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SIBUR’S STRATEGY: MONETISING UNIQUE ACCESS TO FEEDSTOCK AND GROWTH IN DEMAND FOR PETROCHEMICALS

ZAPSIBNEFTEKHIM WILL INCREASE THE PETROCHEMICAL SEGMENT’S SHARE IN SIBUR’S BUSINESS PORTFOLIO

INDEX OF GLOBAL GROWTH IN BASIC MATERIALS PRODUCTION *

*USGS, FAO, BP, Rubber, The New Plastic Economy
**Feedstock for the project**

- **Nyagan**
- **Khanty-Mansiysk**
- **Tobolsk**
- **Surgut**
- **Pyt-Yakh**
- **Nizhnevartovsk**
- **Belozerney GPP**
- **Muratlenkovskiy GPP**
- **Purovskiy GCPP**
- **Gubkin GPP**
- **Noyabrsk**
- **Vygapuruvoksky GPP**
- **Nizhnevartovsky GPP**
- **Surgutneftegos**
- **Surgut CSP**
- **Yuzhno-Priobsky GPP**
- **Yuzhno-Balyksky GPP**
- **Yuzhno-Priobsky MPS**
- **Nyagangazpererabotka**
- **Surgutneftegas**
- **Noyabrsk Loading Rack**

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**APG PROCESSING**

- **2003**: 8 bcm  
- **2016**: 25 bcm

**C3 RECOVERY RATE**

- **2003**: 64%  
- **2016**: 95%

**MAX PIPELINE THROUGHPUT**

- **2003**: 4.8 mt  
- **2016**: 8 mt

**NGL FRACTIONATION IN TOBOLSK**

- **2003**: 2.3 mt  
- **2016**: 8 mt
POLYPROPYLENE

Year
2009
2016

Consumption, kt
6254
9651

Production, kt
603.5
745.5

2016
1,212.8
945.6

ZAPSIBNEFTEKHIM COMPLETION
18,000

Year
2019
2016

Consumption, kt
1,8834
1,2271

Production, kt
1,236
1,517.7

ZAPSIBNEFTEKHIM COMPLETION
20,000

Growth in domestic supplies X2
Growth in exports X14

POLYETHYLENE

CONSUMPTION, kt
PRODUCTION, kt

Year
2009
2016

CIS
China
Europe
Turkey
Latin America
Africa

Key uses

CONSTRUCTION MATERIALS
2,224,138 km of water supply pipes

MEDICAL PRODUCTS
600 billion vials

AUTOMOTIVE PARTS
71,428,571 car bumpers

PACKAGING
16,129,032 km of food wrap or stretch film

CABLES
35,917,820 km of fiber optics insulation

TEXTILE INDUSTRY
151 km² of carpeting

ZAPSIBNEFTEKHIM
Import substitution and higher export potential*

Growth in domestic supplies

Growth in exports

*Market Report, public sources
**ZAPSIBNEFTEK HIM**

A major petrochemical construction site globally

12,100 km

of cable: approximate distance from Moscow to Magadan

141,800 t

of metal structures: enough to build fourteen Eiffel Towers

418,400 m³

of concrete: enough to fill three stadiums

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**MAJOR POLYMER PRODUCTION PROJECTS**

<table>
<thead>
<tr>
<th>No.</th>
<th>Country</th>
<th>Company</th>
<th>Location</th>
<th>Greenfield/brownfield</th>
<th>Capacity, kt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Russia</td>
<td>SIBUR</td>
<td>Amur</td>
<td>Greenfield</td>
<td>Ethylene – 1,500; PE – over 1,500</td>
</tr>
<tr>
<td>2</td>
<td>USA</td>
<td>SASOL</td>
<td>Lake Charles</td>
<td>Greenfield</td>
<td>Ethylene – 1,550</td>
</tr>
<tr>
<td>3</td>
<td>Malaysia</td>
<td>Petronas</td>
<td>Pengerang</td>
<td>Greenfield</td>
<td>Propylene – 1,750; ethylene – 1,000</td>
</tr>
<tr>
<td>4</td>
<td>Russia</td>
<td>SIBUR</td>
<td>ZapSibNeftekhim</td>
<td>Greenfield</td>
<td>Ethylene – 1,500; PE – 1,500; PP – 500</td>
</tr>
<tr>
<td>5</td>
<td>India</td>
<td>Reliance Industries</td>
<td>Jamnagar</td>
<td>Greenfield</td>
<td>Ethylene – 1,500; PE – 950</td>
</tr>
</tbody>
</table>

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* Source: IHS

** Decision to proceed to the Execution stage is not expected until year-end 2018.

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113,100 piles

Enough to lay foundation for forty tower blocks

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CONTRACTS WITH RUSSIAN COMPANIES WORTH OVER RUB 200 BN

Producers and contractors

- NEARLY 1,000 process equipment units
- OVER 140,000 t of metal structures
- NEARLY 20,000 t of pipe
- OVER 200 km of plastic pipe
- OVER 12,000 km of cable

FROM 35 RUSSIAN REGIONS

- 46 million man-hours of builders and engineers
- OVER 0.4 mcm of concrete
- OVER 110,000 PILES
- 18,000 PERSONS engaged at the peak of construction
TEMPERATURE INSIDE PYROLYSIS FURNACES
1.5 times hotter than on the Venusian surface

CAPACITY OF PYGAS COMPRESSOR, ONE OF THE LARGEST IN THE WORLD
Power of 1,000 cars

PRESSURE INSIDE THE ETHYLENE AND PROPYLENE POLYMERISATION UNIT
Water pressure at a depth of 500 m

ZAPSIBNEFTEKHIM
Unique cutting-edge equipment

PROPANE FRACTIONATION UNIT
Two times longer and eight times heavier than Boeing 787

TEMPERATURE INSIDE THE COLD TRAIN
Average temperature on the lunar surface

−140°C

85MW

850°C

917 t

50 bar
Equipment suppliers from more than 40 Russian regions:

- Tyumen
- Ufa
- Chelyabinsk
- Tambov
- Barnaul
- Belgorod
- Vologda
- Voronezh
- Kemerovo
- Kostroma
- Shadrinsk
- Zelenograd
- Nizhny Novgorod
- Veliky Novgorod
- Omsk
- Penza
- Kazan
- Rostov-on-Don
- Ryazan
- Samara
- Togliatti
- Saratov
- Izhevsk
- Yaroslavl
- Novomoskovsk
- Dzerzhinsk
- Magnitogorsk
- Votkinsk
- Cheboksary
- Kumertau
- Naberezhnye Chelny

Exceptional logistics of oversize equipment from ZAPSBNEFTKHM.
ZAPSIBNEFTEKHIM
Advanced construction technology

1.5 m
ABOVE THE GROUND – A UNIQUE COOLING TOWER
One of the world’s largest nearly fully underground cooling towers spanning 9,000 sq m

5–10 min
TO CUT OFF PILES

28 km
LONG WATER PIPELINE
A unique environment-friendly technology of trenchless pipe laying using directional drilling. A horizontal well is drilled below the frozen river bottom to lay pipes using a dedicated belling bucket

INNOVATIVE PE PIPE WELDING TECHNOLOGY
Minimum equipment required (one excavator and one pipe layer)
### Employment geography

- Petrochemicals
- Oil refining
- Gas processing
- Universities and colleges
- Backup programme

### ZAPSIBNEFTEKHIM

**New jobs**

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>18,000</td>
</tr>
<tr>
<td>Post-commissioning</td>
<td>2,000</td>
</tr>
<tr>
<td>Core production</td>
<td>1,700</td>
</tr>
</tbody>
</table>

**Backup programme**

Programme participants include external candidates to be trained as backups by Sibur’s mentors at a number of production sites. After completing the programme, backup employees are hired by ZapSibNeftekhim or replace their mentors transferred to ZapSibNeftekhim.
The bulk of waste is to be recycled.

Air monitoring

Fauna monitoring

Vegetation monitoring

Regular initiatives under the environmental monitoring programme include:

**Air Pollution Index**
(2016 Reports by Roshydromet)

- **Mосcow**: Extremely high level
- **Kazan**: High level
- **Tобольск**: Low level

- **Post-launch index to remain unchanged**

- **Efficiency of state-of-the-art gas treatment systems**: 99.9%

Environment-friendly processes

Zapsibneftekhim
ZAPSIBNEFTEKHM
Similar production sites in Europe

POLYETHYLENE UNIT
Technology
Ineos, UK

POLYPROPYLENE UNIT
Technology
Lyondellbasell, Netherlands

STEAM CRACKER
Technology
Linde, Germany

Płock, Poland
Litvínov, Czech Republic
Cologne, Germany
ZAPSIBNEFTEKHIM

SIBUR’s Nature Path
A joint project of SIBUR and RAS’s Integrated Research Station in Tobolsk to study and monitor biodiversity in the vicinity of the site.

The project received an award of the Environmental Culture. Peace and Harmony international project and the jury’s accolade as Russia’s only initiative of the kind rolled out in the immediate vicinity of an industrial site, as well as the Vernadsky National Environmental Award.

Local fauna has fully adapted to the industrial environment.

The nature path features bioindicator plants.

The routes have monitoring sites to analyse air, water and soil samples, information boards, and other required infrastructure.

3 forest routes
500 m away from ZapSibNeftekhim’s construction site
1,500 m away from the Tobolsk production site.

Relict pine tree
Spotted orchid
Tree lungwort
Formula of the future
Maximum utilisation of energy efficient polymer construction materials makes the facility unique

**CORIAN**
A solid surface material made of acrylic resin and aluminium trihydrate

**WOOD PLASTIC COMPOSITE**
Hybrid of wood and plastics that rivals the strength of metals

**POLYURETHANE FLOOR COATING**
High-tech tough flexible seamless self-leveling floor coating made of heterochain polymers (two components in the main chain)

**COMPOSITE REINFORCEMENT**
Non-metallic bars made of glass, basalt, carbon or aramid fibres bonded with a thermosetting polymer binder

**EXPANDABLE POLYSTYRENE**
High-quality thermal insulation material with uniform structure

**58 mm**
THICK INSULATING GLASS UNITS (IGU)

**6 m**
IGU WITH THE LARGEST GLASS PANES PRODUCED IN RUSSIA

**UV REFLECTIVE WINDOW GLASS**