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Europe’s wholesale gas market

Innovate to survive

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Europe's wholesale gas market: Innovate to survive

In a recent working paper, we described how some large energy companies have been responding to the evolution of the European gas market.[1] In particular, we looked at the strategic dilemma facing large midstream companies, which have been struggling in a classic business squeeze as they face competitive threats from upstream and downstream rivals, as well as big changes in how their customers are behaving.

In essence, the way the European wholesale gas market works has fundamentally changed. Demand is at best stagnant, held back by uncertainty over the strength of the economic recovery from the financial and sovereign crisis of 2008–12, as well as by greater energy efficiency and the relocation of production. Furthermore, there has been a marked increase in liquidity and price transparency at major European hubs, which are now determining the prices achievable for midstreamers. This development has led, in turn, to the steady disappearance of traditional geographic and seasonal pricing spreads.

We can summarize the midstreamers' dilemma as follows:

- They have a structural long position in gas based on forecasts assuming a reasonable increase in gas demand, a dilemma that is even greater because they have huge sourcing portfolios built up over many years containing some very long-term agreements with significant take-or-pay obligations.

- They are still exposed to gas-pricing formulas that are expensive measured against emerging hub prices, with renegotiations under their long-term supply contracts still ongoing.

- The market is evolving so that it is ever easier for their customers to bypass them.

- Consumers and governments are more concerned with energy efficiency, for example, through solar thermal panels and better insulation.

- Industrial users have decreased their energy intensity either by instituting energy-efficiency measures or by relocating their plants to low-cost countries, disrupting established supply lines.

- As a result of the shale-gas revolution in the United States and cheap prices, big energy-heavy industries have started to relocate and decrease their energy consumption in Europe.

- Big gas upstreamers have invested in their own sales operations and downstream capacity.

Against this background, emerging trends are reshaping supply and demand dynamics to the extent that leading companies are under pressure to rethink their entire business models. The supply portfolio is becoming more diversified as a consequence of contract-renegotiation activity and new infrastructure (including liquefied natural gas, or LNG), driving growth in spot-priced supply. Customers are increasingly asking for dynamic contract arrangements (such as real-time pricing or price and volume switching) so that they can perform active portfolio management of their own exposures. Further, achievable price levels are solely driven by the prices of gas products traded at European hubs. A consequence of these trends is that margins on gas commodity sales have been greatly reduced.

The profit a midstreamer is able to earn therefore depends heavily on its ability to renegotiate long-term supply contract prices. Traditionally, gas pricing was strongly based on oil-linked formulas, boosting hedging activity

1 Cosimo Corsini, Sven Heiligtag, and Dieuwert Inia, "Strategic choices for midstream gas companies: Embracing Gas Portfolio @ Risk," McKinsey & Company working paper, McKinsey Working Papers on Risk, Number 50, September 2013, mckinsey.com.

on global oil indexes. Recent years have seen a shift toward hub-based pricing on the customer supply side thanks to market decoupling and an increase in liquidity.[2]

How are large European midstreamers responding? Later in this paper, we explore how two leading companies are reacting to new market pressures. One emerging strategy is to pursue product innovations designed to leverage market liquidity. Another approach is to explore more service-oriented business models in which companies become strategic partners with their customers, for instance, in using sophisticated risk-management and intraday-pricing capabilities.

We can identify several areas of product innovation. Arguably, because of its commercial potential, the most important area is the development of so-called flex products. These are contracts designed to offer significant flexibility by way of options over the amount of gas to be supplied, whether it is for hub delivery, whether additional fixed amounts can be added during the contract life cycle, and so on. Companies are also innovating by developing new pricing formulas—for example, giving customers the right to purchase at a day-ahead price or the ability to switch to a different pricing basis.

Flexible products are expected to represent an increasing share of midstreamers' sales and profits, but in the current market environment, customers are not prepared to pay for the value provided, not least because upstreamers are trying to gain market share in the downstream segment by offering flexibility at very low values. That aside, flexibility options pose new challenges for midstreamers. Optionality that is extremely attractive to customers carries risks to the provider, particularly because some customers are quite sophisticated and seek to use their options not just for hedging purposes but also as a potential source of gain from complex trading strategies. Where there is a high degree of flexibility or a lack of coherence on the part of the provider, customers could look for opportunities to arbitrage between the contracted price and the then-available hub price. This behavior can expose the midstreamer to significant risks, and so it has become imperative for companies to choose the right counterparty for a particular set of options.

This is, in effect, forcing midstreamers to develop new strategic skills. On the one hand, in order to achieve commercial success, they want to offer new and different features on their contracts. On the other hand, the resulting exposures mean that it has become critical to build a strong bridge between commercial activities or sales and trading and the pricing operations that are designed to understand and manage the overall portfolio. One key trend is for the rapid evolution of sophisticated risk-management operations spanning a wide range of price information, modeling capabilities, and performance monitoring—in effect, the creation of a robust analytical framework and infrastructure.

The development of advanced forecasting models is central to this trend. At the highest level, such models are required in order for companies to conduct relevant risk-management disciplines. These include monitoring exposures to volume risks and monitoring and refining hedging policies, for instance, by optimizing a strategy having assessed the ex ante effects of volume volatility. This in turn influences pricing strategies so that they properly reflect the value of flexibility, as well as diversification across the portfolio. Sales planning can be improved with more sophisticated forecasting of future sales and margins and with better market segmentation, allowing the optimal allocation of supply and volume flexibility among different channels—for example, by improving the understanding of customer behaviors and differentiating between those with primarily commodity or industrial characteristics and those that are more inclined to embrace a trading mentality and seek arbitrage opportunities. It should be clear that this is a multidimensional challenge. To be useful, a

2 In addition, there has been disruption to hub prices leveraging liquefied natural gas imports from the United States (for example, Henry Hub forward pricing) or equity gas position monetization. This introduces a complex challenge because an intelligent pricing strategy must consider not just any impact on an overall gas portfolio (including cost position) but also potential cascading effects.

forecasting model must reflect the complexity not just of customers' actual behaviors but also account for how these can be simulated as an input to the model. For customers with their own trading activities, it can be expected that future demand primarily will be driven by forward commodity prices, whereas industrial clients' demand will respond to dynamics specific to their particular sector, such as seasonality, which is also reflected in forward commodity prices. In addition, models should offer volume and margin forecasts across a range of metrics at the level of a single contract, groups of related contracts, and the overall portfolio. On top of client segmentations, categorization by product allows for a granular view of future demand at different points in time.

Interviews

How two of Europe's biggest companies are meeting the midstream challenge: RWE Supply & Trading and Eni

In light of dramatic changes in the market, midstream players have found themselves facing an important strategic challenge. We sat down with executives from two companies with different perspectives, who offered their views on the shifts under way.

These interviews were conducted several weeks before events in Ukraine that led to the crisis in Crimea and the subsequent introduction of additional and significant uncertainties into the market in Europe for gas supplies. However, the context for this working paper is long-term development of the role for midstreamers. As political events unfold, future working papers might address the extent to which the strategic context for midstreamers has altered.

RWE Supply & Trading

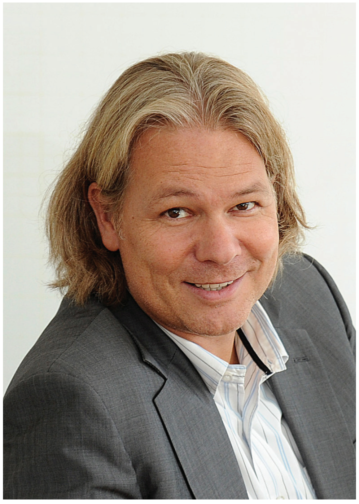
Andree Stracke heads the global power and gas trading & origination and the global gas and LNG (Liquefied Natural Gas) business within RWE Supply & Trading. The latter comprises all gas and LNG trading activities, as well as European long-term contracts and global gas and LNG business development.

Hendrik Niebaum heads the company's Industrial Sales/Commodity Solutions team, which serves RWE's largest industrial customers in Germany, Austria, Benelux and Eastern Europe (with an annual power and gas demand of > 250GWh).

McKinsey: *In recent years, the gas market has changed dramatically, and gas midstream players are experiencing new challenges. Oil indexation no longer exists, and we have seen the rise of very liquid markets. How do you cope in this position, sandwiched between gas exporters and customers?*

Andree Stracke: We are certainly not experiencing easy times. Rather, they are quite turbulent. The breakaway from oil indexation on the customer side and the last rounds of intensive discussions with our international suppliers were tough.

Hendrik Niebaum: But there is no way around it, and of course it does not help to reminisce about the "good old times." The midstream must always follow the downstream. Looking into the future from a midstream perspective means looking at our customers' needs and what future (global) gas-market developments are.



Andree Stracke

Andree Stracke: Globally, there are plenty of new opportunities. With the shale-gas market revolution meaning that the United States will soon become a gas exporter, LNG trading and related midstream tasks will gain far more importance.

McKinsey: *When you say that the midstream strategy must always be defined using customers' needs, what particular developments do you see occurring in this segment?*

Hendrik Niebaum: One clear trend is the split between commodity deliveries and offering flexibility or balancing products.

Here our customers have built up their trading capability, and overall energy procurement has become more integrated into the companies' general strategies. But with financial-market regulations also affecting our customers, the trend is likely to revert again. In such circumstances, we are a strong partner providing the required products and services that allow our customers to focus on their core business.

One other essential requirement for a global midstreamer is to expertly guide customers through global gas-market developments.

McKinsey: *Taking into account that there is intense competition, including from customers developing their own trading capabilities, you and the other big midstream players are certainly not the only businesses offering such products. How do you add value?*

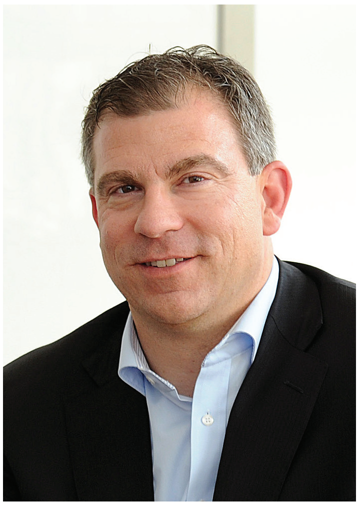
Hendrik Niebaum: We constantly ask ourselves this question in such a dramatically changing market. Despite these clearly tougher times, we realized there is no need to bury our head in the sand. We have several fields of competitive advantage.

First, RWE Supply & Trading is one of the leading energy-trading houses in Europe. Customers acknowledge our trading and cross-commodity expertise in this fast-changing market environment—and they make use of it as part of their risk management. Our customers certainly experience the additional value of our expertise.

Second, we are a global gas importer (of LNG and pipeline gas), and we see that this is becoming more relevant again.

Third, with our strong and large customer base, we can pick up and link customer needs with our trading and midmarket capabilities.

Andree Stracke: Over the last few years, we have also learned to bring all these capabilities together. One outstanding example is the merger of our former midstream business with the trading-and-sales business to serve industrial customers. As an integrated company between supply and sales, we can now offer more flexibility and a larger variety of products than ever before. This allows us to be a market leader in developing individual solutions that are beneficial for our customers.



Hendrik Niebaum

McKinsey: *Why would industrial customers appreciate a global gas importer who claims to be more integrated?*

Hendrik Niebaum: One concrete example is our discussion with global industrial customers in northwest Europe who are facing tough competition from the US energy boom. We sat down together to discuss issues such as European gas supply with Henry Hub indexation from 2015 onward. Knowledge of this area is particularly valuable for customers who participate in global competition and need some Henry Hub exposure in their portfolio or those who need to spread their risk of solely depending on European hub prices. This is definitely something only a few European gas companies can offer.

McKinsey: *With the Title Transfer Facility (TTF), Punto Virtuale di Scambio, and Net Connect Germany having liquid trading hubs at their doorstep, why should a European industrial customer care about Henry Hub pricing?*

Andree Stracke: As this trend of very low gas prices might turn out to be sustainable in the United States, our clients are already giving serious thought to relocating their industrial sites there from Europe. Obviously, Europe provides many advantages—and if the risk of the gas-price spread can be mitigated from opening up further, this may well lead to a European site being assessed as competitive with the US alternative.

While this situation is not relevant for all of our customers, this is certainly a very important topic for businesses with large exposure on the revenue side to the Henry Hub and the dollar. Consequently, affected businesses are looking into this new option intensively.

McKinsey: *The energy industry and the energy-intensive industries are often perceived as rather conservative. How do companies react to new products?*

Hendrik Niebaum: They respond very differently. Some customers asked us how quickly we could offer them Henry Hub indexation, while others were not aware that there is a new "mitigation tool" they can consider within their gas-sourcing and general risk-management strategy.

Andree Stracke: With the first US LNG exports starting in late 2015, for the first time in history, we will see a direct link between the US and European gas markets. Accordingly, we offer our customers what we call "strategic Henry Hub indexation," which means gas delivery in northwest Europe at Henry Hub prices, plus the import cost from 2015 to 2020 or beyond for parts of their portfolio. To some extent, this is new for all industry participants.

McKinsey: *In the end, it's all about the price. Are these imports significantly cheaper than TTF gas?*

Hendrik Niebaum: I'm not sure if I would put it that drastically. Yes, price is obviously an important decision criterion—but the associated risk profile and price-development expectations also need to be taken into account.

At least at the moment, these imports are not cheaper than TTF gas. We now see prices for them on current forward-price levels of the TTF, but it is primarily a strategic risk-mitigation tool for the next few years, and that's for a few reasons.

It gives planning certainty in global competition. Looking at location decisions, you can calculate exactly what must be paid for your gas compared with the US competitor. If the constant spread (import costs) is expected to be higher than any advantage of staying here in Europe, you should think about relocating your production. If not, we offer our customers a high level of certainty without relocating.

It also diversifies your portfolio in general. By looking at your exposure on the revenue side, it can reduce the short-, mid-, and long-term volatility exposure. Henry Hub indexation offers additional long-term hedging possibilities, because the market is active over an even longer time horizon than, for example, the TTF.

Coming back to the price question: nobody knows the future development of European gas prices, but we do not see many signals for very low gas prices in Germany and in Europe more broadly in the future.

McKinsey: *Looking at the liquid hub and the security of supply we still have, why should any company ask for a contract that starts in 2015—or even later—with a tenor of five years?*

Hendrik Niebaum: They should because this is not something for short-term optimization; rather, it's a strategic tool. Additionally, we can always offer Henry Hub indexation on a TTF level for the next three years. This is what we call "virtual Henry Hub indexation"—it lowers the short-term volatility of a portfolio but does not help you strategically. Nobody will see LNG at prices below TTF in the short term; that's why you need to develop a long-term perspective and take a longer-term decision from an overall-portfolio point of view.

McKinsey: *Looking at all these challenges and the struggles of midstream companies, where do you see your business going in the next few years?*

Hendrik Niebaum: Our business has developed significantly since the original creation of traditional midstream companies. With RWE's capabilities, we will be able to offer more tailor-made products originating from an outside-in approach for our customers. Our most important goal will always be to be fast and flexible in developing individual customer solutions serving the needs of the market. The center of our activities will always be our customers.

McKinsey: *So there will be a midstream model in the future?*

Andree Stracke: With midstream defined as being the interface between the global market and customers—and thus managing volume and price risks for the customer—on a short-, mid-, or long-term strategic basis, yes, there will be a place for modern midstream companies.

Cristian Signoretto

Eni

Cristian Signoretto is the head of Origination and b2b g&p sales at Eni.

McKinsey: *In recent years, the gas market has changed dramatically, and gas midstream players are experiencing new challenges. Oil indexation no longer exists, and we have seen the rise of very liquid markets. How do you cope in this position, sandwiched between gas exporters and customers?*

Cristian Signoretto: We are in a transition phase. It is true that oil indexation is gradually disappearing in the main markets and hub liquidity is increasing (a sort of "gas financialization" age), but the target end-state role of the midstreamer could be very different according to the strategic choices of the key players in the value chain. In fact, considering an extreme scenario where the upstreamers decide to grow massively through the supply chain, not only providing liquidity to the hubs, but also serving the needs of end customers, the role of the European midstreamers in gas commercialization is going to be limited to serving those clients where the cost to serve is higher and you need diverse geographical coverage. However, this scenario seems to be too extreme in the short/medium term. It's not clear that the producers have much appetite to step in to a low-margin environment with important risks attached—regulatory, credit, execution, risk management. Large midstreamers like ourselves (Eni is Europe's largest gas player/importer buying gas from Russia, Lybia, Algeria, Norway, the Netherlands, Qatar and Nigeria) expect to continue to extract value from wholesale gas markets, not only leveraging our sales capabilities (commodity and service/flexibility supply), but also developing tailor-made solutions for market participants to manage their commodity exposure, which, combined with trading and portfolio- management activities, allows us to extract more value from our asset base.

McKinsey: *When you say that the midstream strategy must always be defined using customers' needs, what particular developments do you see occurring in this segment?*

Cristian Signoretto: Albeit the landscape is somewhat more complicated, we can differentiate two main segments.

Mature players can typically leverage large-scale consumption, so the cost of gas is a competitive factor in their supply cost: they actively look to integrate the value chain, building in-house capabilities to access the market and manage their energy portfolio. In this case, our value proposition is to focus providing specific services related to our hedging and marketing capabilities, for example access to our trading desks.

All the other industrial players that are not investing in developing structured energy-management capabilities are actively looking for a reference energy supplier that is able not only to deliver gas as a physical commodity, but can also provide built-in services, especially in terms of risk management (for example, price setting) and flexibility. This trend is strengthened by a progressive lack of interest among banks in offering trading and hedging products to end customers. Going forward, we see a strong role for midstreamers in serving these two different customer segments.

McKinsey: *Taking into account that there is intense competition, including from customers developing their own trading capabilities, you and the other big midstream players are certainly not the only businesses offering such products. How do you add value?*

Cristian Signoretto: As anticipated, large customers who decided to invest in trading and energy-management capabilities are more difficult to serve with plain-vanilla products and services. What we can deliver as a value-added product is direct market access and balancing/portfolio management via trading desks, as well as option-based structured transactions, or so-called sales origination.

McKinsey: *Why would industrial customers appreciate a global gas importer who claims to be more integrated?*

Cristian Signoretto: Being an integrated operator is, in general, much appreciated by end customers, because it is perceived as synonymous with financial and credit solidity and it's associated with a higher degree of security of supply. At the same time, only a truly integrated operator is able to deliver a structured and sophisticated offering combined with insights into the relevant markets. Having a global footprint also allows us to serve the specific needs of multi-country customers.

McKinsey: *With the Title Transfer Facility (TTF), Punto Virtuale di Scambio, and Net Connect Germany having liquid trading hubs at their doorstep, why should a European industrial customer care about Henry Hub pricing?*

Cristian Signoretto: Well, in global competitive markets the cost of energy for an industrial customer can be key in expanding its market share. Today US customers are paying for gas half of the costs paid by their European competitors, and even less when it comes to electricity. If this becomes a structural trend, it can influence how very energy-intensive industries develop their footprints.

However, in Europe we do not see yet a significant interest from industrial customers for Henry Hub indexation in the market. It is a directional bet on a market where typically the customers have no insights, and supply decisions usually span over a 2-3 year horizon. It is true that there might be selected industries where US gas, because of the relocation of manufacturing, can set the marginal price, but we are still not observing any need for an alternative benchmark to European hub prices.

McKinsey: *The energy industry and the energy-intensive industries are often perceived as rather conservative. How do companies react to new products?*

Cristian Signoretto: The first stage of the product-structuring evolution has seen a massive proliferation of product building blocks to deliver a high level of customization (to manage contract price and volume flexibility). However, product demand was soon concentrated in a few product families (especially for price setting and switching) that are easy to understand and manage, so that has reduced complexity. This is also the consequence of two critical exogenous factors: first, a high premium price charged for flexibility and the reduced possibility of monetizing option values due to a persistently declining trend in hub prices, and second, the role of customer consultants who historically have had great influence on market demand and the related need for more or less complexity.

In addition, the midstreamers are undergoing structural cost-cutting initiatives in order to manage the new market realities, so there is a trend toward reducing complexity in the go-to-market model. Back-office costs are a key point of focus.

McKinsey: *Looking at all these challenges and the struggles of midstream companies, where do you see your business going in the next few years?*

Cristian Signoretto: Given strong competition and growing complexity, those midstreamers with a compelling value proposition should be selective. A key trend will be a "flight to core," which means focusing on those geographies and customer segments where positioning and capabilities will continue to enable value capture from the customer relationship. In other markets, rethinking/restructuring of the midstreamer's commercial presence will be probably required. However, in order to continue to be a relevant player in Europe, it will be critical to maintain strong coverage of large customers (even outside core geographies) that require a level of sophistication in terms of portfolio optimization, flexibility management, cross-border sites supply or other services. Well-structured midstreamers can continue to extract a market premium if they get it right.

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