mainstream renewable technologies are the most important reason to be optimistic about the growth of wind and solar. I think this is well reflected in the more recent analyses where investment money flows, in the transatlantic space it is almost exclusively towards renewables and natural gas.

However, those cost curves are not the only factor of relevance. The increasing share of renewables on the grid has also faced utilities, grid operators, regulators, and policy makers with important questions that have yet to be answered - e.g. how do we encapsulate the costs of intermittency into the overall costs of electricity? How should we think about our traditional market model now that wholesale prices have plummeted? How do we safeguard investments in infrastructure, and what needs will we have to begin with, now that a growing number of distributed producers are joining the market? And how do we address social inequality questions related to some of our current incentive schemes?

Overall, there is reason to be optimistic about the future growth prospects of wind and solar, but the notion that they have already taken us to the verge of a full-on energy transition is misleading. According to the BP Statistical Review, wind energy accounted for only 1.6% of global primary energy supply in 2016, and the share of solar was only 0.6% in the global primary energy mix.

Q: Given the increasing share contributed by renewables, is there enough optimism about natural gas's future to allow for investment in combined-cycle plants?

A: That is an important question. As the uncertainties about the exact role of natural gas in our future energy system grow, so do the difficulties of attracting capital. How do you finance gas pipelines if you are not sure whether they will be used for four decades? At the same time, our energy demand patterns do not seem to change fundamentally at this point, despite public concerns about climate change, and so if people keep consuming (sometimes disproportionally) significant quantities of energy, this behaviour sends a signal to the market, which invests accordingly. In short, it looks like the global need for affordable and available energy continues to grow, and there is (fortunately) a growing desire for that energy to be sustainable. At this point, and considering all the uncertainties, it is still very hard for me to see what an energy system (not just power generation, but industrial activity, manufacturing, heating, cooking, transport) that runs entirely on renewables looks like, so I think that given that outlook, and considering the pace at which the energy transition has progressed to date, investment in combined-cycle plants still make sense. In chunks of the world major investments in coal-fired power generation are still being made!

It is worth noting that in many parts of the world, there is booming demand for baseload electricity, heating and clean cooking, and what fuel source this energy comes from is only a secondary concern (though local air quality is a real concern). Renewables alone can rarely meet demand in these emerging economies, relying on coal raises serious public health concerns, and nuclear requires a decade of investment before a single electron is produced. Modern gas-fired plants are relatively quick and cheap to build (though they cost more to operate than coal plants due to the higher fuel cost). Competitive LNG and easier access to the market via FSRUs can make gas-fired generation more attractive, and small-scale LNG distribution can help gas make inroads into cooking and heating even in places with limited or no distribution networks.

Q: You've written about gas both in both Europe and the US. Do you think there are lessons Europe could learn from the US about how to organise its gas markets, or vice versa?

A: I think Europe has learned a fair amount from the United States on how to organize its gas market. The fundamental idea to liberalize those markets came from across the pond, for instance. Subsequently those markets, historically organized nationally, have increasingly been tied together, rules and regulations streamlined, and I think on aggregate that has been a successful EU integration story.

Q: It is often more profitable for US LNG exporters to sell their product in Asia than in Europe. Will this continue, and what do you see the long terms effects to be?

A: Gas prices tend to be highest in the key Asian markets for several reasons, including distance from key producing areas, but also lack of storage capacity, and trade restrictions in existing LNG contracts. Some of those factors will likely become less relevant as the LNG market continues to mature. For example, trade restrictions in natural gas contracts in Europe are illegal and have recently been ruled undesirable by the Japanese Fair Trade Commission as well. In Korea a similar decision is anticipated. Hence, slowly but surely, gas can flow more freely, be resold if desired by a purchaser, and all of this likely contributes to prices globally becoming slightly more aligned. However, as the transportation and storage costs of natural gas continue to be relatively high, for instance in comparison to coal or crude oil, it is likely that regional price differences will remain.

Q: Are the predictions of an impending glut of natural gas and LNG overblown? How will it affect gas's long term prospects?

A: So far those predictions have been overblown, chiefly because demand surprised us on the upside, and also because some supplies are coming to market later than initially anticipated. New importers emerged around the world, and several of those countries are in it for the long term, e.g. Pakistan. Countries like Bangladesh are expected to join. Others were catering shorter term imminent energy needs but will likely be less prominent going forward, e.g. Egypt, or Mexico. And on top of this more supply keeps coming to market, with another 30 MT in 2018, and close to 48 MT in 2019. All that LNG needs to find a home (and a very significant number of those cargos on paper have a home, yet it is not in the hands of an end user, but instead those of trading houses and portfolio players). So the question is how long demand will be able to keep pace with supply, because more is coming.