OIL & GAS LOCALISATION IN RUSSIA: THE NEW FRONTIER

How oil & gas technology import substitution is fuelling localisation – and how your company can benefit.
OIL & GAS IN RUSSIA: AN OVERVIEW

Total proven oil reserves: 109.5 billion barrels

Oil production: 11,227,000 b/d

Total proven natural gas reserves: 32.3 trillion cubic metres

Natural gas production: 579.4 billion cubic metres
Oil & Gas localisation in Russia: the new frontier

Oil and gas is Russia’s lifeblood. The nation is gifted with bountiful resources, making Russia a world leader in hydrocarbons production. Only a handful of nations, such as the United States and Saudi Arabia, can match Russian output.

Economically, oil and gas is Russia’s chief industry. It accounts for 16% of GDP, 52% of government budget revenues, and 70% of total exports. Billions of dollars in investment is poured into the sector every year by majors like Gazprom, Tatneft, Lukoil, and Rosneft.

However, in the face of the industry’s incredible performance, there is still massive room for improvement. Technology is Russia’s chief weakness. Despite a range of projects using the latest machinery, much of Russia’s E&P equipment is outdated and obsolete.

Imports cover the vast bulk of oil and gas equipment in use throughout Russia, holding a market share of 80%. In some sectors, such as offshore technology and IT software, 90% of solutions in use are imported.

In fact, most Russian oil companies rely on imports of pumps, geological and seismic exploration, offshore drilling, and automation equipment to remain operational.

A weakened rouble has lowered Russia’s purchasing power, meaning import costs have risen as well.

There are also geographic factors to contend with, which affects the nature of the machinery needed at project sites. Russia is big – with a surface area greater than Pluto’s – and is covered with unique and challenging landscapes. Arctic drilling in the Far East and Northern reaches, for instance, is an emerging trend in Russian oil and gas – but the domestic sector lacks the technology to truly develop this further.

The answer to this is localisation. Of course, the Russian oil and gas sector is no stranger to foreign investment. Total, Eni, and more majors have all done deals and tie-ins with Russia’s chief producers like Gazprom and Rosneft in the past.

Now, it’s the turn of machinery and equipment manufacturers to shift their operations directly into Russia. Thanks to the industry’s sheer size, scope, and cash reserves, there are great opportunities for international suppliers to begin Russian-domestic production.

In this report, we look at these, including case studies of successful localisation operations from leading international companies. Read on to learn more about localisation in Russia – and why localisation is an attractive option for foreign firms.
Oil & Gas localisation in Russia: the new frontier

WHY LOCALISE?

For oil and gas technology and machinery suppliers, Russia is already a highly lucrative export market. However, localisation offers many big advantages for manufacturers.

**Lower entry costs**

The weakened rouble is actually a boon for companies examining localisation in Russia. Entry costs, covering prices of real estate, equipment, marketing, advertising, and staff, are low – making a start-up or joint venture a more economical option to consider. Operational costs are also lower as a result.

**Efficient, cheaper logistics**

With production sites located in Russia, companies can take advantage of Russia’s extensive transport and logistics network. Russia boasts over 85,000km of railway, over a million kilometres of road, and hundreds of international ports and airports. As such, it is quicker, easier, and cheaper, to move goods through Russia from a Russian factory distribution centre, than from an external location.

**State preference for localisation**

To back up its policy of import substitution, the Russian government is supporting localisation and is willing to add extra incentives to companies willing to bring production to Russia. See “Government policy, import substitution & localisation” in this report for more information.

**Opportunity to develop a supply base**

Through setting up a Russian operation, manufacturers can set themselves up as the prime supplier, with the production base to match, for that specific industry. Tying in with reduced logistics costs, this is a cost-effective method of enhancing brand strength in Russia.

**Export opportunities**

Through manufacturing in Russia, you also have access to the Eurasian Economic Union (EAEU). Representing the majority of the CIS countries, and significant oil and gas producers themselves, this is a further multi-billion-dollar export market, made even more accessible through localisation in Russia.

**Oil and gas is Russia’s chief economic contributor, so localisation efforts are very likely to be met with additional support from the government and Russia’s chief energy producers.**
Since 2015, Russia has been pursuing a government-led policy of import substitution across its major industries – including oil and gas.

The Ministry of Industry plans to produce 800 products not currently manufactured in Russia by 2020, meaning an average reduction in imports by 50-60%. Of the 19 industries highlighted for import substitution, oil and gas equipment is one of the biggest.

The government is also giving preference to Russian-made goods and companies in procurement tenders, lending further impetus for manufacturers to move into Russia, and set up factories, transport and logistics hubs, local offices, and so on.

Russia has trialled localisation in the past in heavy industries and met with success. In the automotive sector, for example, a reduction on customs duties on car parts led to huge multinationals moving production there. Companies like Renault, Skoda, BMW, and Nissan opened their own Russian facilities.

Under Federal Law no.488 “On Industrial Policy”, in force since July 1st 2015, an investor looking to begin local fabrication in Russia can acquire special investment contracts that might provide extra incentives. However, these have to be negotiated on a case-by-case basis.

Even so, oil and gas is the industry that essentially dictates Russia’s economic health. Imported equipment and technology covers between 80-90% of market share – so international manufacturers are likely to be heading to the negotiation table with a strong position when it comes to moving oil and gas machinery manufacturing into the Russian Federation.
Oil & Gas localisation in Russia: the new frontier

Case Study NOV-KOSTROMA

National Oilwell Varco (NOV) has over 35 years’ experience in supplying the Russian oil and gas sector. In the 1980s especially, the firm worked with the then Ministry of Trade of the USSR to sell over 120 drilling rigs, and thousands of drilling and downhole units, to Russia, specifically for use in the Far North.

Since the USSR’s transition into the Russian Federation and separate states, NOV has subsequently supplied rigs and drilling technologies to all major players in Russia’s oil and gas sector. Tatneft, Gazprom, Lukoil, Surgutneftegaz, and other majors, all use NOV solutions adapted to local conditions.

With the introduction of the Russian government’s import substitution policy, and subsequent localisation legislature, NOV noticed the writing on the wall. As a result, it began its own localisation efforts in 2016.

At this time, sanctions began to bite, cutting Russian companies off from the necessary drilling tools and rigs required for Arctic, deep-sea, and other drilling solutions needed to complete projects. NOV’s solution was to begin manufacturing in the heart of Russia.

In 2016, NOV opened a 48,000 sqm production hub in Volgorechensk, Kostrama (roughly 336km northeast of Moscow), at a cost of $100 million. From here, it produces ISO 9000 certified rigs, downhole drilling solutions, and well-operations equipment.

All of the equipment built at NOV’s Kostrama factory is suited to the Russian climate, off the back of the company’s prior experience supplying the USSR. It also adapted technologies developed in Canada, which shares similar weather to Russia’s coldest regions in some parts. NOV’s Russian-built solutions can operate in temperatures ranging from as low as -45°C to +55°C.

During NOV’s many years of experience in Russia/CIS, we continually demonstrate our commitment to quality and our desire to constantly improve our products.”

NOV, company statement
At Volgorechensk, NOV is currently building or developing the following notable pieces of equipment:

**5000/320 MT Bush Drilling Rig**

This train rig features an electric top drive with frequency control, as well as block-echelon arrangement in a modular format, designed for cluster well drilling. It holds a conditional drilling depth of 5000m.

As of 2017, localisation on the fully winterised 5000/320 MT Bush Drilling Rig stands at 50%. 2018’s goal is to bump this up to 60% before full component manufacturing and assembly is transferred to Russia in the future.

**225 MT Mobile Drilling Rigs**

Plans to begin manufacturing the 225 MT Mobile Drilling rig at Volgorechensk are underway. This particular rig is an adaptation of an existing model, already in use for Canadian projects.

Currently, NOV-Dreco, the firm’s Canadian wing, is heading up this project. The ultimate aim is to undertake rig base and mast manufacturing in Russia, re-suiting the 225 MT’s circulating system, pump unit, and electrical equipment block and preparing them for service in Arctic Russia.

**100 MT Mobile Drilling Unit**

Surgutneftegaz has purchased 100 mobile drilling units made by NOV in the US. Import substitution, however, means NOV is going to split production with its Volgorechensk site.

The Kostroma team is scheduled to handle manufacturing of each unit’s main components, including the chassis, overhead winch unit, mast, and attachments. NOV-Kostroma will also be handling final assembly.

Pumps, steel drill bits, and spare parts are also being made and repaired at NOV’s Kostroma facility.

NOV’s localisation efforts can teach us much regarding the Russian market. The big point is how technologies already trialled in similar climates can be adapted, and built, locally.

For instance, the 225 MT Mobile Drilling Rig design is being adapted from existing technology, which has been successfully used across Canada. Canada is a world leader in cold-weather drilling/production; its geography shares many aspects with Russia that make E&P activity difficult. Through solutions such as the 225 MT model, it’s possible to bring international knowledge to Russia and boost its production output (and grow unit sales at the same time.)
In order to keep a steady stream of quality equipment coming, and noticing a gap in the domestic market for Russia-made solutions, more companies are building in Russia, such as Russian Gas Turbines.

Russian Gas Turbines is a joint venture formed in 2011 between General Electric (GE) and Russia’s Inter RAO Engineering and United Engine Corporation. Its goal was to bring gas turbine production to Russia, designed to fill the market demand for quality equipment.

This was very much a “from the ground up” operation. A brand new, 20,000 sqm factory was set up by the partners in Rybinsk, Yaroslavl, approximately 250km from Moscow. This has allowed GE technology to be adapted to local market conditions, and improve the company’s Russian reach.

Russian Gas Turbines’ main product is the 6F.03 (6FA) model, which features a simple cycle output power rating of 82 MW. While it has mainly been intended for use in the power generation sector, this particular model is also suitable for use in oil and gas exploration – specifically in generating electricity and steam for oil extraction.

The joint venture’s production output is 14 turbines a year. Russian-sourced components are used during manufacturing too. For instance, domestic electrical engineering firm ELSIB provides its TF-90G-2U3 generators for each turbine – technology with a proven operational track record throughout Russia and the CIS.

We know that Russia is the second largest producer of natural gas in the world. Gas is a vital export commodity, which means upgrades of equipment at production and power sites is a top priority.

We are glad that GE energy equipment is supplied with high-tech components manufactured in Russia. This will bring additional benefits to our clients by reducing costs for logistics, maintenance, and by raising efficiency of production processes.”

Nadezhda Izotova, General Manager, Russian Gas Turbines
Since production began, Russian Gas Turbines has supplied some key power plants and oil projects with machinery. The group delivered its first turbine unit – and its first produced on Russian soil – to Rosneft in October 2015.

In December 2015, Russian Gas Turbines inked an agreement with Kaliningrad Generation LLC (a Rosneft subsidiary) for the supply of eight 6FA turbines. Units made their way to several sites in the Kaliningrad region in 2017, as part of a greater $1.56 billion regional power plant investment programme.

Rosneft has so far been Russian Gas Turbines’ largest client. In addition to the above, 6FA turbines have been used for combined heat and power operations at the Lodochny, Suzunsky, and Tagulsky oil fields in Krasnoyarsk. These are sub-fields of Rosneft’s enormous Vankor operation.

The fact that Rosneft chose 6FA turbines in Krasnoyarsk also highlights something those considering localisation options must take into account: the Russian weather.

Vankor lies in the north of Krasnoyarsk, close to the Arctic Circle, which means temperatures plummet come winter. Equipment in use there must be rugged, and able to cope with fierce cold. 6FA turbines, according to Rosneft, are useable in these harsh climes and continue year-round operations – ideal for Russia’s colder reaches.

By paying attention to the above, as well as identifying a gap in the market and reacting to local demands, General Electric and partners are the model for localisation in Russia.
This is partly due to the costs associated with offshore production, i.e. moving machinery to project sites, installation, etc. However, Russian majors are desperate to push ahead with offshore and deep-sea projects. This trend is leading to a new oil & gas related industry in Russia – production of marine-specific E&P technology.

Gusar, a Russian tech-supplier based 187km from Moscow in the Vladimir region, is leading this industrial push – and localisation holds the keys to success.

In 2015, Gusar became a licensee for undersea drilling column head tech developed by Scottish engineering firm Plexus. Plexus has a long history of developing drilling solutions for use in the North Sea, widely regarded as a difficult spot for offshore drilling - experience Plexus can apply to the Russian market.

Under the licensing agreement, Gusar can utilise three of Plexus’ undersea and subsoil solutions:

• POS-GRIP® Exploration Adjustable Wellhead Equipment
• TERSUS™ Mudline and Casing Support Equipment
• M2S Mudline Conversion Equipment

Gusar is combining these options into a drilling solution designed specifically for undersea use. Lower column suspension constructed at Gusar’s facilities will be paired with Plexus’ tech to create an in-demand product currently not in local production.

In wellheads, POS-GRIP™ can replace the conventional load shoulder or slips to create a high-load hanger support mechanism which is adjustable, full-bore, fully elastic, and provides instant, high-capacity lockdown. It uses robust metal-to-metal seals to support rugged, flexible drilling options.

By using TERSUS™ Mudline equipment, Gusar is to manufacture a solution localised specifically to Russian market conditions – and fill the supply spaces left by import substitution.

As extracting hard-to-reach oil and gas goes deeper and becomes more complex, particularly in high pressure and high temperature environments, innovative, safe and effective wellhead technology is becoming increasingly important.”

Gusar, company statement
Currently, Gusar is operating according to the following timeline:

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Joint agreement signed</td>
</tr>
<tr>
<td>2016</td>
<td>Alignment of technical details/specifications to Russian standards</td>
</tr>
<tr>
<td>2017</td>
<td>Design/development of Mudline prototype</td>
</tr>
<tr>
<td>2017-18</td>
<td>Production of the prototype</td>
</tr>
<tr>
<td>2019</td>
<td>Mass production of drilling solution</td>
</tr>
</tbody>
</table>

In the short term, Russian majors, including Gazprom, Gazprom Neft, Lukoil, and Rosneft, are looking offshore for extraction. E&P will mainly take place in Russia’s Arctic waters, namely the Sea of Okhotsk, Barents Sea, and the Kara Sea.

Many such developments are planned to start between 2030-2035, including:

- **500** underwater wells
- **640** dry well completions
- **37** subsea wells in the Yuzhno-Kirinskoje Field

Such activity would require a steady stream of specialised technical solutions to be successful. Reacting to this rising demand, Gusar has been able to position itself as a chief supplier of subsea technology to the Russian market – all made possible thanks to localisation of Plexus’ products.
Case Study  
TURBODEN

Turboden is an Italian company, part of Japan’s Mitsubishi Group, specialising in organic ranking cycle (ORC) technology. It has numerous localisation operations servicing IOCs and Majors worldwide. With Russia’s status as a world leader in gas and oil production, Turboden has been a key supplier to project sites across the country.

Partnering with Gazprom branch Gazprom Transgaz Yugorskk, Turboden invested in a Moscow-region production base. Specifically, Turboden arranged production lines for its ORC systems – as well as supplying the actual technology itself.

Activity involved the installation of numerous production stages, including engineering of heating, ventilation, and firefighting systems. Construction of actual production lines for turbines, generators, pumps, oil supply systems, and the plant’s automatic control systems, also fell under Turboden’s remit.

This activity was part of a localisation effort by Gazprom to supply technology to its Oktaybrskaya gas compression station.

Modular containers were supplied to the project site, which allowed for a quick delivery time. Turboden was also able to secure proper certification for its premises, attracting high-quality Russian engineers to its workforce. Utilising home-grown talent is another localisation boon, as the workforce is already familiar with Russian working practices and conditions.

Locally manufactured Turboden equipment has been employed in other major projects.

At its Perm refinery, Lukoil required a solution to manage associated petroleum gas disposal, as well as ensuring a steady supply of hot water and electricity.

The 1.8 MWe unit supplied by Turboden was integrated with the existing facility’s two thermal oil boilers where flare gas is burned to generate a total of 10 MWth. This thermal power is transferred to the ORC unit, which uses that 1.8 MW of electric power to cover part of the station’s energy demands.

As a secondary function, the ORC unit produces 8 MW of thermal power in the form of pressurized water at 95°C. This is used to warm refined oil and petroleum products, allowing for easy pumping into pipes for transportation.

At Lukoil’s Perm oil refinery Turboden provided a bespoke 1.8 MWe co-generations ORC unit. This tailor-made approach has endeared Turboden to Russian majors over the years, as it allows tech to be catered to that company’s individual specifications.

A Turboden ORC system

© Turboden
## Appendix

### DOING BUSINESS IN RUSSIA

#### Russia key stats

| GDP: $1.2 trillion | Population: 144.3 million |

#### Russia Global Competitive Index Performance Rankings – Overall (WEF, 2017)

<table>
<thead>
<tr>
<th>Overall rank</th>
<th>Institutions (rank)</th>
<th>Institutions (score)</th>
<th>Infrastructure (rank)</th>
<th>Infrastructure (score)</th>
<th>Macroeconomic environment (rank)</th>
<th>Macroeconomic environment (score)</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>83</td>
<td>3.7</td>
<td>35</td>
<td>4.9</td>
<td>53</td>
<td>5.0</td>
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#### Russia Global Competitive Index Performance Rankings – Efficiency (WEF, 2017)

<table>
<thead>
<tr>
<th>Labour market efficiency (rank)</th>
<th>Labour Market efficiency (score)</th>
<th>Financial market development (rank)</th>
<th>Financial market development (score)</th>
<th>Technological readiness (rank)</th>
<th>Technological readiness (score)</th>
<th>Market size (rank)</th>
<th>Market size (score)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>4.3</td>
<td>107</td>
<td>3.4</td>
<td>57</td>
<td>4.5</td>
<td>6</td>
<td>5.9</td>
</tr>
</tbody>
</table>

#### Russia Global Competitive Index Performance Rankings – Innovation (WEF, 2017)

<table>
<thead>
<tr>
<th>Business sophistication (rank)</th>
<th>Business sophistication (score)</th>
<th>Innovation (rank)</th>
<th>Innovation (score)</th>
</tr>
</thead>
<tbody>
<tr>
<td>71</td>
<td>4.0</td>
<td>49</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Rank refers to a country’s placement on the WEF 2017-2018 Global Competitiveness Index (out of 138). Score refers to that country’s performance in specific sectors between 1-7 (1 being the lowest score; 7 being the highest).
### Problematic Factors for Doing Business in Russia (WEF, 2017)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Factor score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corruption</td>
<td>13.1</td>
</tr>
<tr>
<td>Tax rates</td>
<td>13.1</td>
</tr>
<tr>
<td>Access to financing</td>
<td>10.2</td>
</tr>
<tr>
<td>Inflation</td>
<td>10.1</td>
</tr>
<tr>
<td>Tax regulations</td>
<td>9.3</td>
</tr>
<tr>
<td>Inadequately educated workforce</td>
<td>7.4</td>
</tr>
<tr>
<td>Inefficient government bureaucracy</td>
<td>6.1</td>
</tr>
<tr>
<td>Policy instability</td>
<td>5.5</td>
</tr>
<tr>
<td>Poor work ethic in national labour force</td>
<td>5.2</td>
</tr>
<tr>
<td>Inadequate supply of infrastructure</td>
<td>3.9</td>
</tr>
<tr>
<td>Government instability/coups</td>
<td>3.8</td>
</tr>
<tr>
<td>Insufficient capacity to innovate</td>
<td>3.8</td>
</tr>
<tr>
<td>Foreign currency regulations</td>
<td>3.2</td>
</tr>
<tr>
<td>Restrictive labour regulations</td>
<td>2.4</td>
</tr>
<tr>
<td>Crime and theft</td>
<td>2.1</td>
</tr>
<tr>
<td>Poor public health</td>
<td>1.4</td>
</tr>
</tbody>
</table>

From a list of factors, respondents to the World Economic Forum's Executive Opinion Survey were asked to select the five most problematic factors for doing business in their country and to rank them between 1 (most problematic) and 5. The score corresponds to the responses weighted according to their rankings.

### Russian Economic Freedom Rating (Heritage, 2016)

<table>
<thead>
<tr>
<th>Economic Freedom Index score</th>
<th>Economic Freedom Index rank</th>
<th>Economic Freedom Index rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>57.1</td>
<td>114</td>
<td>Mostly unfree</td>
</tr>
</tbody>
</table>
Russia Corruption Perception Rating (Transparency International, 2016)

<table>
<thead>
<tr>
<th>Corruption perception score</th>
<th>Corruption perception rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>131</td>
</tr>
</tbody>
</table>

Countries are ranked by Transparency International according to their corruption score. A score of 100 means free from corruption.

Russia Credit Ratings (Trading Economics, 2018)

<table>
<thead>
<tr>
<th>Credit rating service provider</th>
<th>Credit rating</th>
<th>Credit outlook</th>
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</thead>
<tbody>
<tr>
<td>Standards &amp; Poor</td>
<td>BB+</td>
<td>Positive</td>
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<tr>
<td>Moody’s</td>
<td>Ba1</td>
<td>Positive</td>
</tr>
<tr>
<td>Fitch</td>
<td>BBB-</td>
<td>Positive</td>
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</tbody>
</table>
MIOGE: BRINGING LOCALISATION TO RUSSIA’S NO.1 INDUSTRY

The Moscow International Oil and Gas Exhibition (MIOGE) is Russia’s leading oil & gas event. The show brings together international manufacturers of industry technologies and equipment with key Russian buyers.

With support from the very top of Russia’s energy industry, MIOGE is the ideal place to:

Meet thousands of qualified decision makers from Russia and across the globe

Make localisation contacts to begin Russia-based manufacturing or licensing of your technologies

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Moscow International Oil & Gas Exhibition
18 – 21 June 2018
Crocus Expo – Moscow

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mioge.ru
The Russian Petroleum and Gas Congress (RPGC) is held every year alongside MIOGE. Here, major industry figures gather to tackle the hot topics in Russia's oil & gas industry.

Through a series of technically-focussed talks, workshops, seminars, and sessions, congress attendees get unparalleled access to deep industry knowledge that lets them:

- Demonstrate their products directly to Russian majors like Gazprom, Tatneft, Lukoil, Rosneft, and more huge companies
- Uncover the latest trends, technologies, and topics hitting the sector
- Find new business opportunities
- Meet major Russian and international oil & gas industry trendsetters

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