



Joint Stock Company “GTL”

**AUTOMATED GAS TREATMENT
STATION “GTL”**



EN / RU

JSC “GTL” BRIEF REFERENCE



JSC “GTL” was founded in 2000 in order to realize a project of extinguishing flares and refining natural gas into high-octane engine fuels (petrol and diesel fuel).

The technology is unique due to its high efficiency, possibility of refining gas containing any components, including shale gases, with isolating end-product (high-octane petrol, diesel fuel, methanol, ethanol, and aromatic hydrocarbons), full automation, and high ecological compatibility, efficiency of process in difficult climate and infrastructural conditions and in low-output fields.

JSC “GTL” has invested in R&D aimed at creating this technology 71.3 million dollars by 2013.

JSC “GTL” scientists and specialists have developed more than 100 various innovations, which have been patented or are at the stage of registration for receiving Russian and international patents. JSC “GTL” is closely cooperating with international leading research institutes and universities. At the present moment GTL has designed the Plant with capacity 100 thousand tons per annum on the territory of Bratsk Gas Condensate Field (Russia East Siberia).

JSC “GTL” BRIEF REFERENCE

Main shareholders of the company are Dr. Rafis Kadyrov and “Invest-active Ltd.” holding 40% and 25% respectively of the shares. In total there are about 50 individual and corporate shareholders. The Company is managed by its president Dr. Rafis Kadyrov and Vice Presidents heading various departments.

The balance of JSC “GTL” currently counters more than 28 billion rubles. The company is fully independent from states subsidies; the main financial source is funds of investors and shareholders, proceeds of the company as well.

JSC “GTL” CURRENT CAPITAL STRUCTURE

Registered capital	17.37 million dollars
Fixed assets:	901.30 million dollars, including:
---Intangible assets	830.00 million dollars
---Research and Developments results	71.33 million dollars
Current assets:	54.60 million dollars, including:
---Recurring operations	51.30 million dollars

JSC “GTL” BRIEF REFERENCE

Corporate Values and Principles of Work

Safety

Nothing is more important than safety and we develop special GTL procedures for each project.

Innovations

It's in our nature to start process from theory, prove it by tests and realize this challenge in the built working object.

Responsibility

We take time to come to the same understanding with our customers.

We lead all projects to the built working object.

When sceneries of project process become complicated we give a prompt response to lead the process to a stable state.

Quality

GTL production process is realized in accordance with ISO 9001, ISO 14001, OHSAS 18001.

JSC “GTL” BRIEF REFERENCE

Achievements of JSC “GTL”

JSC “GTL” is proud of its achievements since inception and it can successfully demonstrate various technical solutions in the field of chemical utilization of natural gas and oil, refining natural or stranded gas, shale gas, sulfur utilization and extracting helium. JSC “GTL” has developed the following projects and established them as independent business units:

1. Technology for direct synthesis of high octane compounds of petrol and alcohols.
2. Reactors for direct synthesis of high octane compounds of petrol and alcohols.
3. Highly efficient catalysts.
4. Packet vortex nozzles (PVN).
5. Energy – efficient and compact absorbers.
6. Unique rectification columns.
7. Static mixers providing high degree of homogenization.
8. Combined action columns.
9. Dust collection columns that purify air from 99.9 – 100% of dust.

JSC “GTL” BRIEF REFERENCE

10. Condensation columns of low – energy vapors.
11. Methane chemistry equipment.
12. Full automation of low – tonnage gas treatment stations.
13. Gas compression method by unidirectional stream of gas in bipolar membranes in the direction of electric field.
14. Ion – exchange polymeric membranes for creation of non- mechanical compressors of new generation.
15. Non - mechanical compressor of new generation.
16. Equipment for gas separation in bipolar membranes by using electric field.
17. Catalyzers for conversion of methane of low debit wells to ethylene.
18. High – efficient de-aerators

and other technological solutions necessary for building GTL plants.

JSC “GTL” scientists and specialists have developed more than 100 various innovations, which have been patented or are at the stage of registration for receiving Russian and international patents. JSC “GTL” is closely cooperating with international leading research institutes and universities.

JSC “GTL” BRIEF REFERENCE

JSC “GTL” supplies industrial heat and mass transfer equipment (TMOA) based on innovative batch swirl nozzle (PVN), which can be used in chemical, biochemical, metallurgical, coal, jewelry, food, medical industries as well as in thermal and nuclear power.

Modern engineering and design base of “GTL” allows you to create equipment of any complexity, and the flexibility of the high-tech automated production process permits to meet customer’s needs.

JSC “GTL” produces the following mass transfer equipment: absorbers, strippers, condensing tower, columns of dust collection, distillation columns, static mixers, and machines of combined action. At our production facilities we are able to perform work on individual orders of our clients.

Products meet all Russian and international standards. High quality and reliability of our products are ensured by monitoring the process from purchase of quality materials to tests of end products. Debugged production ensures the delivery of qualified serial production, as well as allows satisfying all customer requirements.

FINANCIAL AND ECONOMIC PERFORMANCE OF JSC “GTL”

Information on dynamics of indicators characterizing financial and economic performance of JSC “GTL”, including profitability and loss, for the last 5 completed financial years.

Indicator	2009	2010	2011	2012	2013
Net profit rate, %	86.74	42.57	1.72	6.36	3.22
Assets turnover ratio, number of turnovers	0.00	0.00	0.01	0.2	0.6
Return of assets, %	0.04	0.03	0.02	0.01	0.01
Return of equity, %	0.04	0.03	0.02	0.01	0.01
Uncovered loss as of the accounting date, thousand rubles	0	0	0	0	0
Correlation of uncovered loss as of the accounting date and balance sheet assets, %	0.00	0.00	0.00	0	0

FINANCIAL AND ECONOMIC PERFORMANCE OF JSC “GTL”

Economic analysis of the profitability/losses of JSC “GTL” based on dynamics of the adjusted indicators.

Sharp growth of the indicator in 2009-2010 was caused by a short-term focusing on high margin types of activity during preparation of manufacture of plant for direct synthesis of petrol fractions. In 2011 simultaneous sharp growth of revenues and cost resulted in decrease of this indicator. From the beginning of 2012 the company concentrated its forces on creating experimental industrial plant and fulfilling R&D what led to further changes of this indicator, as of the year-end 2012 its value was 6.75%. In 2012-2013 the tendency remained the same.

Low return of fixed assets and equity is explained by high value of equity and additional capital, based on expensive items of intellectual property (patents), which constitute innovative potential of the company. As the main project of the company, consisting in manufacture and sale of plant for direct synthesis of petrol fractions based on the patents mentioned, forwards to its full capacity, forecasted considerable increase of profits and revenues will lead to growth of returns indicators of JSC “GTL”.

FINANCIAL AND ECONOMIC PERFORMANCE OF JSC “GTL”

Analysis of dynamics of the indicators above gives evidence of significant growth of the company's profits for the last five completed financial years. The main factors of revenues and net profit increase were dynamic development of the company, geographic expenditure of activity and sales markets, development of new innovative products, which allows significant reinforcing of competitive position on the market of methane containing gas processing equipment.

Liquidity, Adequacy of Capital and Current Assets of JSC “GTL”

Information on dynamics of indicators characterizing the liquidity of the company for the last 5 completed financial years.

Indicator	2009	2010	2011	2012	2013
Net working capital, thousand rubles	32 883.729	726 341	792 163	1 323 353	1 965 042
Current liquidity ratio	0.01	88.26	20.69	15.44	18.72
Quick liquidity ratio	-0.09	1.40	0.65	0.12	0.11

FINANCIAL AND ECONOMIC PERFORMANCE OF JSC “GTL”

Economic analysis of the liquidity and solvency, adequacy of equity capital to meet short-term liabilities and cover the current operating expenses based on the economic analysis of dynamics of adjusted indicators with description of factors, which, to the company's management bodies discretion, had the most considerable impact on the company's liquidity and solvency in the accounting period.

During the period 2009-2013 net working capital significantly grew. The indicator increased from 32.883 729 million rubles in 2009 to 1 965.042 million rubles in 2013.

Quick liquidity ratio is the ratio of the most liquid company's assets and accounts receivable to current liabilities. This coefficient shows company's paying abilities for timely and quick payment of its debts. Thus, the liquidity indicators certify its ability of timely fulfillment of its liabilities, including liabilities for its securities.

FINANCIAL AND ECONOMIC PERFORMANCE OF JSC “GTL”

Size and Structure of Capital and Current Assets of JSC “GTL”

Indicator	Dec, 31, 2009	Dec, 31, 2010	Dec, 31, 2011	Dec, 31, 2012	Dec, 31, 2013
Authorized capital	389,400	389,400	389,400	519,200	519,200
Compliance of authorized capital with the constituent documents	Amount of authorized capital corresponds with constituent documents.				
Total value of shares bought out for resale (transfer), thousand rubles	0	3,000	33,795	10,000	10,000
Percentage of shares bought out by for resale (transfer) of placed shares, %	0	0.77	8.68	1.93	1.93
Reserve capital built up by deductions from profit, thousand rubles	115	115	115	417	417
Additional capital, thousand rubles	4,634,353	4,848,113	21,148,113	28,110,991	28,110,991
Undistributed net profit, thousand rubles	1,517	3,246	7,820	13,688	13,946
Total amount of capital, thousand rubles	5,025,385	5,237,874	21,511,653	28,501,042	28,658,613

FINANCIAL AND ECONOMIC PERFORMANCE OF JSC “GTL”

Size and structure of current assets in accordance with the accounting statements for the last five completed financial years.

Indicator	Dec, 31, 2009		Dec, 31, 2010		Dec, 31, 2011	
	%	thousand rubles	%	thousand rubles	%	thousand rubles
Inventories	98.81	445,917	98.00	719,947	96.46	802,933
Input VAT	0.68	3,051	0.42	3,063	0.40	3,322
Accounts receivable	0.41	1,866	0.48	3,544	0.78	6,491
Short-term financial investments	0.00	0	0.83	6,079	1.34	11,129
Cash	0.10	437	0.28	2,032	1.02	8,528
Other current assets	0.00	0	0.00	0	0.00	0
TOTAL:	100	451,271	100	734,665	100	832,403

FINANCIAL AND ECONOMIC PERFORMANCE OF JSC “GTL”

Indicator	Dec, 31, 2012		Dec, 31, 2013	
	%	thousand rubles	%	thousand rubles
Inventories	89.67	1,363,152	90.47	1,494,170
Input VAT	0.03	452	0.027	452
Accounts receivable	9.77	148,621	8.99	148,578
Short-term financial investments	0.49	7,464	0.37	6,214
Cash	0.03	474	0.127	2,098
Other current assets	0.00013	2	0.00103	17
TOTAL:	100	1,520,165	100	1,651,529

FINANCIAL AND ECONOMIC PERFORMANCE OF JSC “GTL”

Current assets financing sources: revenue, sources of the company, loans, credits.

The current asset financing policy and factors that may entail a change in the current asset financing policy and their occurrence probability: Current assets are financed through the funds of the company and to a small extent through accounts payable. In future if it's necessary to finance current assets, JSC “GTL” considers possibility of raising loans and credits.

Estimating the probability of occurrence of factors that may entail a change in the current asset financing policy: The main factor which can cause changes in policy of current assets financing is significant deterioration of debt financing market and change of credit resources value. But probability of such deterioration in the present time is assumed as insignificant.

FINANCIAL AND ECONOMIC PERFORMANCE OF JSC “GTL”

Intangible Assets of JSC “GTL”

	Description of groups of intangible assets	Initial (replacement) cost, thousand rubles	Amount of depreciation accumulated, thousand rubles
Balance sheet date: December, 31, 2009			
1	Exclusive rights of patent holder for invention, industrial design, utility model	5,301,244	717,987
2	Others	-	-
Total		5,301,244	717,987
Balance sheet date: December, 31, 2010			
1	Exclusive rights of patent holder for invention, industrial design, utility model	5,258,766	721,035
2	Others	-	-
Total		5,258,766	721,035

FINANCIAL AND ECONOMIC PERFORMANCE OF JSC “GTL”

	Description of groups of intangible assets	Initial (replacement) cost, thousand rubles	Amount of depreciation accumulated, thousand rubles
Balance sheet date: December, 31, 2011			
1	Exclusive rights of patent holder for invention, industrial design, utility model	22,462,000	1,782,269
2	Others	-	-
Total		22,462,000	1,782,269
Balance sheet date: December, 31, 2012			
1	Exclusive rights of patent holder for invention, industrial design, utility model	25,689,976	1,782,269
2	Others	-	-
Total		25,689,976	1,782,269

FINANCIAL AND ECONOMIC PERFORMANCE OF JSC “GTL”

	Description of groups of intangible assets	Initial (replacement) cost, thousand rubles	Amount of depreciation accumulated, thousand rubles
Balance sheet date: December, 31, 2013			
1	Exclusive rights of patent holder for invention, industrial design, utility model	24,115,155	1,574,821
2	Others	-	-
Total		24,115,155	1,574,821

SCIENTIFIC AND TECHNICAL POLICY OF JSC “GTL”

Research and Technical Expenditure of JSC “GTL”

Year	Description	Expenditure, thousand rubles
2009	Research, development and technology expenditure	22,403
2010	Research, development and technology expenditure	14,873
2011	Research, development and technology expenditure	263,888
2012	Research, development and technology expenditure	33,414
2013	Research, development and technology expenditure	173,416

SCIENTIFIC AND TECHNICAL POLICY OF JSC “GTL”

Intellectual Property Rights Registered in Russia

- 1 **Patent** of the Russian Federation for invention #2181622 “Device for homogenous oxidation of natural gas and method of natural gas oxidizing”
Invention priority as of November 29, 2001
Registered in the State Register of Inventions of the Russian Federation on April, 27, 2002
Patent is valid till November 29, 2021
- 2 **Patent** of the Russian Federation for invention #2199366 “Reactor for homogenous oxidation of natural gas”
Invention priority as of January 11, 2002
Registered in the State Register of Inventions of the Russian Federation on February 27, 2003
Patent is valid till January 11, 2022
- 3 **Patent** of the Russian Federation for invention #2440189 “Catalyst and method of producing high-octane gasoline with low content of benzene and durene”
Invention priority as of July 8, 2010
Registered in the State Register of Inventions of the Russian Federation on January 20, 2012
Patent is valid till July 8, 2030

SCIENTIFIC AND TECHNICAL POLICY OF JSC “GTL”

- 4 **Patent** of the Russian Federation for invention #2416461 “Packet-type vortex packing For heat- and mass exchange in column apparatus”
Invention priority as of February 17, 2010
Registered in the State Register of Inventions of the Russian Federation on April 20, 2011
Patent is valid till February 17, 2030
- 5 **Patent** of the Russian Federation for invention #2426715 “Method and device for the homogeneous oxidation of methane-containing gas”
Invention priority as of August 19, 2009
Registered in the State Register of Inventions of the Russian Federation on August 20, 2011
Patent is valid till August 19, 2029
- 6 **Patent** of the Russian Federation for invention #2487275 “Method for compression of gas environment”
Invention priority as of November 3, 2011
Registered in the State Register of Inventions of the Russian Federation on July 10, 2013
Patent is valid till November 3, 2031
- 7 **Patent** of the Russian Federation for invention #2513917 “Method and device for division of gas mixture”
Invention priority as of May 5, 2012
Registered in the State Register of Inventions of the Russian Federation on February 24, 2014
Patent is valid till May 5, 2032

SCIENTIFIC AND TECHNICAL POLICY OF JSC "GTL"

Intellectual Property Rights Registered in Russia



SCIENTIFIC AND TECHNICAL POLICY OF JSC "GTL"

Intellectual Property Rights Registered in Russia



SCIENTIFIC AND TECHNICAL POLICY OF JSC "GTL"

Intellectual Property Rights Registered in Russia



SCIENTIFIC AND TECHNICAL POLICY OF JSC “GTL”

Basic Scope and Results of Use of Primary Intellectual Property Rights

The basic scope of use of primary intellectual properties is to meet mankind demand in energy and hydrocarbon material by using natural gas, which is the most promising resource by its reserves, efficiency of production, possibilities of its usage and ecological properties. Development of viable processes of hydrocarbon gas conversion into liquid. Processing of associated gas at the fields into liquid fuel (petrol, diesel fuel and alcohols). Transportation of hydrocarbon gas from remote regions of its production. Gas transportation from offshore fields. Development of gas chemistry. Solution of the problem regarding energy saving in the North Russian regions, rich of gas.

Obtaining patents and certificates is a preventive measure against unauthorized use of device and method for direct synthesis of petrol fractions and alcohols, developed by PJSC “GTL”.

SCIENTIFIC AND TECHNICAL POLICY OF JSC “GTL”

Competitive Capacity Factors of JSC “GTL”

- Availability of unique patented process of direct synthesis of petrol fractions and alcohols, which cost is significantly lower than cost of traditionally used processes.
- Manufacture of units for direct synthesis is implemented on its own manufacturing sites.
- Nowadays PJSC “GTL” is the only owner of technology and industrial samples of the units for conversion of natural gas into liquid hydrocarbons (including petrol of Euro-5 quality standard) in Russia and in the world, based on the technology for direct synthesis of petrol fractions and alcohols without usage of intermediate syngas.

CHALLENGE

Natural Gas in Oil Fields

Definition:

Associated Natural Gas = byproduct of Crude Oil Production

Non-Associated Natural Gas = Gas in huge Gas Fields, explored only for Gas Production

Crude Oil is produced together with associated Natural Gas in ration 1:10.

Production: 1 barrel crude oil + 10 m³ of associated natural gas.

Only small quantity of all natural gas is collected and used for export in pipelines, because installation of pipelines is a very expensive and time intensive process, and for producing liquid natural gas in production plants (very expensive plants and very expensive transportation systems).

CHALLENGE



Export of Natural Gas in Pipelines

- a) requires constant flow of huge quantities of non-associated gas
- b) requires high investment costs for pipelines
- c) requires high costs for pumping and maintenance
- d) is limited, as customers are limited in rising production



Production of LNG

- a) requires expensive plant
- b) requires expensive transportation system
- c) is limited due to special customers installation requirements
- d) is limited due to high competition in world market

CHALLENGE

Flare Gas

According to the World Bank data 150 billion m³ of associated oil gas are burned annually in the world and are discharged to the atmosphere, and it results in :



a) enormous waste of energy (the 20 billion m³ flare gas burned every year only in Russia could be used to generate more than 8.5 billion MW)

b) disaster for environment (methane and carbon dioxide are greenhouse gases)

c) poisoning of surrounding areas (methane and carbon dioxide causes allergies and health problems). At the same time many countries have to import petroleum products such as diesel and gasoline.

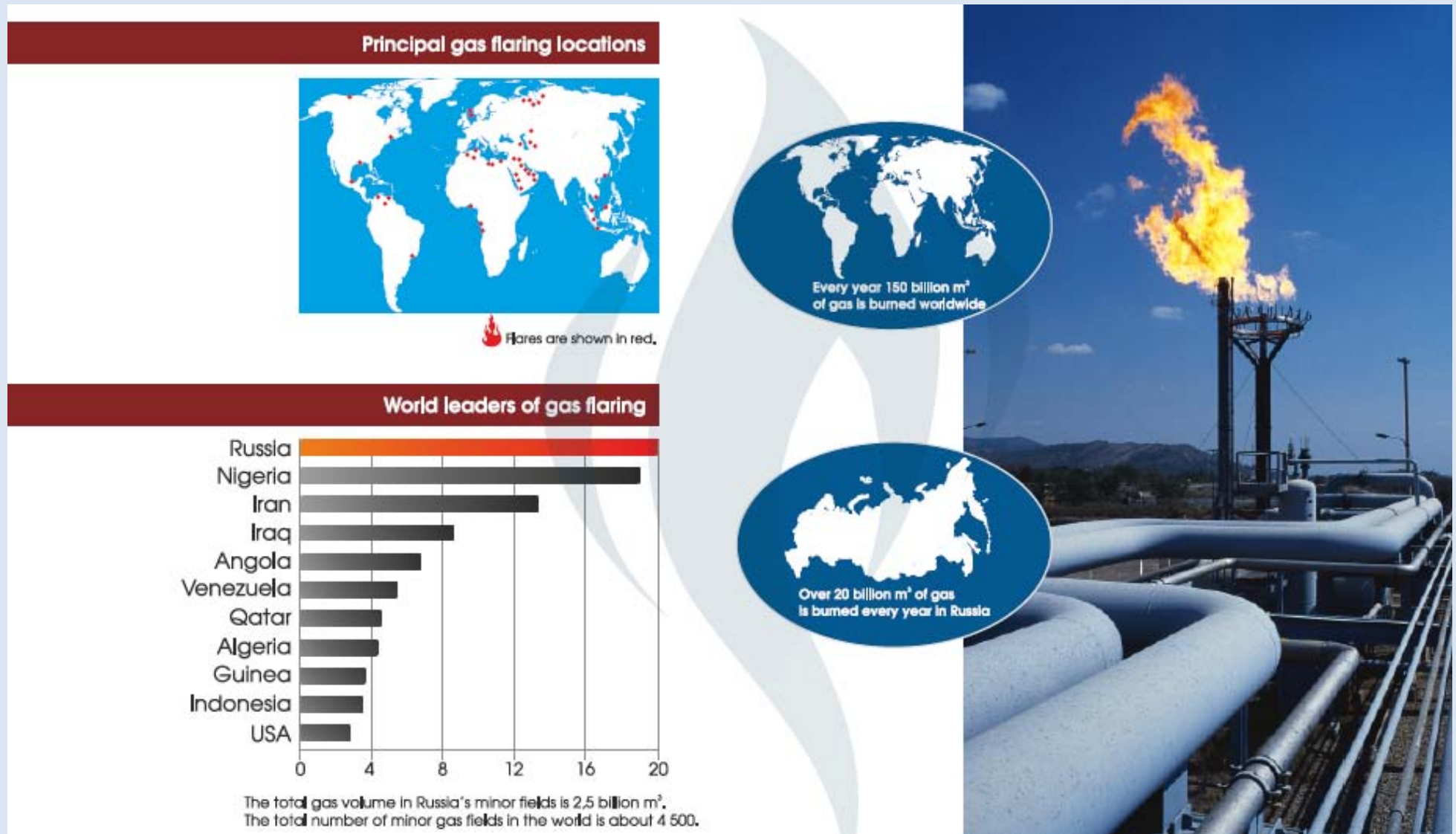
CHALLENGE



The logical solution to the problem of associated oil gas could be the usage of several GTL plants and gas turbine power plants. The installation of GTL plant in oil and gas fields permits to solve several issues, namely:

1. Production of high quality petroleum products (motor fuel);
2. Production of cheap and environmental friendly electric power;
3. Reductions of flare gas and environmental improvement.

CHALLENGE



Traditional Method of Gas Refining Disadvantages

In modern industry natural gas is refined into liquid products through gas-synthesis which is a link in the Fischer-Tropsch (FT) process which was developed in 1920's. In comparison with a new GTL technology of direct synthesis this process fails as economically because it demands huge initial investments as according to its efficiency factor due to the necessity of large waste of energy for production. In result only a small part of energy in hydrocarbon molecules used for refining is transformed into liquid products.

Multistage process, necessity to maintain high temperature and pressure, enormous heavy metal-intensive equipment, and huge waste of energy are usually responsible for crippling the value of the overall process that makes the process low profitable and often the process does not justify the expenses at all.

JSC “GTL” Gas-to Liquid Plant, Russian Federation

- To solve the issues of high capital and operational costs of a GTL Plant based on Fischer-Tropsch processes the Russian company JSC “GTL” developed their new Automated Gas Treatment Station - AGTS
- AGTS is based on a principle of direct synthesis of petrol fractions and alcohols.
- Leading Russian R&D institutes and universities were involved in the development of GTL plant.

GTL TECHNOLOGY



GTL TECHNOLOGY

Laboratory Units



Laboratory Units



The laboratory test units are produced in accordance with “GTL” standards and could be modified during the tests period. Thus, the combination of models with experiments helps our team to avoid mistakes during commissioning period and increases the safety conditions.

GTL technologies and procedures allow the implementation of turnkey projects according to customer's specifications from scientific investigation up to the industrial exhaust of the products.

The technology of direct synthesis of petrol fractions and alcohols has several advantages:

1. The synthesis of high octane compounds petrol fractions and alcohols is realized without intermediate stages.
2. The process is going at any pressure, there is no need in regulating pressure, and the synthesis may be fulfilled from natural gas at high pressure and from associated gas where the pressure is not high.
3. It does not demand compressing equipment.
4. The process may be exercised in the field conditions of oil and gas production. It permits to implement the cost-effective development of small and middle gas fields and gas condensate fields, remote and low-pressure fields, fields of shale gas, gas at sea-based platforms, also to process associated gas directly at oil fields.
5. Process control systems, new materials and individual process features are able to increase the exhaust of the products.

GTL TECHNOLOGY

The gas treatment station by JSC “GTL” is fully automated.

The plant can produce diesel fuel, petrol, ethanol, and hydrogen.

The petrol produced by GTL plant meets RON 5 specification and the European Emission standards Euro 5.

GTL plant consists of prepared units assembled at manufacturing areas and delivered to the place of installation by land transportation or airfreight service.

The technology of GTL plant allows further increasing producing capacity by launch additional units.

Technical features of a 4-line AGTS plant will be:

- Feedstock: Natural gas with CH₄ (methane)
- Input: 146 million m³ gas per annum
- Output:
 - 100,000 MT of motor fuel (diesel fuel or petrol)
 - 100,000 MT of alcohols
 - 100,000 MT of aromatic hydrocarbons
- Power consumption: 5.5 MWh
- Guarantee: up to 20 years

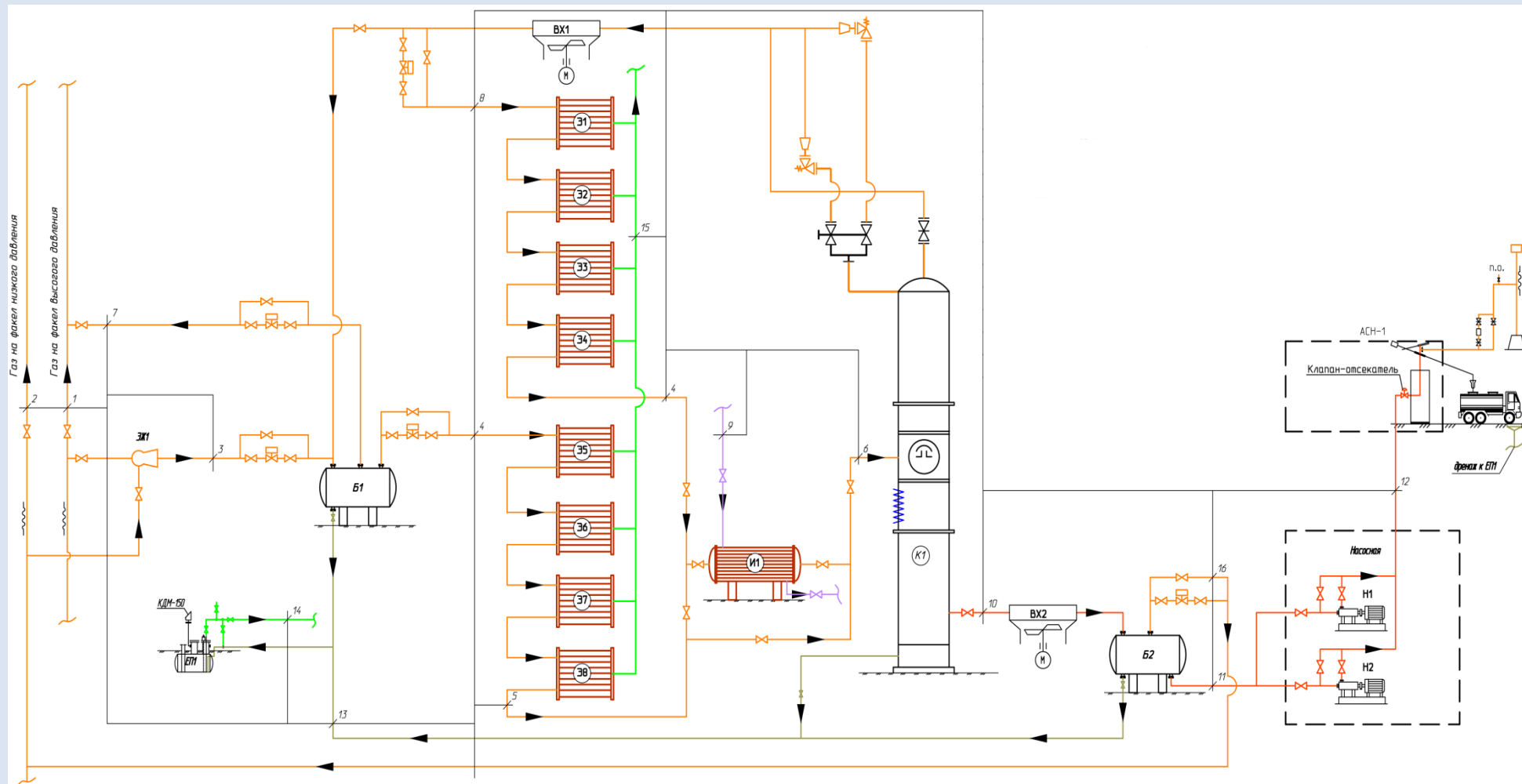
The technology is unique due to its high efficiency, possibility of refining gas containing any components, including shale gases, with isolating end-product (high-octane petrol, diesel fuel, methanol, ethanol, and helium), full automation, and high ecological compatibility, efficiency of process in difficult climate and infrastructural conditions and in low-output fields.

For a GTL project with an Automated Gas Treatment Station AGTS JSC “GTL” may enter into a joint venture with a local partner and may invest up to 50% of the overall costs. Reference plants of this size have been installed in Russia.

All of these tests are performed within a project and aimed at proving a process model, HAZOP procedures as well.

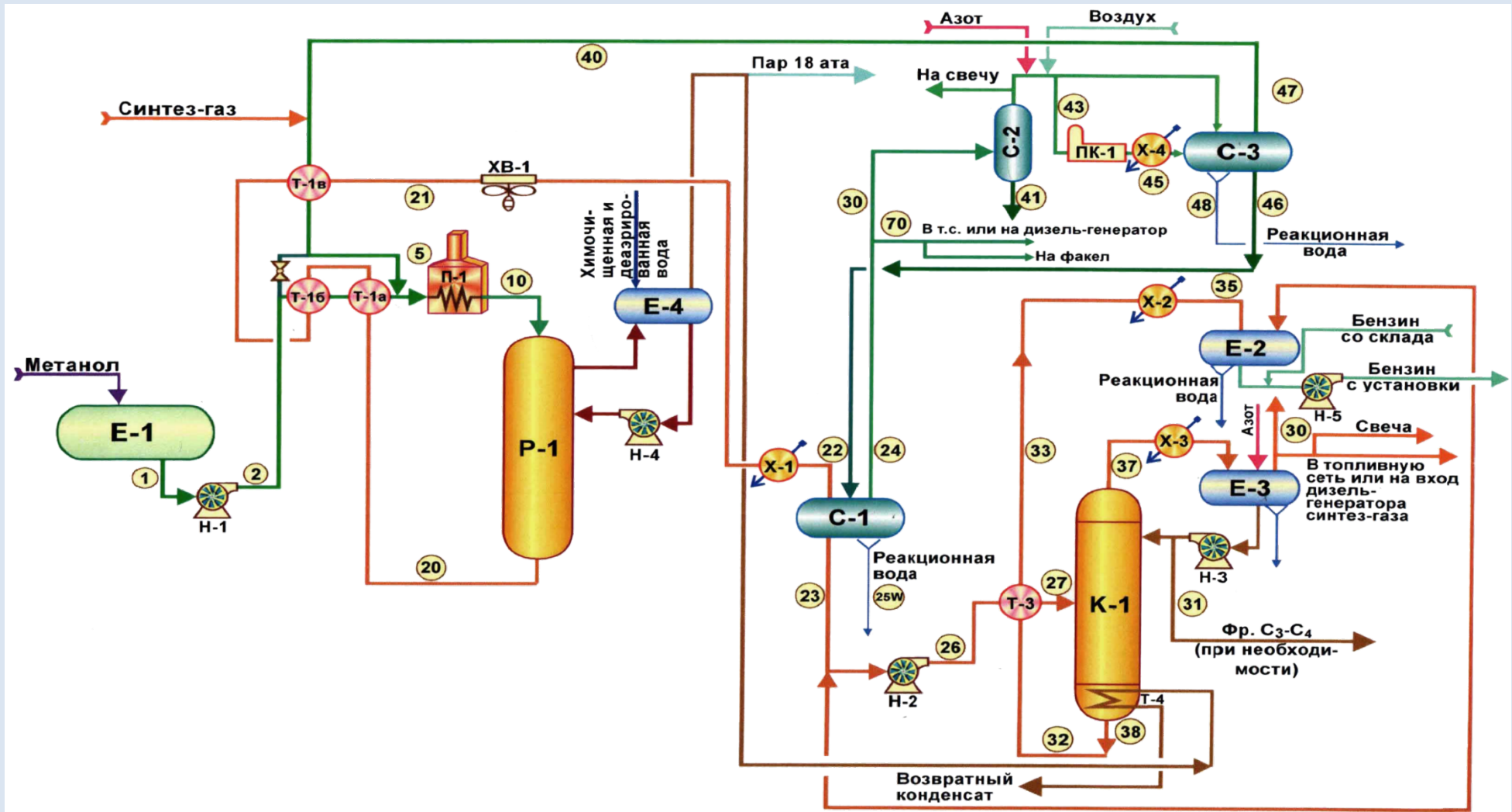
GTL TECHNOLOGY

Processing Gas into Alcohols PFD



GTL TECHNOLOGY

Technology for Receiving Petrol from Alcohols PFD



Plant for Receiving Petrol from Alcohols Material and Product Balance

Flow name	Outlet		
	Kg per hour	Thousand t/year*	% of mass for raw materials
1	2	3	4
Taken:			
Raw materials 98% alcohols	180	1.107	100.0
Recycle of raw alcohols	63.5	0.39	35.27
Total:	243.5	1.497	135.27
Produced:			
Blowing-off gases, including	15	0.092	8.33
of separator	18	0.049	4.44
of column	7	0.043	3.89
High octane component of petrol	60.5	0.372	33.61
Hydro-spirit mixture, including	168	1.033	93.33
alcohols	62	0.381	34.44
Total:	243.5	1.497	135.27

**number of working hours is taken of 6150*

End Products Characteristics

Gas

with the minimum temperature of burning not less than	11 400 kcal/kg
molecular mass	20.9
density	0.885 kg/mn ³
containing H ₂	to 32% of volume
containing C3 -C4	to 43% of volume

The complete component composition is mentioned in technical documentation.

End Products Characteristics

High octane component of petrol

Density at 15°C	755 kg/m ³
Molecular mass	90
Containing paraffin hydrocarbons	38-42% of mass
Containing olefin hydrocarbons	6-7% of mass
Containing naphthene hydrocarbons	9-11% of mass
Containing aromatic hydrocarbons	30-35% of mass (containing benzol: 0.05 - 0.1% of mass)
Octane number (RON), not less than	92
Octane number (MON), not less than	84
Pressure of saturated steams of petrol, mm, not more than	500
Fractional composition:	
start of distillation temperature, °C	35
10%	55
50%	120
90%	160
end of boiling temperature, °C	205

The complete component composition is mentioned in technical documentation.

GTL TECHNOLOGY

Products Cost

Service Name	Price
Automobile certified gasoline 95 octane of Euro 5 standard	1 000 USD/ton

Products Prime Cost

Service Name	Price
Automobile certified gasoline 95 octane of Euro 5 standard	5 000 RUB/ton

Produced Petrol Volumes

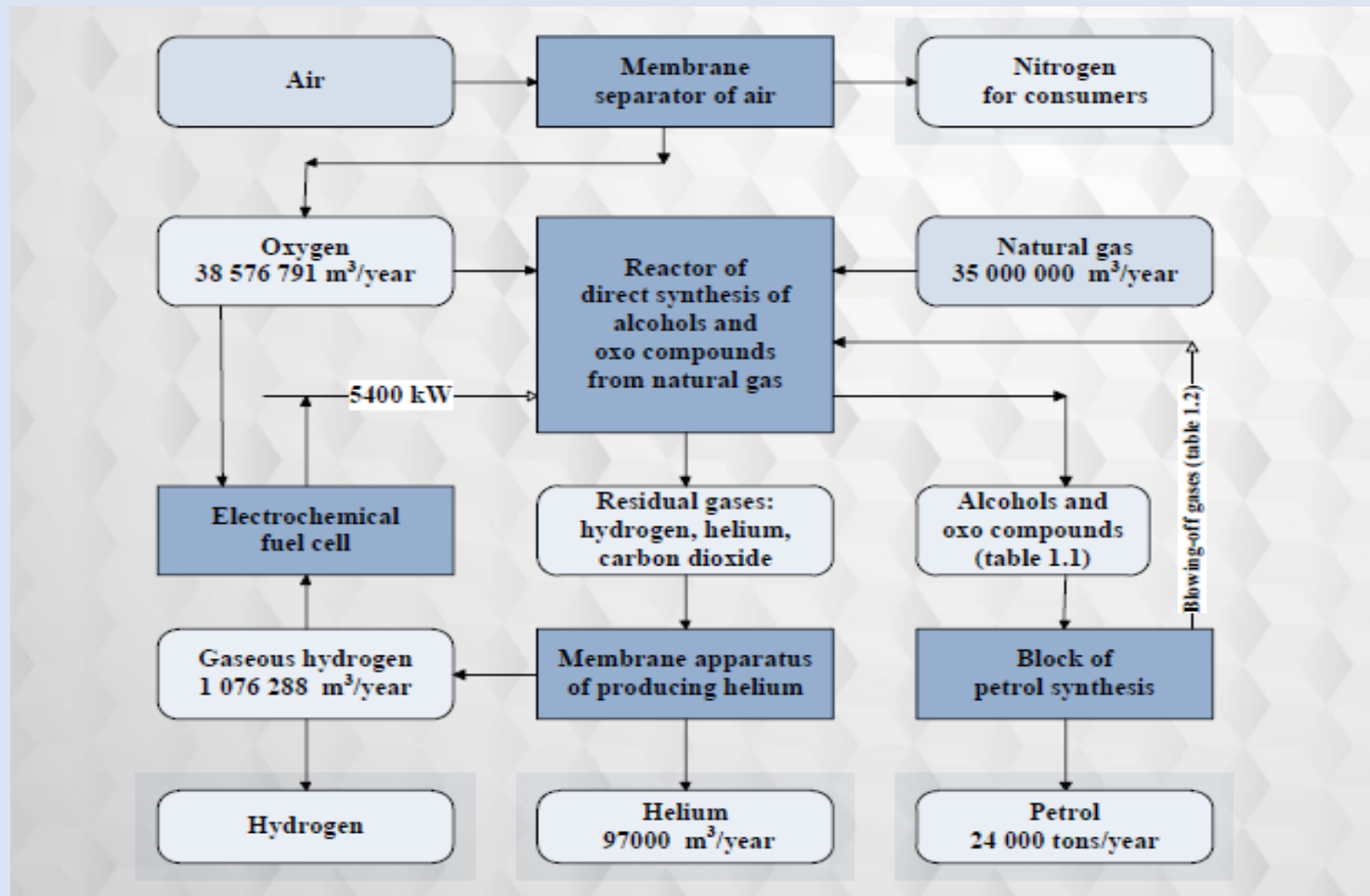
Service Name	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Automobile gasoline, tons	25 641.03	25 925.93	26 210.83	22 222.22

Company Activity Results, rub

	Year 1	Year 2	Year 3	Year 4-5
Revenue	0	84 745 763	84 745 763	169 491 525
Expenses	0	- 46 083 717	- 45 872 517	- 91 111 433
Net Income	0	38 662 046	38 873 246	78 380 092

GTL TECHNOLOGY

“GTL” General Process for Bratsk Gas Condensate Field



Modern software systems are applied by GTL in every project. Both International and Russian software systems are used in GTL projects:

- AutoCad
- AutoPlant (3D)
- HYSYS
- PipeSim
- Toxi 3
- Titan
- Ecolog
- Hydrosystem
- Pro II
- Era
- Start 2

Analysis of the technological, environmental and fire risks is carried out on a potentially dangerous territories that might be undergone to the negative influence of the designed object, are performed by our engineers as a part of project solutions. In accordance with GTL procedures, after the design development, the construction and commissioning works are initiated. A Pre-commissioning or Commissioning activity are started when all construction works are finished, but preparation to commission process initiates during construction.

GTL TECHNOLOGY

Bratsk Gas Condensate Field



GTL TECHNOLOGY

Bratsk Gas Condensate Field Construction Works



GTL TECHNOLOGY



GTL TECHNOLOGY



Partners

The following Russian R&D establishments participated in the development and design of the JSC “GTL”

Automated Gas Treatment Station AGTS:

- Semenov N.N. Institute of Chemical Physics
- The Institute of Chemical Physics Problems of the Russian Academy of Science
- Ivanovo State University of Chemical Technology
- Moscow Institute of Chemical Machine Building
- GIAP (State Institute of Nitrogen Industry)
- Glubkin Russian State University of Oil and Gas
- Keldysh Institute of Applied Mathematics
- Ivanovo State Power University
- Federal Space Agency (ROSCOSMOS)
- Academy of Engineering Sciences of RF
- Moscow State University of Engineering Ecology
- Russian Chemical-Engineering University named after Mendeleev
- Seversk Technological Academy
- Research Institute of Petroleum Industry (RIPI)
- JSC “Zenith-CHIMMASH”
- JSC “Energomash Corporation”
- National Research Nuclear University “Moscow Engineering Physical Institute”

GTL PROJECT – PARTNERSHIP

Proposed Project Schedule

The processes for planning, engineering and installation of the GTL-Plant will take in total a time of 12-18 months after project start, see the schedule below.

Jan. 2015	Feb. 2015	March 2015	Apr. 2015	May 2015	June 2015	July 2015 – December 2015	Q.1 2016
Prepare, negotiate and sign contractual agreements. Establish Operating Company.							
			Pre-planning: site survey, gas analysis, infrastructure planning, request proposals for infrastructure				
						Project implementation	
							Start production

GTL PROJECT – PARTNERSHIP

Finance Summary

- Total Project Costs for delivery and installation of technology, infrastructural works, project management, insurance, guarantee, etc. is estimated at US \$ 120 million.
- The aim of this investment project is building of plant for refining natural gas into 100 000 tons of petrol RON 5, EURO 5 (diesel fuel or alcohols depending on customer's wish) per annum on the basis of the technology developed by Russian company "GTL".
- The volume of necessary gas depends on gas content and is about 146 million m³ per annum.
- The initiator of the project is "GTL" company – the manufacturer and supplier of equipment.

GTL PROJECT – PARTNERSHIP

The following groups of companies participate in realization of the project as joint investment:

Company 1 (Company “GTL”, Investor 1) – Company 1 is a developer of the technology of receiving liquid hydrocarbons from natural gas or associated oil gas with the use of direct synthesis of high octane compounds of motor fuel and alcohols, realizes the building of the plant and provides to Company 3 the license on building plants for refining gas on the territory of this country on the base of the patented technology.

Company 2 (Company 2) is an owner of gas deposit or natural gas, provides an area for building the plant for refining natural gas into petrol and is a supplier of natural gas.

Company 3 (Joint Enterprise) is a joint venture with share participation of Company 1 (50%) and Company 2 (50%), the owner of the plant and the license for building such plants in future, refines natural gas into petrol and sells end product to customers.

The plant GTL is produced and installed during 12 months on the account of Company 1 (Investor 1) and Company 2 (Investor 2). This period includes project works, production, installation and putting into operation of plant.

GTL PROJECT – PARTNERSHIP

Further, in accordance with the agreement between the parties, joint enterprise will buy gas from partner company at a fix price and process it into liquid hydrocarbons and 100 000 MT of petrol/motor fuel, than will sell it by retail or by wholesale at actual international market prices. For the account of received revenues we cover the expenses of JSC “GTL”, than according to the agreement, in case credit resources are be needed, the joint enterprise is ready to provide guarantees to cover the credit. These are the same conditions of agreement with “Rosneft”.

It is important for us how much the prime cost of producing one ton of petrol at GTL plant will be not taking into consideration for any government taxes. The prime cost is between US \$50 and 100 per MT. Other positions may vary: the price for gas, operating costs, expenses and the rest is the joint enterprise’s profit.

GTL PROJECT – PARTNERSHIP

Total Project Costs

Total Project Costs for delivery and installation of technology, infrastructural works, project management, insurance, guarantee, etc. is estimated at US \$ 120 million.

The approximate price for building GTL Plant depending on the composition of gas and climatic conditions, power generator, ground infrastructure, gas pipeline, storage tanks, packaging arrangement and transport expenses.

The consumption of gas is 1460 m³ of gas per MT and depends on gas content. The percentage of methane may vary depending on the gas content.

The prices are calculated on the same terms signed with the group “Rosneft”.

GTL PROJECT – PARTNERSHIP

Pre-Project Planning

The pre-planning will take approximately 2-3 months. During this time we will complete the Feasibility Study and can adjust the final investment costs for the project. Main targets of this phase are:

- Analysis of the gas available at the selected location.
- Preparation for plant of direct alcohols synthesis.
- Detailed technical planning of the GTL Plant based on the gas analysis with precise assessment of the expected gas consumption per MT motor fuel inclusive efficiency factor, maintenance costs, etc.
- Technical planning of the Power Generator with precise gas consumption per KWh, efficiency factor, etc.
- Technical planning of the infrastructure works.
- Collecting of final proposals with fixed prices from the respective sub-contractors and suppliers and transport expenses.
- Preparing of a detailed project plan.

GTL PROJECT – PARTNERSHIP

Technical Section:

- 1- Raw Material quality and Quantity required for one bbl. or ton of products.
- 2- Products and by products specification.
- 3- Utility consumption & quality including steam, water, fuel, compressed air and catalyst.
- 4- Area and plot plan (preliminary).
- 5- Process description (with preliminary process block diagram & efficiency of each unit).
- 6- Waste material quality and quantity.
- 7- Personnel requirement for operation.
- 8- Raw material and product estimated cost.
- 9- Guarantee period, terms and conditions.

GTL PROJECT – PARTNERSHIP

Commercial Section:

- 1- Technology cost (know-how or license).
- 2- Basic design cost.
- 3- Detail design cost.
- 4- Procurement costs including main equipment list and price.
- 5- Construction estimated cost.
- 6- Supervision on construction.
- 7- Commissioning and startup cost.
- 8- Supervision on commissioning and start up.
- 9- Training cost.
- 10- Laboratory equipment cost.
- 11- Catalyst consumption, cost and period.

The procedure of executing the turnkey completion of the Project will be mutually agreed between the parties.

GTL PROJECT – PARTNERSHIP

Infrastructure and Power Generators

At the pre-project planning phase JSC “GTL” will compile the drawings and technical requirements for the infrastructure. This includes:

- Survey of the location assigned to install the GTL-Plant;
- Foundations for the GTL-Plant, power-generators, storage tanks for gas and synfuel, accommodations, offices, etc;
- Design of the accommodation, office and supply buildings;
- Pipelines for gas and motor fuel on the location;
- Water supply and sewage.

GTL PROJECT – PARTNERSHIP

Risk of Decreasing Oil Prices and Decreasing Revenues

In this study the price for gasoline or diesel (synfuel) is assumed with US \$878 per metric ton for the first 4 years and is expected to increase moderately with 2.5% per annum. US \$ is the average price reported for gasoline by index mundi (www.indexmundi.com) for the period January 2013 to September 2013, see table below:

Gasoline Fuel Prices (2013)

2013	USD Per Gallon	USD Per Metric Ton
<i>Jan 13</i>	2.85	878
<i>Feb 13</i>	3.05	939
<i>Mar 13</i>	2.91	896
<i>Apr 13</i>	2.71	835
<i>May 13</i>	2.74	844
<i>Jun 13</i>	2.74	844
<i>Jul 13</i>	2.92	899
<i>Aug 13</i>	2.93	902
<i>Sep 13</i>	2.8	862
Average	2.85	878

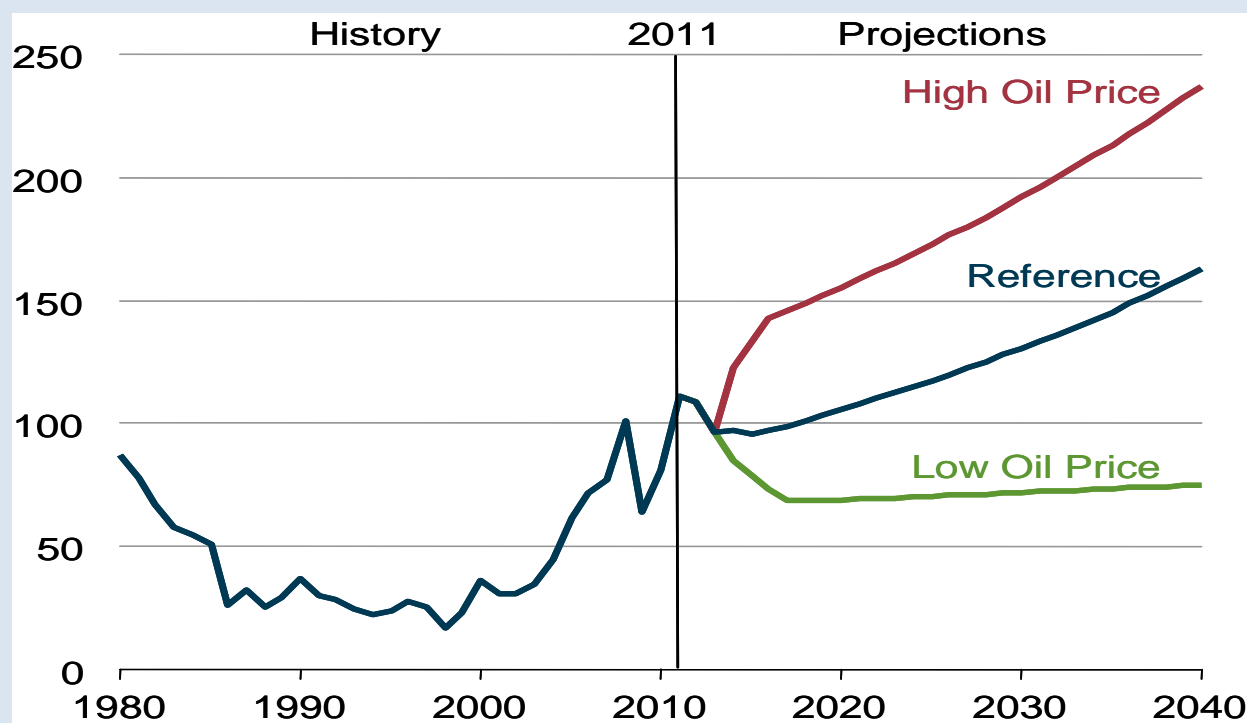
GTL PROJECT – PARTNERSHIP

Gasoline Price (Dollars per Gallon)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2003						1.072	0.965	1.315	0.949	0.996	1.020	0.959
2004	1.079	1.344	1.323	1.426	1.649	1.457	1.467	1.388	1.481	1.642	1.404	1.185
2005	1.379	1.545	1.718	1.829	1.600	1.745	1.882	2.142	2.278	1.902	1.577	1.606
2006	1.873	1.730	2.000	2.448	2.551	2.401	2.488	2.190	1.782	1.686	1.797	1.805
2007	1.682	2.019	2.373	2.531	2.572	2.354	2.311	2.049	2.208	2.394	2.559	2.450
2008	2.323	2.609	2.783	3.068	3.311	3.694	3.286	3.072	2.870	2.125	1.268	1.110
2009	1.457	1.547	1.473	1.575	1.847	2.085	1.913	2.113	2.056	2.032	1.979	2.014
2010	2.057	2.073	2.257	2.307	2.115	2.255	2.281	2.178	2.069	2.259	2.245	2.420
2011	2.447	2.758	3.153	3.373	3.055	2.861	2.948	2.839	2.917	2.949	2.737	2.702
2012	2.920	3.302	3.383	3.250	3.234	2.626	2.819	3.129	3.162	3.135	2.792	2.615
2013	2.900	3.332	3.029	2.906	2.999	3.021	3.047	2.825	2.907	2.761	2.651	2.685

GTL PROJECT – PARTNERSHIP

The future price development is dependent on a number of factors and we assumed a nearly stable price despite that the U.S. Energy Information Administration (source: www.eia.gov/forecasts/aeo/er/early_prices.cfm) is predicting for 2 of 3 cases a steady price increase of crude oil, see figure below.



A decrease of the average synfuel price by 20% - as the curve of the “Low Oil Price” in the figure above is indicating - over the period of 10 years for which the business plan has been prepared will decrease the accumulated profit of this period by approximately 12%. We believe that we covered the risks for reduced revenues by decreasing future oil prices.

GTL PROJECT – PARTNERSHIP

Insurance Coverage

All projects will be insured against all possible risks to eliminate the partial or complete loss. The insurance agency is selected at the stage of projecting. The insurance through Lloyds of London is a standard for foreign orders.

The insurance cover will include:

- Political Risks
- Contractors All Risks
- Erection All Risks
- Physical Damages
- Third Party Liability
- Workmen's Compensation
- Personal Accidents
- Employees Liability
- Kidnapping & Ransom
- Political Violence

In addition JSC “GTL” will cover its insurance during the installation and implementation phase:

- Transportation Risks
- Marine Cargo and Goods in Transit
- Erection All Risks
- Contractors All Risks
- Inherent Defects Insurance

All employees of the local joint enterprise will be provided Health Insurance and Life Insurance contracts.

GTL PROJECT – PARTNERSHIP

Fixed Assets

Fixed assets of the project are estimated at US \$120 million consisting of the following:

Tangible Fixed Assets and Intangible Assets

	US\$ million
GTL Plant	95.5
Power generator	10
Ground and Infrastructure	9.5
Storage Tanks	5
Total	120

Joint Enterprise Organization

The project organization of this project will be as shown in the picture below. There will be a team of engineers and technicians responsible for the operation and maintenance of the GTL plant. This team will be located on site in the oil field. The team will be working on a shift plan with 3 weeks on site and 1 week off. The team will be responsible for a 7x24 uninterrupted operation of the GTL plant. The finance and administration staff headed by a local finance manager will be located in the offices of the joint enterprise. The local joint enterprise will also employ 2 teams of local helpers to support the GTL plant teams on site.

GTL PROJECT – PARTNERSHIP

The security team to protect on site camp will be provided by a security company. The maximum team size of the on-site teams will be **24** people. The development of the team size over the first 5 years is shown in the table below. From year 6 onwards the teams will stay on the same level as in year 5.

	Q1-1	Q1-2	Q1-3	Q1-4	Q2-1	Q2-2	Q2-3	Q2-4	Q3-1	Q3-2	Q3-3	Q3-4	Q4-1	Q4-2	Q4-3	Q4-4
Overall plant																
Operational Manager	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Finance and Admin Manager		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Bookkeeping				1	1	1	1	1	1	1	1	1	1	1	1	1
HR				1	1	1	1	1	1	1	1	1	1	1	1	1
Store keeper				1	1	1	1	1	1	1	1	1	1	1	1	1
Cook					1	1	1	1	1	1	1	1	1	1	1	1
Logistic				1	2	2	2	2	2	2	2	2	2	2	2	2
Total Staff overall plant	1	2	2	6	8	8	8	8	8	8	8	8	8	8	8	8
AGTS plant																
AGTS Manager	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Operators		1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
Helpers		3	3	4	5	5	5	5	5	5	5	5	5	5	5	5
Forman		1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
Mechanical Maintenance Engineer		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mechanical Technician		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total Staff AGTS plant	1	10	10	11	14	14	14	14	14	14	14	14	14	14	14	14

GTL PROJECT – PARTNERSHIP

Personnel Costs

Summary of personnel costs and number of employees is as follows:

Personnel Costs

	Number of Employees at year end	Total personnel Costs in USD million
Year 1	17	1.504
Year 2	24	1.853
Year 3	24	1.998
Year 4	24	2.098
Year 5	24	2.098
Year 6	24	2.219
Year 7	24	2.313
Year 8	24	2.429
Year 9	24	2.550
Year 10	24	2.675

A provision for annual staff increments as 5% has been made for all ten years projections.

GTL PROJECT – PARTNERSHIP

Depreciation

Details of depreciation expenses for the projected ten years are as follows:

	US \$million
Year 1	0
Year 2	0
Year 3	0.990
Year 4	0.990
Year 5	1.980
Year 6	1.980
Year 7	3.960
Year 8	3.960
Year 9	5.940
Year 10	9.900

Fixed assets are stated at cost less related accumulated depreciation. Depreciation is provided over the estimated useful lives of the related assets using the "straight line" method and assuming no salvage value. The estimated useful lives of various categories of assets are as follows:

GTL Plant	Power generator	Ground and Infrastructure	Storage Tanks
15 years	15 years	20 years	20 years

GTL PROJECT – PARTNERSHIP

Operating Costs

The GTL Plant is estimated to consume 1460 m³ gas per ton of synfuel.

The percentage of methane may vary depending on the gas content.

Gas price is expected to be US\$1 per 1 mmbtu and is expected to remain same throughout the projection period of 20 years.

Maintenance, Insurance and Miscellaneous Costs

Maintenance costs are expected to be in the range of 3.5% to 5% of the original cost of fixed assets.

Insurance fees are estimated as 1.3% of paid investments.

Miscellaneous costs are estimated based on number of employees.

GTL PROJECT – PARTNERSHIP

Profit and Loss

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Sales Gasoline	0	0	87 800	87 800	87 800	87 800	87 800	87 800	87 800	87 800
Sales Water	0	0	0	0	0	0	0	0	0	0
Total Revenue	0	0	87 800	87 800	87 800	87 800	87 800	87 800	87 800	87 800
Gas GTL- plant	0	0	5 177	5 177	5 177	5 177	5 177	5 177	5 177	5 177
Power Generator	0	0	500	500	500	500	500	500	500	500
Personnel Costs	1 504	1 691	1 780	1 874	1 973	2 076	2 186	2 301	2 422	2 675
Maintenance	0	0	7 000	7 000	7 000	7 000	7 000	7 000	7 000	7 000
Miscellaneous Costs	882	1 006	1 071	1 179	1 269	1 300	1 348	1 368	1 404	1 443
Insurance Fees	0	500	2 600	2 600	2 600	2 600	2 600	2 600	2 600	2 600
Total Operating Costs	2 386	3 197	18 128	18 330	18 519	18 653	18 811	18 946	19 103	19 395
EBIDTA			69 672	69 470	69 281	69 147	69 989	68 854	68 697	68 405
Depreciation			990	990	1 980	1 980	3 960	3 960	5 940	5 940
EBIT	2 386	3 597	68 682	68 480	67 301	67 167	65 029	64 894	62 757	62 465
Taxation	0	0	0	0	0	0	0	0	0	0
Net Profit for the Year	2 386	3 597	68 682	68 480	67 301	67 167	65 029	64 894	62 757	62 465



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