



Markets and long-term contracts: The case of Russian gas supplies to Europe

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Despite the geopolitical dynamics in Eurasia in the past two decades, Gazprom is likely to remain Europe's most important source of gas supplies for decades to come. Its sales to Europe have been based on a system of large, long-term contracts (LTCs) with a handful of buyers. As these contracts mature and decay, the dilemma that Gazprom faces in a liberalised, uncertain and complex market environment is what alternative export strategies would allow it to maximise the value of its gas exports in Europe. Thus, the objective of this research is to understand the implications of various sales strategies for the value of Gazprom's gas exports to Europe going forward. The study looks in particular at two alternative sales strategies commonly pursued by hydrocarbon producers – (i) pure commodity production (border sales) and (ii) integrated supply, trading and marketing (ISTM) – and attempts to quantify the impact of these two strategies on Gazprom's export profits under three key sets of scenarios: (a) the possible entry of low-cost producers, (b) oil price dynamics and (c) the future of LTCs (pricing and volume structure).

LTCs were the locomotive driving the development of gas trade in Europe; they have been the developmental pillars of the Russian gas industry in particular. The rationale for these LTCs was quite simple:

- to protect the large-scale investments needed at the beginning of the 'gasification' of Europe and all markets along the routes, from producers to consumers;
- when markets were immature, oil-indexation was an established and trusted pricing mechanism that ensured parties complied with long-term trade relations and served as a mechanism for dividing the rents associated with such trade between sellers and buyers.

However, as the gas markets in Europe mature, with the advancement of downstream liberalisation and increasing regulatory oversight of the development of transportation and storage markets, the role of these traditional contracts is declining. In particular, an econometric analysis of more than 600 long-term gas contracts showed that after the launch of the liberalisation process in Europe, the average duration of contracts was substantially shorter, while the agreed offtake volumes in those contracts were smaller. The primary reasons for the declining importance of LTCs are:

- the rising number of market participants due to the liberalisation of downstream parts of the value chain in Europe;
- the regulation of transport and storage assets (open-access and tariff regulations);
- the increase in liquefied natural gas (LNG) trade and regional interconnections as well as the increased flexibility provided by LNG portfolio players;



- the long-term trend of cost reductions in gas infrastructure due to technological innovation along the entire gas value chain.

Thus, an alternative to the system of bilateral contracts, traded markets and spot and short-term transactions has become increasingly important for facilitating gas trade between buyers and sellers in Europe. In particular, empirical evidence supports the following insights:

- (i) leading gas suppliers have been actively engaged with the pricing of their gas at traded markets;
- (ii) in contrast to adopting a pure commodity production model, some companies pursued the ISTM sales strategy in response to the liberalisation and rising complexity of gas markets in Europe.

Statoil: an example of an ISTM gas player 'in the making'

Statoil was among the first movers in Europe to diversify its sales channels by (i) actively engaging with spot gas trading and (ii) the direct marketing of product varieties to capture downstream margins not available before market liberalisation. Currently, more than one third of its portfolio consists of sales through spot markets and direct sales to end users, while indexation to spot prices accounts for at least half of all sales. A series of factors allowed Statoil to quickly see structural changes in the markets not as a threat but as a business opportunity.

These factors include:

- *Statoil, and its trade and marketing division in particular, is mandated by the Norwegian government to be a single export 'channel' for all gas coming out of equity participation by Statoil and the government i.e. ca 80% of Norwegian gas production;*
- *Statoil's advantageous geographical proximity to traded markets, availability of flexible capacity and scale for commanding and controlling large sales volumes allowed Statoil to 'follow' the demand and arbitrage opportunities.*

Our econometric analysis of Statoil's swing production capacity suggests that the company has been proactively reacting to price fluctuations at hubs, optimising its production and sales and exploiting arbitrage opportunities. For example, in an environment of oversupply and increased inter-fuel competition, the ability to shift production from flexible fields to future periods in order to place upward pressure on current spot prices surely creates value for Statoil's overall sales portfolio. However, such a strategic response is only possible when a company is actively participating in liquid trading markets to fully understand market dynamics and benefits from information flows.

Despite these structural shifts in European gas trade, Gazprom's current position in the spot markets is rather limited. Hence, the company is giving away some of the margin, the upside of which could be substantial. LTCs are likely to remain an important base for Gazprom's gas sales to Europe. As such, the real question is about Gazprom's growing uncontracted volume going forward and, in particular, what Gazprom should do with the uncontracted volume to maximise the value of its entire gas sales portfolio. The results of this paper indicate that if Gazprom adopts a 'border sales' strategy, its export profit could deteriorate significantly due to the increasing risk of LTC revisions:

1. compared to the profit under the existing LTC structure¹, Gazprom's export profit could reduce by a third, depending on the scale of LTC revisions (e.g. from 10% to 100% spot indexation).
2. Global gas markets are not supply-constrained (but rather limited by demand) and if low-cost producers (e.g. committed US LNG exports, Iran/Kurdistan, Qatar's growing uncontracted volume in the next two decades as well as its huge low-cost reserves) entered international gas trade, Gazprom's profits could further deteriorate significantly.

¹ We assume a minimum take-or-pay level of 75% and 90/10 oil–spot indexation for the existing LTC structure.

By contrast, if Gazprom adopted the ISTM sales strategy to supplement its traditional LTCs, its export profit could be substantially higher than under the border sales strategy. Even under the existing LTC structure – high offtake volume and oil-indexation – the ISTM sales strategy could generate a profit stream that is at least 17% higher than the profit under the border sales strategy (see Figure 1).

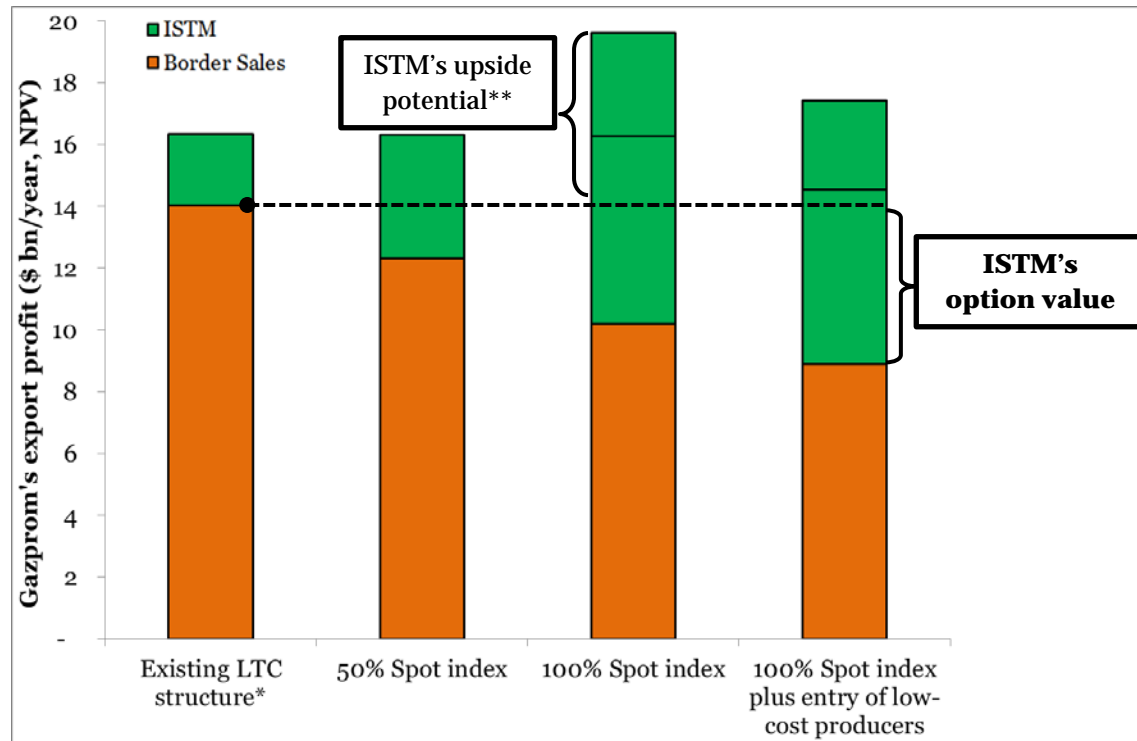


Figure 1: Gazprom’s export profit under border sales and ISTM strategies and different market scenarios.

*Note: * we assume a minimum take-or-pay level of 75% and a 90/10 oil–spot indexation for the existing LTC structure; reported profits are pre-tax annual profits derived by discounting a stream of cash flow over the time horizon of 25 years (2015–2040), assuming a 10% discount rate, under various scenarios and assumptions; ** For example, if downstream markets become more competitive, as represented by the value of the price elasticity of demand, ISTM captures more value than border sales strategy would allow.*

Importantly, the majority of the economic value of the ISTM model comes from the ability to react strategically to market dynamics. This strategic value consists of two interrelated components: (i) option value and (ii) the ability to capture upside market potential. In particular, the ISTM option value reflects the robustness of Gazprom’s export profit against:

- (i) LTC price (and volume) renegotiations (its profit would not change even if buyers demanded full spot indexation and/or a lower take-or-pay level);
- (ii) the negative impact of the potential entry of low-cost producers is minimised under the ISTM strategy (under the border sales strategy, Gazprom could lose as much as 37% of its annual export profit, whereas under ISTM, the loss would be limited to 11%).

Apart from option values, the ISTM strategy can better capture the upside potential when downstream markets become more competitive. In this case, the additional value to Gazprom could be as high as \$3.4 bn/year. This upside potential reflects the ISTM’s ability to actively price Gazprom’s gas in traded markets, taking into consideration the state of market competition.

To summarise, using a comprehensive global gas market model to simulate more than 200 market scenarios, we found that the ISTM sales model would be the most

rational response for Gazprom. These market scenarios represent a combination of possible oil price dynamics, the state of downstream market competition, possible structures of existing LTCs and scales of entry for low-cost gas producers. The intention behind analysing these market scenarios is to 'stress test' the two sales strategies and understand their abilities and limitations in maximising the value of gas exports for Gazprom. In no way should these scenarios be viewed as market dynamics forecasts. Instead, these scenarios, or combinations thereof, should be viewed as 'grey swan'-type of events, which while having a fairly low (but positive) probability until a chain of unforeseen events triggers their realisation could still dramatically affect Gazprom's bottom line. The ISTM strategy gives Gazprom the flexibility and optionality to shield against these negative market scenarios by being able to 'chop off' the negative part of the 'fat-tail' distribution of Gazprom's profitability under a range of future market developments (see Figure 2). By limiting the impact of negative market developments on the range of possible profitability, the ISTM strategy either 'alters' market expectations of Gazprom's profitability further to the right, away from negative events, or increases Gazprom's expected profitability.

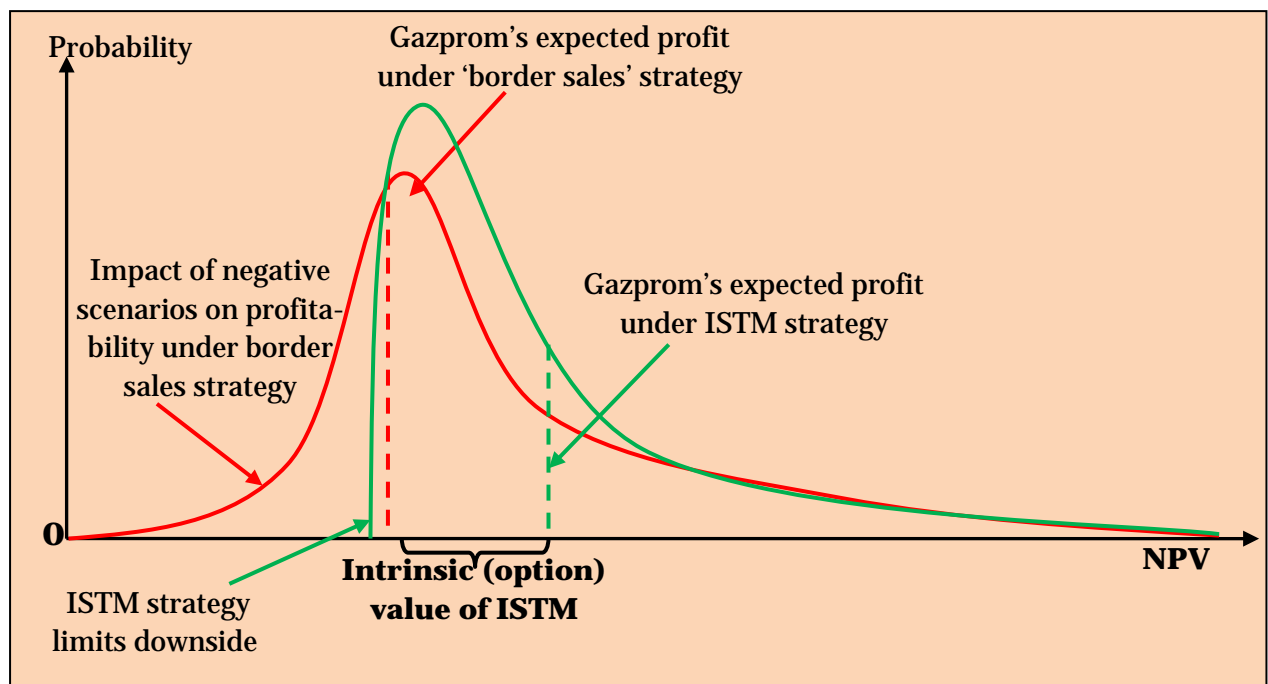


Figure 2: Flexibility and optionality provided by the ISTM sales strategy.

For Gazprom to establish trading and marketing functionality is relatively low cost as the company already has an active presence in wholesale gas and capacity trading, unlike other purely border sales producers, such as Sonatrach. Therefore, establishing Gazprom as an ISTM player with a single trading and marketing division responsible for all sales volumes going forward would appear to be fairly low-risk with high upside potential.

The economic benefits of the ISTM strategy for Gazprom were quantified at the macro and strategic level. However, there are less quantifiable yet still important advantages at the micro level, including portfolio, operational and logistics optimisation as well as wholesale trading and direct sales to capture downstream margins. In particular, the ISTM strategy allows a producer to capture higher margins, among other things, by:

- simultaneously optimising gas commodity and capacity portfolios;
- arbitraging between locations, time and product varieties;



- diversifying sales channels instead of relying on a limited number of counter-parties;
- marketing directly to better capture consumers' willingness to pay for various products as well as allowing them to 'go short' on the wholesale side when markets are oversupplied.

Thus, this paper demonstrates that to enjoy higher export profits at both the strategic and micro levels, Gazprom should introduce a single division responsible for trading and marketing through which it can channel all gas sales volumes. Furthermore, the results we obtained do not exclude traditional bilateral LTCs, which may well exist alongside the traded markets and Gazprom's ISTM strategy if demand for such bilateral forward contracts exists. Having a trading and marketing division responsible for the majority of sales would help Gazprom to evaluate the benefits of these bilateral contracts comprehensively and therefore devise an optimal sales and pricing structure as the costs and benefits of such contracts depend on market and industry dynamics. Should Gazprom wish to retain oil-indexation as a pricing mechanism, then it could do so by signing LTCs with its single export and trading division and agreeing that the pricing in these contracts (transfer price) is pegged to oil prices (or for that matter, to any other product specified by Gazprom's production division). In turn, the realised market price would be set by the trading and marketing division, taking into account Gazprom's and Russia's overall strategic interests in hydrocarbon production and monetisation.