Chapter 12
Russia’s export strategy in the dynamic European market as a whole

12.1 Introduction
In case studies 1 through 3, an analysis was made of the various strategic moves available to Gazprom, primarily as an incumbent in sub-regional European markets. Attention was paid to the SSEE and NWE markets, in which various strategic situations were analysed from a historical vantage point (Case study 1) while the other two are more prospective in the sense that the model is used to derive inferences about expected strategic behaviour in the real world (ex ante perspective). The case studies show, amongst other issues, that strategic investments can lead to first-mover advantages, but can also run into situations of market oversupply. The purpose of this chapter is to recapitulate case studies 1 through 3 with a focus on the rationale behind Gazprom’s (intended) investments and the impact on market structure in the European gas market as a whole.

This recapitulation serves as a backdrop to a conceptual discussion on possible demand and supply scenarios involving extremes of either undersupply or oversupply. Furthermore, the question will be addressed why exporters may wish to avoid the extremities in these scenarios. Section 12.2 aggregates supply and demand for Europe from a Russian perspective against the background of cases studies 2 and 3. Section 12.3 provides a scenario analysis on Gazprom’s market position in Europe and the implications thereof for its investment and Russia’s export strategy. Section 12.4 addresses the rationale for overcapacity in Russia’s export pipeline system to Europe in order (1) to reroute and diversify flows from the existing (Ukrainian) system; and (2) to capture additional economic rents through arbitrage opportunities, combined with a multi-market entry point strategy.

12.2 Aggregated supply and demand outlooks for Europe: A Russian perspective
A pan-European perspective is required to bring into view the various possible export strategies, and to ultimately determine Gazprom’s and Russia’s optimal investment portfolio. When considering the European market as a whole, pipeline investments such as Nord Stream and South Stream, become potential investments not only with regard to separate sub-regional markets but also to the European market as a whole. In this European market, the NWE and SSEE markets still form the bulk (84 percent) of European demand, see Figure 12.1. Seen from a Russian vantage point too, the NWE and SSEE markets form the bulk of European demand and growth potential.

*This chapter was partially been co-authored with Timothy Boon von Ochsee.
On the aggregate demand and supply side and on a sub-regional (project) level, Chapter 8 and case studies 2 and 3 respectively, outline the demand projections and the different supply options. The remainder of the European markets, Northern Europe, Central Europe and the Iberian Peninsula, all account for substantially less significant amounts of demand (16 percent of total European consumption). However, this does not imply that they play no role in Russia’s export strategy, or that they do not offer any growth opportunities. But referring to Figure 10.9 in Chapter 10, one can discern that the countries in Central Europe, given their already high dependence on Russian gas, might not represent the greatest growth markets for Russian gas exports. The markets in the Iberian Peninsula, Spain and Portugal, are accessible in the long-run through Russian LNG flows, see also Chapter 10.

**Figure 12.1** Breakdown of European demand by sub-region in 2008

* Czech Republic: 8.7 bcm; Norway: 6.7 bcm; Slovakia Republic: 6.3 bcm; Portugal: 4.8 bcm; Finland: 4.7 bcm; Switzerland: 3.4 bcm; Lithuania: 3.3 bcm; Latvia: 1.7 bcm; Estonia: 0.9 bcm; and Sweden: 0.9 bcm.

Note: Totals may not add up due to rounding.

Source: own analysis, based on IEA [2009b].

From a supply perspective (also see Chapter 8), there is some upside potential for additional developments regarding indigenous supplies, for example in the UK, from improved fiscal terms, and from unconventional gas [CIEP 2008]. For Europe, contrary to the US, the potential role of unconventional gas is still very uncertain and the prospects have not yet been quantified. Outside the EU, Norway currently supplies the UK and Northwest Continental Europe and it will increase its transmission capacity, as mentioned in Case 437

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437 For an in-depth analysis on supply and demand outlooks for Europe, see for example IEA [2009] and CIEP [2008].

438 In fact in its initial conception, the Nord Stream was to branch off to a number of different national markets, including Finland and Sweden (Northern Europe) and Poland (Central Europe). Central Europe further includes Slovakia, the Czech Republic, the Baltic States and Switzerland.
study 3. Sonatrach is focused in its export strategy on the Iberian Peninsula and Italy [IEA 2009a]. Gazprom is a main supplier of both the continental northern, central and southern European markets, and has proposed new pipeline projects. Other pipeline suppliers (Libya, Iran, Azerbaijan and other potential future pipeline suppliers, such as Central Asian countries, Nigeria, Egypt, Iraq) are rather small in volume terms, although they may increase their volumes in the mid-term via new greenfield projects [IEA 2009a; CIEP 2008].

Figure 12.2 Total existing, committed and planned export capacity to Europe by pipeline

Figure 8.2 in Chapter 8 shows the current supply outlook within Europe, whereas Figure 12.2 summarises the total existing, committed and planned export capacity from gas exporting countries to Europe by pipeline. Most of the total pipeline export capacity to Europe has its origin in Russia, both existing and committed/planned. Other major gas infrastructure comes from Norway and Algeria, whereas both have (concrete) plans to increase their respective capacities to Europe. As mentioned in Chapter 8 and in case studies 2 and 3, LNG has made a contribution to European gas markets, mainly with supplies from Algeria and Nigeria, but this has been a relatively small portion of the total gas consumption. Southern and South-western Europe are traditionally dependent on LNG imports. In recent years, Qatar has acquired some market share in the European gas market.

As mentioned in Case study 2, Algeria is planning to increase its supplies and transmission capacity to Italy. Currently, it is supplying Spain and Portugal via the Maghreb gas pipeline from its gas fields through Morocco to Spain. The Medgaz gas pipeline is designed to bring additional gas directly to Spain (Almeria) from Algeria. The pipeline will be operated from 2009 with a transport capacity of 8 bcm/y [CIEP 2008].
The total European re-gas capacity is projected to increase in the coming decade to 442 bcm/y, including planned/proposed projects [IEA 2009]. Most of the current re-gas capacity is located in Spain, the UK and France. Most of the stated re-gas capacity is to be built in Italy, France, the UK and in the Netherlands. Figure 12.3 shows the total existing, under-construction and planned re-gas capacity in Europe. The (planned) capacity to Europe is estimated to be sufficient for the coming decades.

12.3 Russia’s market position in Europe and implications for Gazprom’s investment strategy – scenario analysis

According to CIEP [2008], uncertainties of the types and magnitude currently faced, lend themselves even less easily to forecasting than has been the case so far. Scenarios form a useful tool to explore the limits of the diverging developments in the market, in order to understand their interaction and to identify possible future bottlenecks for formulating strategies [CIEP 2008]. Within the setting of CIEP research, various scenarios have been prepared for the year 2015 to explore the different roles that Russia could play in the European market. These scenarios address uncertainties surrounding both the supply side and the demand outlook. It is assumed that the developments of demand and pipe-
line/LNG supply are largely independent of one another. Russia (and Gazprom) chooses roughly its level of market penetration in Europe based on these variables [CIEP 2008]. In the following, it is assumed that Gazprom will retain its gas export monopoly for Russia.

### 12.3.1 European demand: Scenario cases

Different assumptions, mainly varying with the effectiveness of the 20/20/20 EU targets and the impact of the current economic crisis, suggest a range of gas demand levels in Europe in 2015, ranging from 595 bcm/y to 640 bcm/y, implying limited, reduced and substantial demand growth. Figure 11.4 provides an overview.

**Figure 12.4 Different demand scenarios for the European gas market in 2015**

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Additional demand</th>
<th>Demand in 2008</th>
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<tbody>
<tr>
<td><strong>Low case (595 bcm)</strong></td>
<td><img src="image" alt="Diagram" /></td>
<td><img src="image" alt="Diagram" /></td>
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<tr>
<td>2015</td>
<td><img src="image" alt="Diagram" /></td>
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<tr>
<td>• Security of supply and 20/20/20 feature high on the political agendas of the EU</td>
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<tr>
<td>• Diversification of fuels generate support for ‘capture-ready’ coal-fired generation, which gives CCS a momentum (combined with low coal prices are low)</td>
<td></td>
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<tr>
<td>• Renewables 15 percent of final energy consumption, energy efficiency programmes become very effective</td>
<td></td>
<td></td>
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<tr>
<td>• The limited demand growth because of the economic crisis of 2008/09</td>
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</tbody>
</table>

| **Base case (630 bcm)** | ![Diagram](image) | ![Diagram](image) |
| 2015 | ![Diagram](image) | ![Diagram](image) |
| • Efficiency and energy saving programmes take effect |
| • Renewables grow well beyond 10 percent of final energy consumption |
| • A mix of coal- and gas-fired power generation develops in the European markets |
| • The economic crisis of 2008/09 could also have an effect on the demand level of growth |

| **High case (640 bcm)** | ![Diagram](image) | ![Diagram](image) |
| 2015 | ![Diagram](image) | ![Diagram](image) |
| • Restoring economic growth takes precedence over 20/20/20 targets |
| • Renewables grow to some 10 percent of final energy consumption and limit savings |
| • Concerns about the effective introduction of CCS reduces the support for ‘capture-ready’ coal-fired power plants |
| • High CO2 emission costs and high coal prices |

Source: CIEP analysis; IEA [2009]; expert interviews

### 12.3.2 Pipeline and LNG supplies from Russia’s competitors: Scenario cases

On the supply side, for the purpose of this chapter, different scenarios have been developed for international supplies to Europe from pipeline and LNG competitors, from a Russian perspective. These competing pipeline and LNG supplies offer a large range of between 255 bcm and 385 bcm in 2015. Adding an estimated indigenous production of some 130-140 bcm in 2015, the competing supplies lie in the range of between 385 and 525 bcm/y. Figure 12.5 provides an overview of the different scenarios for pipeline and LNG supplies from Russia’s competitors in 2015, based on availability/export ambitions and flexibility on annual contracted quantities (ACQ). Note that all country-related gas flows (including indigenous supplies) described in Figure 12.5 correspond with pipeline flows.
The different scenarios for pipeline and LNG supplies from Russia’s competitors in 2015 are explained below.

1) **Low export pipeline and LNG supplies from Russia’s competitors (255 bcm/yr)**

The low scenario of pipeline supplies from Russia’s competitors are in line with current export ambitions of gas exporting countries and the reference scenario of LNG supplies, but the GALSI project from Algeria to Italy has suffered delays. Moreover, imports from Azerbaijan and Central Asia will have ceased, either for political or economical reasons.
Therefore, fourth corridor’s prospects have not matured into physical gas supplies in 2015, see also Case study 3. The development of ‘unconventionals’ in the US will be on hold, so that only the currently contracted LNG in 2015 (including flexible supplies) will find its way to Europe (105 bcm). The US market will absorb remaining LNG available in the LNG Atlantic market. Moreover, new supplies of LNG are slow to come on stream.

2) *Current export ambitions of Russia’s competitors (310 bcm/y)*
Producers achieve their stated plans and commitments. The fourth corridor is modestly successful. Norwegian pipeline sales are limited to 105 bcm/y, including spot trade. LNG supplies will find their way to the European market and some 20 bcm additional volumes have been contracted. The US demand for LNG will be 35 bcm in 2015 [EIA 2009].

3) *High LNG and pipeline supply from Russia’s competitors (385 bcm)*
All planned import pipelines to Europe have been laid and are used for additional supplies. For example, the first phases of the Nabucco pipeline and/or TAP/TGII are successful taking in mainly Shah Deniz II gas in Azerbaijan and possibly other Caspian gas (including Iran and Iraq). Libya has increased its exports with 3 bcm to 11 bcm in 2015, because of an extension of the Greenstream. Norway also increases its exports to Europe with the new Europipe III (to 115 bcm in 2015). Algeria focuses its export strategy at pipeline supplies to the south European markets, which means 56 bcm in 2015, according to expert interviews. The call on LNG imports in North America is zero, resulting from more indigenous production of unconventional gas and a drive towards sustainable energy. Europe offers higher spot prices than the US and can take the LNG it needs out of the Atlantic Basin at market prices. Additional re-gasification capacity has been built to facilitate these supplies.

*Indigenous supply*
For the low and base cases, indigenous supply has been kept at the level of 130 bcm in 2015. In the high case, there is some possible upside potential (10 bcm), mainly from the UK.

12.3.3 Combined scenarios of demand and supply
It is assumed that the total of contracted Gazprom supplies in 2015 are in the order of 180 bcm/y, based on 90 percent of the standing and already signed long-term contracts (also see Chapter 10). Taking the level of competitors’ supplies as given, one can outline scenarios with respect to the level of possible Gazprom’s supplies to Europe. The scenario-contingent outcomes of Gazprom’s supply in Figure 12.6 are simply derived by ‘plugging in’ Gazprom as a residual supplier. Either Europe is additionally supplied with LNG and competitors’ pipeline volumes such that it is oversupplied to a certain degree, or LNG and competitors’ pipeline volumes remain marginal. In the latter case, Russian volumes are assumed to dominate the European market at undersupply, with Russia free to seize remaining or residual demand. The result of combining the three demand cases with the
three possible competitors’ pipeline gas-versus-LNG combinations is shown in Figure 12.6, in the form of a three-by-three matrix.

Based on Gazprom’s supplies of 180 bcm in 2015, in four scenarios, Gazprom has overcontracted (25-110 bcm) unless Gazprom increases its level of flexibility within its take-or-pay contracts (i.e., lower minimum ACQ). The other five scenarios in Figure 12.6 suggest that possible additional supplies from Gazprom to Europe can increase to 75 bcm in 2015.

**Figure 12.6** Gazprom’s possible gas supply in Europe, based on combined scenarios of European gas demand and competition supply in 2015

12.3.4 Investment variables in mid- and upstream

All these different scenarios have an impact on Russia’s export position in Europe and Gazprom’s optimal investment policy in the mid- and upstream, i.e. the merit order (see also Chapter 3). In order to transport additional gas to Europe, Gazprom has different transport options to do so:

1) it can use overcapacity of the existing network of Gazprom;
2) it can contract transmission capacity with TSOs;
3) it can realise brownfield investments in existing transmission networks (e.g., additional compressor investments, such as in the Yamal-Europe pipeline);
4) it can invest in new greenfields, such as Nord Stream, South Stream, Blue Stream II, and/or other new (not yet) proposed pipeline projects;
5) it can develop an LNG business for Europe, either by building its own regas capacity or by contracting capacity in Europe; and finally
6) Gazprom can decide to stay away from Europe (and possibly develop LNG and/or pipelines to other regional markets, such as Asia and the US).

In order to make gas available for Europe, Russia (including Gazprom) has several options to increase its own available gas volumes too. The optimal supply portfolio, or merit order of supply, is highly dynamic, influenced by numerous external factors (e.g., economic growth, cost structure, domestic governmental policy, and geopolitical factors). Not all options mentioned below are feasible on a commercial basis. For instance, long-term commitments, such as buying gas volumes outside Russia on a large scale, may be exposed to downside (financial) risks. In addition, it is difficult to ascertain which combination of gas sources will be adopted for export volumes to Europe in each scenario. Gazprom and Russia have roughly the following options in making additional gas volumes available for Europe (besides its existing production, see also Chapter 10):

1) Gazprom can decide, if possible, to raise its production from the 'Big Three' (e.g., Urengoy, Yamburg and Medvezhye gas fields) as a short and/or mid-term solution;
2) Gazprom can decide to make additional gas available from new production of Gazprom’s ‘small’ fields in different areas, e.g., a so-called ‘small-field policy’. The institutionalisation of this policy might be realised through joint ventures with foreign gas companies and Russian independents;
3) Gazprom can decide to start developing giant gas fields in various phases with high economies of scale, probably together in joint ventures with foreign investors and Russian independents via (minor) stakes (e.g., as planned, Yamal Peninsula and Shotoikman);
4) Gazprom can increase its dependence on gas imports in order to free up additional gas for exports as a short and/or mid-term solution:
   a) from the former Soviet republics (i.e., Central Asian countries and Azerbaijan) via long-term contracts;
   b) other non-Russian areas, either via long-term contracts (e.g., gas purchase proposals from Libya) or via spot and/or short-term contracts (e.g., non-Russian LNG purchases via Gazprom M&T);
5) the Russian government can take measures in order to reduce the call for domestic use and CIS exports (e.g., increasing regulated domestic and CIS export prices to netback-pricing and measures with respect to stimulate efficiency of gas use)\textsuperscript{442}; and finally

\textsuperscript{442} Gas available from these sources could be transported either via LNG or pipeline. Other proposed greenfields are located in Eastern part of Russia (e.g., East Siberia and Sakhalin), mostly identified for the Asian (and US) market.

\textsuperscript{443} Other external factors, e.g., Russian current economic crisis, may reduce also domestic and CIS consumption of gas. Moreover according to IEA analysis in 2008, Russia could save almost 100 bcm/y of gas by (1) increasing the efficiency of combined heat and power (circa 40 bcm/y); (2) introducing more advanced available technology (at least 30 bcm/y);
6) the Russian government can take measures to stimulate production from independents (e.g., providing better infrastructure, access profit sharing and reducing gas flaring) and/or Gazprom can purchase more gas from independents.

12.3.5 Different market position and market condition scenarios for Russia

The resulting market structure depends, in principle, on the investment decisions of Gazprom and/or its potential rival(s) with respect to their investments, actions and coordination games along the gas value chain. On a regional European level, there are two scenarios with respect to Russia’s market position in volume terms: (1) a dominant firm and (2) a non-dominant firm or fringe scenario (see also Figure 12.7). These scenarios are resulting from the demand and supply (pipeline gas and LNG) combinations, derived from the outcomes in Figure 12.6.

Figure 12.7 Different market position and market condition scenarios for Russia

![Figure 12.7](image)

A quasi-monopoly scenario, which implies a market share above 70 percent, is a purely theoretical scenario on an aggregated European level, when one refers to Figure 12.6. Also from a practical Russian point of view, such a market position in the European gas market may not be desirable, because of regulatory backlash, the threat of substitutes and possible organisational and financial problems regarding projects’ institutionalisation (see also Box 12.1). On a sub-regional and/or country level, a (quasi-)monopoly position may

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(3) reducing the volumes of associated gas flared (at least 15 bcm/y); (4) greater savings are available in distribution systems and buildings (at least 15 bcm/y) [IEA 2008].

On a sub-regional level, see also the model and conceptual results in case studies 2 and 3 in Chapter 11.

In the most extreme scenario in Figure 12.6, Gazprom has a market share of 40 percent on aggregated European level (see also a dominant market position scenario).
be possible; see also case studies 1-3. The market position scenarios are derived from the conceptual toolbox in Chapter 4.

The level of success of Russia’s investments depends on the market condition in Europe, which is essentially influenced by the dynamics on the demand side and actions of competitor’s suppliers and Russia itself. The likelihood of oversupply (i.e., a buyer’s market as a market condition) rises as the number of rivals rises in volume terms, whether these volumes are supplied by a limited number of large firms or by more numerous firms. Regional oversupplies, in turn, can spill over in an interregional (price) dimension. Other market condition scenarios in addition to a buyer’s market are: undersupply (i.e., seller’s market) and market balance.

In reality of course, there are an endless number of scenarios or market outcomes imaginable with different combinations of pipeline gas and LNG volumes. Moreover, due to changing market circumstances, both on the supply and demand side, Russia’s strategy outcome, and therefore Gazprom’s investment actions, is part of a dynamic process. However, the essence here lies in the reasoning behind each type of scenario and the implications for Russia’s gas export strategy to Europe.

The market is no longer assumed to consist of only two players (as was assumed in the stylistic model in case studies 1 through 3), but of Gazprom, on the one hand, and LNG suppliers on the other, some of whom also supply pipeline gas. There are essentially two possible market position scenarios to be sketched out for Russia regarding its position in the European gas market, where Russia is faced with either a buyer’s or seller’s market. The different scenarios, involving different market outcome positions for Gazprom, correspond with different levels of feasibility and different forms of coordination mechanisms with governments and firms in off-take markets and other gas-exporting countries. If Gazprom ends as a dominant player in Europe’s gas market in the medium to long-term, it will behave differently than it would as a non-dominant firm.

1) Russia as dominant supplier in Europe
In the dominant (or leader-follower) firm scenario, Gazprom’s market share is between 30 and 70 percent. This market position occurs in 5 scenarios in Figure 12.6 (delimited collectively by a dark line), in which it has a market share of 30-40 percent in the European gas market. In these scenarios it is assumed that Gazprom further employs its market opportunities (10-75 bcm/y), e.g., supplying more than the 180 bcm/y, which is already contracted from 2015 onwards. In such a dominant firm scenario, little additional LNG

446 Chapter 10 in Boon von Ochsee [2010] covers the different levels of feasibility and different forms of coordinated cooperation with gas-exporting countries and firms.

447 From a theoretical point of view, which is not included in the scenario-figure, if Gazprom decides to supply more than the market requires, the European gas market will be oversupplied.
arrives in the European market and some competitors’ pipeline supplies are postponed or abandoned.

Especially in the most extreme scenario, in which Gazprom supplies 255 bcm/y in 2015 onwards (40 percent market share), there is much pressure on Gazprom’s investment ability to expedite the construction of its production and transmission capacity to Europe. In such a scenario, despite new investments in transmission capacity such as South and Nord Stream, Gazprom will remain dependent on Ukrainian transit. Yet, the large-diameter pipelines can be seen as strategic tools designed to ‘coordinate’ other gas flows in the form of either pipeline or LNG (see the results of case studies 1-3 in Chapter 11). In addition, Gazprom has to take a large number of measures, on both the domestic and export sides. For example, Gazprom can start exploring new giant gas fields on the Yamal Peninsula and/or the Shtokman gas field, combined with increasing its imports from Central Asia and Azerbaijan and additional storage capacities in Europe. The Russian government can also stimulate energy efficiency on the domestic market to free up Russian molecules for the export market(s); see also Section 12.3.4. It is questionable, however, whether Gazprom could coordinate and finance these investments. Additionally, from a regulatory and substitute perspective, it may also not be desirable to have such a high market share (see Box 12.1).

In a seller’s market with Russia as a dominant supplier in Europe, Gazprom is the main balancing supplier; its marginal prices set price levels in Europe. In return, Europe will continue to be well supplied under current price regimes [CIEP 2008]. In a seller’s market, new business models of flexible supplies present Gazprom with opportunities to optimise their profits not through quantity-based decisions but rather through such pricing discrepancies (i.e., additional revenues via short-term and spot sales of Gazprom M&T) [De Jong et al. 2010].

In the situation of a buyer’s market, Russia has to compete heavily with other pipeline and LNG suppliers in order to remain a dominant supplier to Europe. Such a scenario could have a negative impact on Russia’s market share, as well as on its price regime of oil-linked prices due to tension of lower prices on trading hubs (see also Chapter 8). The developments in the last years’ gas market illustrate this fact. Due to the combined impact of a demand reduction and developments around unconventional gas in the US (and LNG) altered the seller’s market into a buyer’s market. The lower prices on the European spot market resulting from the availability of uncommitted LNG (and pipeline gas) have weakened the rationale of oil-linked prices [Stern 2009]. Consequently, Gazprom was forced to renegotiate some contracts with European off takers, where it allowed temporarily lower off-take levels and an element of gas indexation in its take-or-pay contracts for a period of

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44 If the total capacity of South and Nord Stream is available from 2015 onwards, the aggregated load factor of Russian gas transmission capacity to Europe is approximately 70 percent (see also Figure 11.9).
time to balance the market [WGI 2010]. By means of this action, however, Gazprom creates the opportunity to postpone new greenfields (e.g., new giant gas fields on the Yamal Peninsula) until demand is sufficient.

In order to mitigate the possible downside risks of Russia’s dominant position in Europe in the mid- and long-term, especially in a buyer’s market, Russia has different options to do so, both in relation with off-take countries and with other gas-exporting countries. In its relation to its off-take countries in the different sub-regional markets in Europe, Russia’s export strategy may be different as well. In mature markets with solid incumbents, a business model of long-term contracts seems most feasible. In addition, to ensure Russia’s market position in terms of volumes (i.e., mitigating the downside volume risks), it may develop new greenfields as part of a public-private ‘win-win framework’ via ‘vertical swaps’ and joint ventures along the value chain, see also case studies 2 and 3 in Chapter 11. Political commitments act here in support of deals between Gazprom and European mid-streamers at the firm level, where government support in the off-take countries can alleviate demand uncertainty.

In growth markets a direct sales strategy seems the most desirable strategy from a Russian perspective, especially when such a market is open to foreign companies. In order to mitigate the downside volume risks, Russia has to ensure its position on the mid- and downstream market via M&As or greenfields. As a short-term solution in order to mitigate the negative effects of a buyer’s market, mid-streamers and Gazprom (and other gas exporting companies) can renegotiate the price regime and reduce their contracted volumes within long-term take-or-pay contracts with a certain percentage to accommodate the increasing LNG and pipeline supplies from competitors.

The level of cooperation (including supply management) between gas-exporting countries in a dominant firm scenario for Russia is more likely to be ad hoc and tacit, especially in a seller’s market. Only a small number of players are likely to concentrate market power in the European gas market, of which Gazprom has the largest market share. At sub-regional level, as argued in case studies 2-3 in Chapter 11, Russia can be seen as playing a number of different ‘coordination games’. Therefore, the shape, form and nature of supply management may differ; see also Chapter 10 in Boon von Ochssée [2010].

2) Russia as a non-dominant supplier in Europe

In a non-dominant (or follower/fringe) scenario, Russia’s market share is lower than 30 percent. This market position occurs in 4 scenarios in Figure 12.6 (marked by the grey frame). In theory, referring to Figure 12.6, Russia has a market share of 12-26 percent in order to balance the European gas market. However, in reality, Gazprom has already contracted 180 bcm/y, which automatically results in an oversupply of 25-110 bcm/y in 4 scenarios because of an abundance of other sources of gas coming on stream (unless Gazprom increases its flexibility within the contractual obligations to balance the market, see
above). In such a scenario, significant diversification into LNG and pipeline supplies from
the Caspian region and others will follow, be it for political or for industry-related reasons.

Being a non-dominant or fringe player, Gazprom does not invest heavily in the mid-term
in new projects to bring gas on stream. This implies not making investments or postponing
investments, which could be the result of different factors, including difficulties involved
with institutionalisation aspects, political backlash, TPA, etc. In such a scenario, Gazprom
is likely to concentrate more on existing sources of gas from brownfields, such as
from Central Asia and allowing only one single (part of a) value chain, e.g., Yuzhno
Russkoye gas field and Nord Stream, with high economies of scale and feasible institution-
alisation to go ahead in order to fulfil on its commercial obligations. This leaves thus
major new gas provinces, such as the Yamal Peninsula, Shtokman, etc., stranded. In addi-
tion, the South Stream project and/or LNG infrastructural projects may not be con-
structed or postponed. As a non-dominant supplier in Europe, Russia foregoes a host of
counter-measures at a European level. In addition, the threat of substitutes is relatively
low. It is also imaginable for Russia to choose to go ahead with LNG investments and/or
pipeline investments in East Siberia to Asian market, and leave pipeline-driven value
chains to Europe aside.

As a reaction on the market condition of a buyer’s market in Europe, Russia could decide
to postpone new greenfields and become a non-dominant supplier. The risk mitigation
strategies along the value chain of a non-dominant firm scenario are roughly equal to that
as a dominant firm. The implications for cooperation of a non-dominant firm scenario are
that as a dominant firm as well, of which Gazprom is only one significant party with a
market share roughly equal to that of others. Especially in buyer’s market, where spot
prices fall below oil-indexed prices, binding cooperation becomes all the more pressing, as
above (see also Chapter 10 in Boon von Ochssée [2010]).

Still, additional pipeline capacities may be built in order to mitigate political risk in transit countries (i.e., Ukraine),
thus serving as transit-avoidance pipelines. New business models involving flexible supplies require additional overca-
pacity as well (see Section 12.4).

An expanding strategy towards the Asian market may also be explored in a dominant market position in Europe,
although coordinating problems with respect to institutionalisation could be arisen when Gazprom is responsible to
such an investment programme.
The model in Chapter 4 attaches a high value to the market outcome monopoly, and to a lesser extent, to the non-dominant market outcome. In other words, a supplier achieves the best possible return on investment because it makes an early strategic investment enabling it to (partly) squeeze out the competition from the game. In such a situation, Gazprom has a high market power by share. From a practical point of view, see also the conceptual toolbox in Chapter 4, Gazprom would be bearing the entire investment burden, spending large sums of capital and needing to acquire all the necessary financing for such a large-scale production and transportation venture. In additional, the pressure on Gazprom’s export monopoly to open up the export market for independents may rise. In a scenario in which Gazprom is a (quasi-)monopolist or dominant firm, other issues are also applicable. The most relevant hurdles are mentioned below.

i. Regulatory backlash and EU market liberalisation
Regulatory backlash: A practical aspect, which significantly influences the desirability of this particular scenario, is the likely resulting regulatory backlash. Being a (quasi-)monopolist and/or dominant firm would probably bring a host of counter-measures at a European level (i.e., from the competition authorities) in the form of fines and/or efforts to undermine Gazprom’s downstream position (e.g., the ‘Gazprom’ clause in the Third Energy Package).

Negative investment effects: “Under an Independent Systems Operator (ISO) regime a vertically integrated undertaking loses virtually all control of its transmission network. It is run by an independent operator who makes all investment decisions for the network. In essence the vertically integrated undertaking is reduced to the passive role of a holder of a financial asset managed by arms’ length managers. Most vertically integrated undertakings are likely to take the view that ownership unbundling is preferable to this level of loss of control.”[Riley 2009]. Particularly such negative EU-induced investment effects in the form of lower rates of return can discourage the development of a strategic position in the market altogether and may encourage Gazprom to look for other ways of integrating downstream.

ii. The impact of substitutes (by fuel type and geographical source)
In the event of a Russian (quasi-)monopoly and/or dominant position in gas sales in Europe, customers downstream would likely seek to diversify by fuel type or input, either for economic and/or political reasons. In power generation, gas competes with nuclear energy, coal and other forms of energy. In due course, Gazprom’s (quasi-)monopoly and/or dominant position would likely encourage customers in the power generation sector, and perhaps elsewhere too, to look for alternative sources or alternative types of fuel for economic reasons (such as price and commercial diversification), effectively destroying demand for Russian gas. At the same time, governments would also likely seek to diversify away from Russian gas supplies (by fuel type and geographical source) because of security of supply reasons.

(continued)
The rationale for overcapacity in the Russian export pipeline system to Europe

The case studies in Chapter 11 focus mainly on the (strategic-)economic aspects of midstream investments in capturing market share on the commodity market, given the possible competition and market uncertainties. This section will focus on the rationale for overcapacity in Russia’s export pipeline system to Europe from Russia’s perspective, in order to reroute and diversify flows from the existing (Ukrainian transit) system and to capture additional economic rents through arbitrage opportunities, combined with a multi-market entry point strategy. However, creating substantial overcapacity for these reasons could be an expensive strategy.

12.4.1 Background on Gazprom’s transit issues in Ukraine and elsewhere

After the break-up of the Soviet-Union, Gazprom lost control over major transit routes to and gas storage capacity in Europe. During the 1990s almost all the gas flowed through the Ukrainian system. Starting in the late 1990s, Gazprom had constructed additional capacity for new flows circumventing Ukraine. Yet, almost 70 percent of Gazprom’s export to Europe is currently flowing through the Ukrainian system, making the Ukraine a lynch-pin in Russian exports to Europe (see also Figure 12.8).

The lack of control over transit resulted in significant transit risks through the Ukraine (and Belarus) and in adjustments to Gazprom’s strategy. After the presidential election of

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Box 12.1 Theoretical versus practical desirability of monopoly or near-monopoly market outcomes (continued)

iii. Strategic investments and the problem of organisation and financing

A proactive investment and export strategy is subject to financing and organisational feasibility issues. This is exacerbated by scarcity of capital and high interest rates. These expensive and risky projects usually require foreign partners, such as European mid-streamers or other private parties (e.g., ENI, E.ON Ruhrgas, etc.), in order to share the financial and organisational burden. This helps reduce Gazprom’s proprietary position, as it can no longer wholly own a project. In addition, in most cases, these international projects need political assistants in Europe and Russia (i.e., pipeline diplomacy), which implies a stable relation between the European countries and Russia.

iv. Geopolitical and geo-economic considerations

As a result of geopolitical and geo-economic considerations, the call on additional Russian gas could reduce and non-Russian gas flows could be stimulated, particularly by the US and some trans-Atlantic oriented European countries. In addition, the complexity of the EU, both in terms of political functioning, energy policies and level of gas penetration, influences Russia’s position. Conversely, continental European countries may encourage further institutionalisation of Gazprom’s investments, driven by a perceived need of attaining greater upstream access to Russia’s gas sector in an effort to secure gas supplies, see also Chapter 8.2 and Chapter 11 in Boon von Ochssée [2010].

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451 For a historical overview of CIS transit issues, see Part II, mainly Chapter 6.
Putin in 2000, and the replacement of the board of Gazprom, Gazprom as a firm introduced reforms that also influenced Ukraine-Russia transit relations.

In 2004, the Ukrainian and Russian governments designed a new policy framework. With this new framework came the replacement of the intermediary firm Itera by Eural Trans Gas to handle gas sales in Ukraine. The new policy framework of 2004 also provided also a settlement for the past debt through loans and the establishment of a consortium for the construction of new gas pipelines in the Ukraine [Stern 2006].

Figure 12.8 Physical Gazprom’s export flows via different supply routes to Europe in 2007

![Graph showing gas flows](https://example.com/graph)

However, the Orange Revolution at the end of 2004, followed by the election of Yushchenko as the Ukrainian president, changed the views of the parties [Stern 2006]. In 2005, first of all, Turkmenistan abruptly halted the gas flows, because Russian and Ukrainian counterparts had not responded to Turkmenistan’s request for higher prices, encouraged by the increasing world oil and gas prices. Yushchenko believed that the consortium concept and the establishment of a new joint venture in 2005 (RosUkrEnergo) between Gazprombank and the Austrian Raffeisen Bank, which was replacing Eural Trans Gas, were not in the national interest of his country. Then again in 2005, Russia accused Ukraine of illegally diverting Russian gas, mainly from gas storage. The Ukraine and Russia remained at odds on rising transit and commodity prices, which should be moved to ‘European’ prices and paid in dollars [Stern 2006].

Combined with the worsening political relations between the Ukraine and Russia, the negotiations between Gazprom and Naftogaz on the above-mentioned issues failed in late
2005, which resulted in gas cut-offs to the Ukraine, as a result, some European customers reported reduced gas pressure in the beginning of 2006. Although new agreements were concluded, the two parties remained in conflict over the level of prices, the lack of transparency and the position of trading companies RosUkrEnergo and UkrGazEnergo, illegal diverts, and related debt issues, which were underlying the conflicts. These re-emerged in October 2007, February 2008 and most recently in 2009. In 2009, a new ten-year contract between Gazprom and Naftogaz was signed, in which market prices for transit and commodity (minus a 20 percent discount for 2009) were agreed upon. Intermediaries were abolished, representing progress in the commercialisation of their gas relations [Chow and Elkind 2009]. Recently in March 2010, the new elected president, Yanukovich, made possible a new deal under which Naftogaz would pay for gas with a discount equal to the abatement in the export duty set for gas supplies to Ukraine by the Russian Government (in exchange for the continued use of the Sebastopol military base on the Crimea, where Russia houses its Black Sea fleet). In April 2010, moreover, Putin proposed that Gazprom and Naftogaz should merge [Financial Times 2010; Gazprom 2010].

12.4.2 Mitigation of Gazprom’s transit risk: Rerouting and diversifying flows

In mitigating possible transit and country risks, Gazprom can strengthen its control and ownership over existing and new transit routes through Ukraine or lower the project risks by diversifying the transport routes to Europe (see Chapter 6).

After the completion of the Yamal-Europe pipeline and Blue Stream pipeline, Gazprom proposed two pipelines, Nord Stream and South Stream, which involved (almost) no third country transit risks outside the EU. All these additional pipelines were and will not be laid merely to circumvent the Ukraine. After the completion of the Nord and South Stream projects, and if Gazprom decides to use the Ukrainian transit route as a last resort, the transit through Ukraine could fall to 0-17 bcm/y. However, storage in Ukraine is expected to remain important for Russia [Mitrova et al. 2009; own estimates].

The combined strategy of ownership and diversification may increase the odds for Gazprom of decreasing its dependence on the transit role of the Ukraine and could also com-

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452 On 4 January 2006, Gazprom, Naftogaz and RosUkrEnergo came to a new agreement, which settled the end of the barter trade. Russian gas and gas from Central Asia were sold indirectly to Naftogaz via RosUkrEnergo. Additionally, these two companies have formed a joint venture, UkrGazEnergo, to sell gas directly in Ukraine [Stern 2006].

453 The global recession in 2008-09 and conflicting interests within elite Ukrainian circles encouraged the gas crisis and negotiations between the Ukraine and Russia in 2009 as well [Chow and Elkind 2009]. The gas crisis in 2009 had resulted in a short fall in Russian exports via Ukraine to Europe, mostly Central European countries (around 80 percent). According to Financial Times [2009], Russian gas exports via Ukraine to Europe as a whole fell from 300 mcm per day to 65 mcm per day.

454 The merger proposal is not related to the idea of creating a trilateral gas transmission consortium embracing Russia, Ukraine and European companies [Gazprom 2010].
mercialise and streamline the relationship. Looking in more detail at the option to build additional capacity (and flows) circumventing the Ukraine, one can argue that it may increase Gazprom’s leverage/bargaining power towards the Ukraine in realisation market-based prices (and non-payments/debt settlement).

An interesting perspective on gas infrastructure is offered by Hubert and Suleymanova [2008], who argue that it is easier to avoid overinvestment than underinvestment. Calibrating the theoretic model of Hubert and Suleymanova [2008] to the Eurasian pipeline system for natural gas, they find that the potential to improve efficiency through dynamic cooperation is large. Other academics argue that, for instance, the Yamal-Europe pipeline through Belarus decreases Ukraine’s monopoly profits from Belarus’ market entry and resulting in additional profits for Gazprom, in particular when it unites its gas transmission network with Belarus and Ukraine, a strategy pursued by Gazprom [Chollet et al. 2001]. These kinds of analyses only take into account the bargaining power with regard to transmission/transit costs and do not consider the commodity market: relatively low gas prices in Ukraine, and the risk of supply disruption (generating penalties and opportunity costs as a result of not fulfilling commercial contracts between Gazprom and European mid-streamers).

From a more pragmatic point of view, if cooperation were to fail for political reasons, one can argue that additional capacity would create supplementary bargaining power in achieving higher export prices in Ukraine (and other CIS transit countries). Moreover, additional overcapacity will provide Gazprom with the option to reroute its flows in case of a supply disruption. Yet, it remains an open question whether a diversified but under-utilised network is the least costly way to achieve a better bargaining position.

12.4.3 Flexible supplies and overcapacity
As mentioned in Chapter 8, the growing trend of increasing physical spot and short-term trades and swaps, suppliers are shifting spot and short-term volumes from one market or buyer to another in order to arbitrage (and swap) between different price levels within and between different markets, both intra- and inter-regionally. This section explores Gazprom’s position on the spot and short-term market within Europe via pipeline supplies.496

As mentioned in Case study 3, Gazprom M&T is responsible for Gazprom’s short and spot trade. Combining all current and future pipeline capacities, Gazprom might supply – assuming a full load factor – approximately 372 bcm/y to Europe (additional capacity of 118 bcm/y; see also Figure 12.9).

495 The Nord Stream company even argues that the price tag over 25 years will be some 15 percent lower for an offshore route than for an equivalent route onshore [Nord Stream AG 2009]. Comparing Gazprom’s sales revenues in CIS transit countries to its sales revenues in Europe, Gazprom’s opportunity costs in the CIS were US$14.0 bln in 2007 due to their relatively low prices [EC 2008].

496 Norway is already carrying out this new business model on regional (pipeline) basis. Around 20 percent of its total supply portfolio is short and spot traded (also see Chapter 8).
Based on Gazprom’s contracts already signed and above-mentioned scenarios, the load factor of Russian pipeline infrastructure to Europe could vary from approximately 48 to 86 percent.\textsuperscript{357} If one assumes that 15 percent of the total capacity is designated for flexible supplies, Gazprom creates an option to sell a maximum of around 56 bcm/y on the short-term and spot market(s), although new long-term supply commitments are likely to cover long-run security of demand [CIEP 2008].

**Figure 12.9** Gazprom’s existing, committed and planned export capacity to Europe by pipeline

With more flexibility in routes and volumes, Gazprom creates the opportunity to arbitrage between the different sub-regional markets on different trading hubs, e.g., between the Southeast (Baumgarten) and Northwest Europe (NBP/TTF etc.). Price differences between various sub-regional hubs may disappear in the long run due to the development of European sub-regional interconnections (as was the case with NBP/TTF after the construction of BBL and the Interconnector). Moreover, Gazprom can create arbitrage opportunities between the traditionally oil-linked prices and the gas hub prices. As mentioned in Chapter 8, hub indexed prices are relatively more volatile than oil-linked prices, because of the lack of liquidity and the cushioning effect which long-term contracts offer through the time lag involved in oil indexed contracts. In the case of hub peak-prices, Gazprom could exercise its option (i.e., utilise its transmission capacity) and deliver additional volumes on certain trading hubs. In the case of lower hub prices, it allows its option to expire (i.e., by

\textsuperscript{357} In reality, the average utilisation rate of major (export) trunk pipelines is in order of 85 percent (also for season’s fluctuations). In case of export routes to Europe, the average utilisation rate is around 70 percent [Correljé et al. 2009; CIEP 2008].
not utilising its reserved transportation capacity) and keeps its supply for domestic use or for oil-injection, for example. Additional overcapacity in Gazprom’s export pipeline system to Europe thus generates an economic option in order to capture additional economic rents through arbitrage, combined with a multi-market entry point strategy. In exploring such a strategy, Gazprom may be exposed to downside risk emanating from newly emerging LNG business models (see also Chapter 2).

12.5 Conclusion

In this chapter, the various market structure scenarios and Gazprom’s position within these scenarios are aggregated to a level involving the entire European gas market. The two resulting scenarios vis-à-vis market structures are: (1) a dominant firm (i.e., a leading firm among followers) and (2) a non-dominant firm or fringe scenario, involved different outcomes for Gazprom and conversely for its competition.

A very dominant position is not a desirable one for Russia from a practical-economic perspective, explained through the conceptual toolbox in Chapter 4. This is largely as a result of coordination problems, financing requirements, regulatory backlash, and possible geopolitical hurdles. The different possible and feasible market outcomes feed back into Russia’s merit order for its export market. In a situation of a high level of market penetration, Gazprom must start new large greenfield investments, like Yamal and Shtokman, and ensure Caspian imports for the longer term. Energy savings and/or demand reduction in Russia in combination with the boosting of the production of the independents through corresponding incentives could also free-up substantial volumes. In a scenario without additional Russian exports, for whichever political and/or economic reason, Gazprom may be inclined to invest only in some small(er) fields in order to keep-up production and fulfil existing contracts.

In order to mitigate the possible downside (volume) risks of Russia’s position in Europe in the mid- and long-term, especially in a buyer’s market, Russia can coordinate new investments via ‘vertical swaps’ and joint ventures with European incumbents, supporting by the corresponding governments. Russia can also ensure its position via the mid- and downstream investments in Europe, especially in growth markets.

In addition, Gazprom may aim for new investments in alternative transport routes to Europe in order to mitigate country and transit risks, especially Ukraine en Belarus. This strategy implies a diversification of pipeline routes for additional supplies and rerouting existing flows, despite the high costs associated with this. Furthermore, new business models such as those pursued by Gazprom M&T, involving flexible, intra-regional supplies, which could rationalise overcapacity for different entry points for gas into the pipeline network for arbitrage reasons.