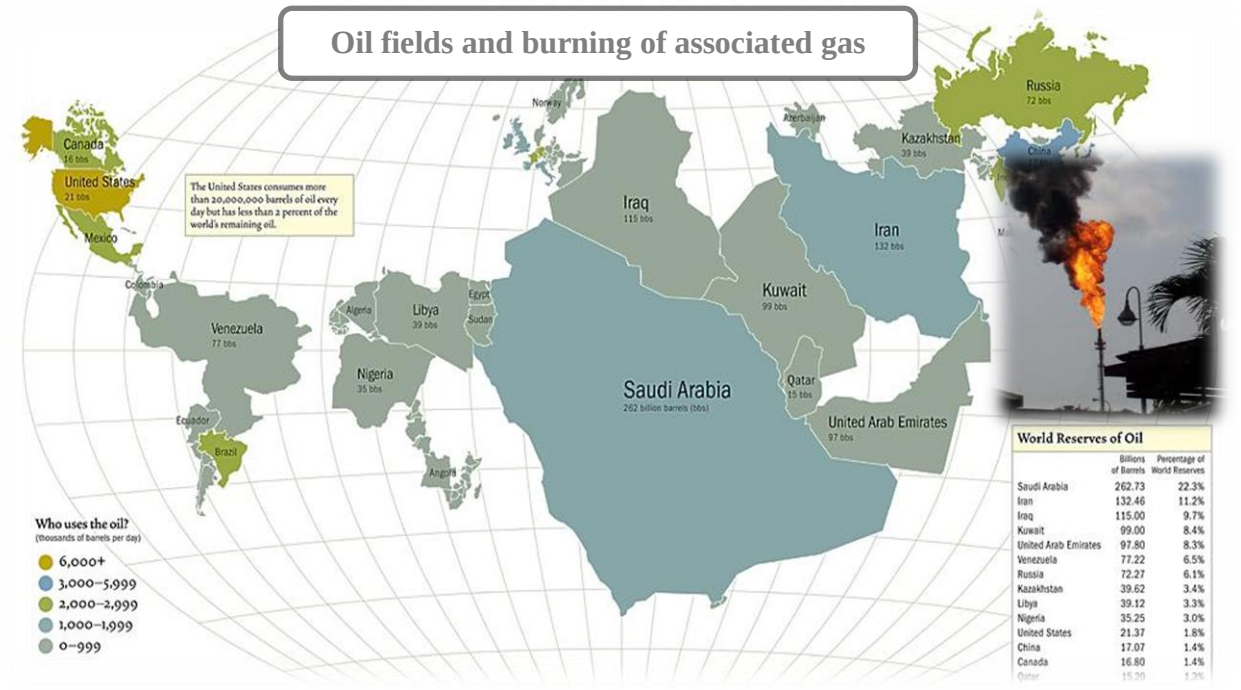
JSC “Renfors – New Technologies”

“pure world through clever things…”

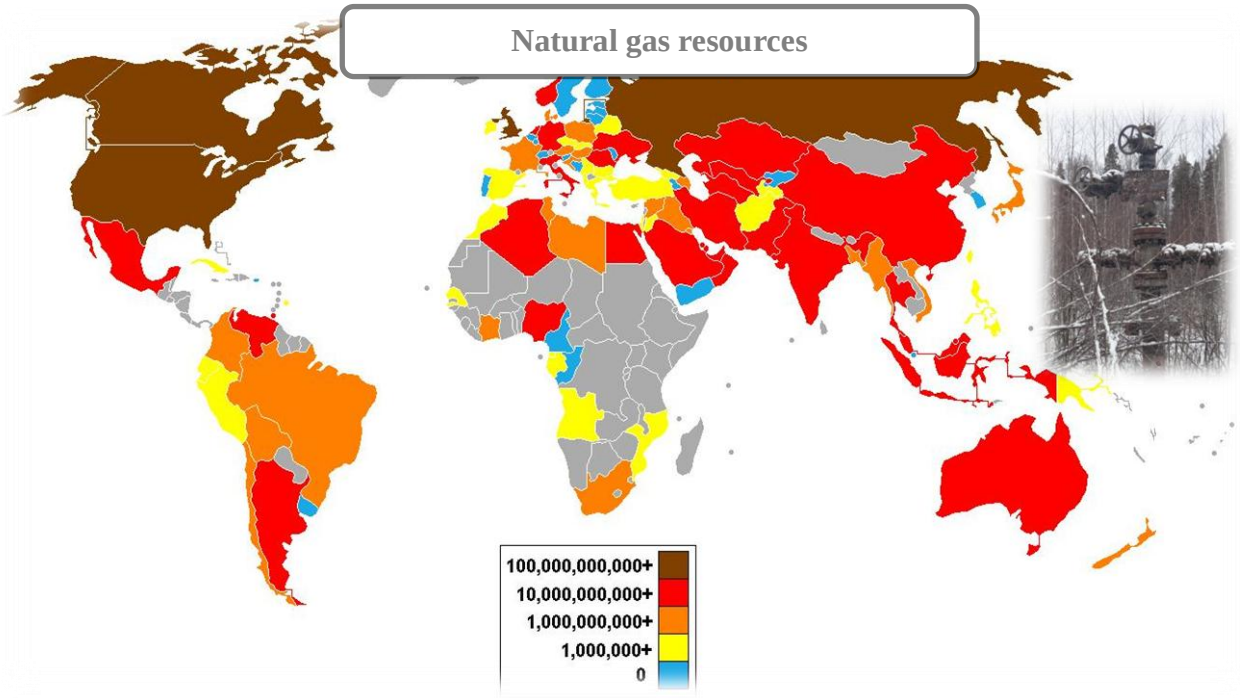
Processing of gas - GTL technology modular complexes (BMC)

The recent economic turmoil affecting many sectors of the economy, including oil and gas industry. New technological solutions are gradually changing the flow of energy, especially noticeable in the market of natural gas exports. In these circumstances, it is important to find solutions that ensure the future development of the country's economy, reducing to a minimum the influence of competitors. One of this solution is to engage in the processing of unused resources of hydrocarbon gas.

There are many unused resources of natural gas, shale gas, gas resources of small fields and the resources of flared gas in the world. These resources are not available because of the remoteness of gas deposits, markets to marketing, the lack of gas pipelines and other conditions under which the supply of gas is economically inefficient.



Natural gas resources



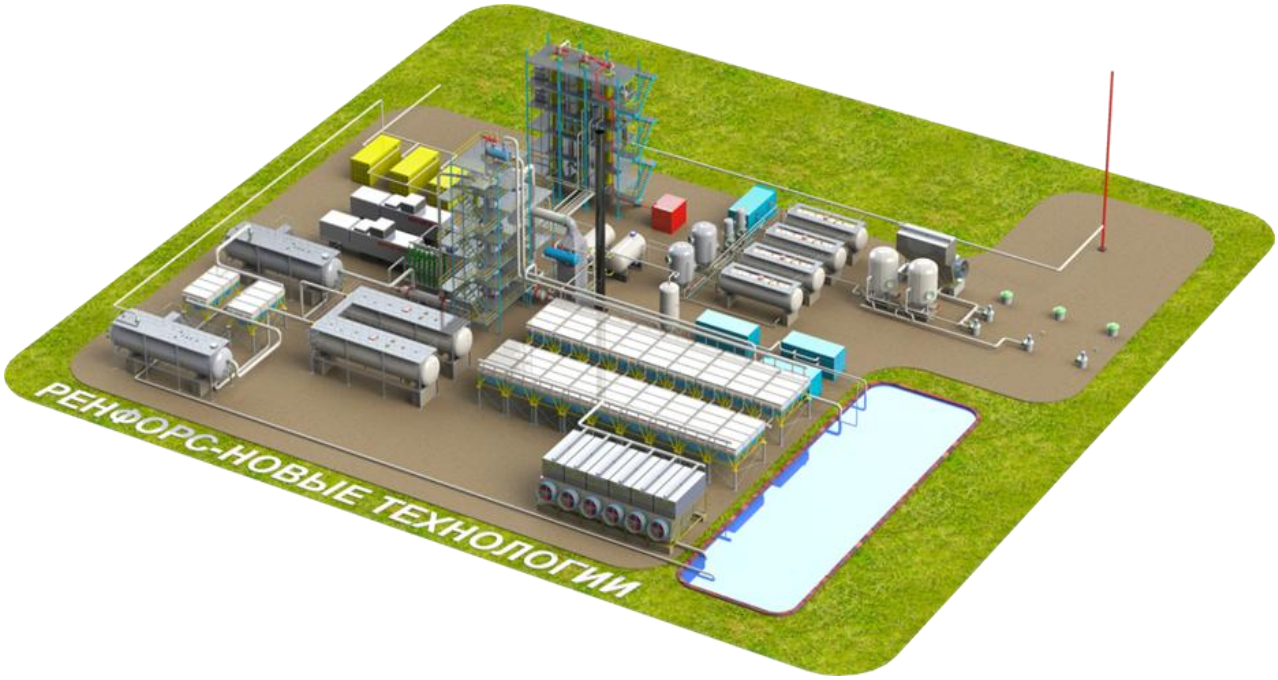
The only way to deliver such gas resources to the consumer - to process them directly on field in liquid synthetic products, transport which more cheaper gas transportation and the cost of the global market in times more expensive.

Today, such technology for the processing of gas - GTL technology (international designation «Gas to Liquids»), multinational companies «SHELL», «SHEVRON», «SASOL» used on large existing plants, gas processing, synthetic products, including synthetic diesel Euro-5 standard. The company «Shell» expects soon to increase the share of synthetic diesel motor fuel market to 15 percent. Today however GTL technology is available to most oil and gas companies, as well as provide for the construction of large plants with high cost and long payback periods.

Pearl GTL project (SHELL)

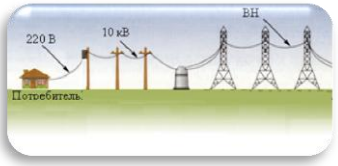
Specialists of "Renfors - New Technology", together with aerospace experts and chemical engineering in Russia, with the participation of relevant institutions, developed technology to mass-produce compact, modular complexes BMC GTL, are virtually available for all oil and gas companies.

GTL plant (Renfors-NT)



BMC GTL can process gas directly on fields, as well as sea and river waters by installing BMC GTL on floating platforms. In addition to liquid transportable products, BMC GTL can receive additional electric and thermal energy for their own needs and the mining company to ensure that the surrounding areas. "Synthetic Oil", resulting from processing, may be mixed with natural oil transported through existing oil pipelines and oil loading transport.

<u>Energy and energy efficiency:</u>



- Provide synthetic motor fuel, electricity and heat for adjacent territories

- Synthetic oil can be transported through pipelines and oil transport
- The composition of synthetic crude oil:
  - 70% of diesel fuel
  - 15% of gasoline
  - 15% of kerosene

- Synthetic diesel Euro-4 standard and higher

Processing of "synthetic oil" directly on the field or a floating platform produces synthetic diesel Euro-5 standard, to provide high-quality fuel land and sea transport. Providing consumers with low-cost energy produced from local raw materials, especially important for remote areas and the development of new mineral deposits.

We offer to participate in the project manufacture of modular equipment to a partner with financial support. Comparison of our technology with world analogues:

Company	Renfors-NT	Sasol – Qatar Petroleum Oryx GTL*	Shell – Qatar Petroleum Pearl GTL**
Cost of the plant	$ 30 million	$ 950 million	$ 18-19 billion
Investment return	3-4 years	10 years	10-15 years
Raw materials for commercial product	1. Associated petroleum gas 2. Shale gas 3. Natural gas 4. Biogas 5. Mine methane 6. Gas produced from gasification of solid fuels: wood, peat, coal, municipal waste.	Natural gas	Natural gas
Performance	25,000 tons/year (513 barr/day) of synthetic crude oil or 18,000 tons/year (369 barr/day) of synthetic diesel fuel	1650000 tons/year; 34 000 barr/day	- 140000 barr/day of gas-to-liquids products (2 trains); 6830000 tons/year - 120000 barr/day of natural gas liquids and ethane; 5850000 tons/year
Number of workers for plant construction	50 people	3600 people	Employed over 52,000 people on the Pearl GTL construction
Transportation of refined products	Synthetic oil is blended with natural oil and transported by pipeline or conventional tankers by road, rail or sea transport. Synthetic diesel fuel used for the implementation of local consumers	Developed transport infrastructure needs	Developed transport infrastructure needs
Required quantity of raw materials	50-60 million cubic meters of gas per year; 165000 cubic meters of gas per day	3,4 billion cubic meters of gas per year; 9,35 million cubic meters of gas per day	28 billion cubic meters of gas per year; 77 million cubic meters of gas per day
By-products from processing raw materials	Electrical and thermal energy	Thermal energy, Naphta, LPG	Thermal energy, Naphta, LPG
Presence of a gas pipeline for natural gas	No	Yes	Yes
Total weight of equipment	150 tons	Over 36000 tons	Over 2000000000 tons
Number of plants in future	10000	2	4

* - http://www.oryxgtl.com/English/products/index.html

** - http://www.shell.com/home/content/aboutshell/our_strategy/major_projects_2/pearl/overview/

Business will consist of the following areas:

1. Commercialization (patenting and selling) of existing energy efficient technologies and the subsequent joint development and implementation of new solutions and know-how, development and implementation of projects preparation and processing of gas for oil and gas companies.

2. Manufacture and sale of modular complexes GTL, efficient gas equipment manufactured on the basis of energy-saving technologies.

3. Creation of service companies to rendering of service for oil and gas companies to process the gas into electricity, synthetic oil, synthetic diesel fuel and other products with high added value, as well as independent work on processing of raw materials and the finished product.

4. Creation of service companies to rendering of service for oil and gas companies to operating, equipment maintenance and supply of consumables and spare parts for modular systems GTL.

Participation in the project involves the phased finance inclusion:

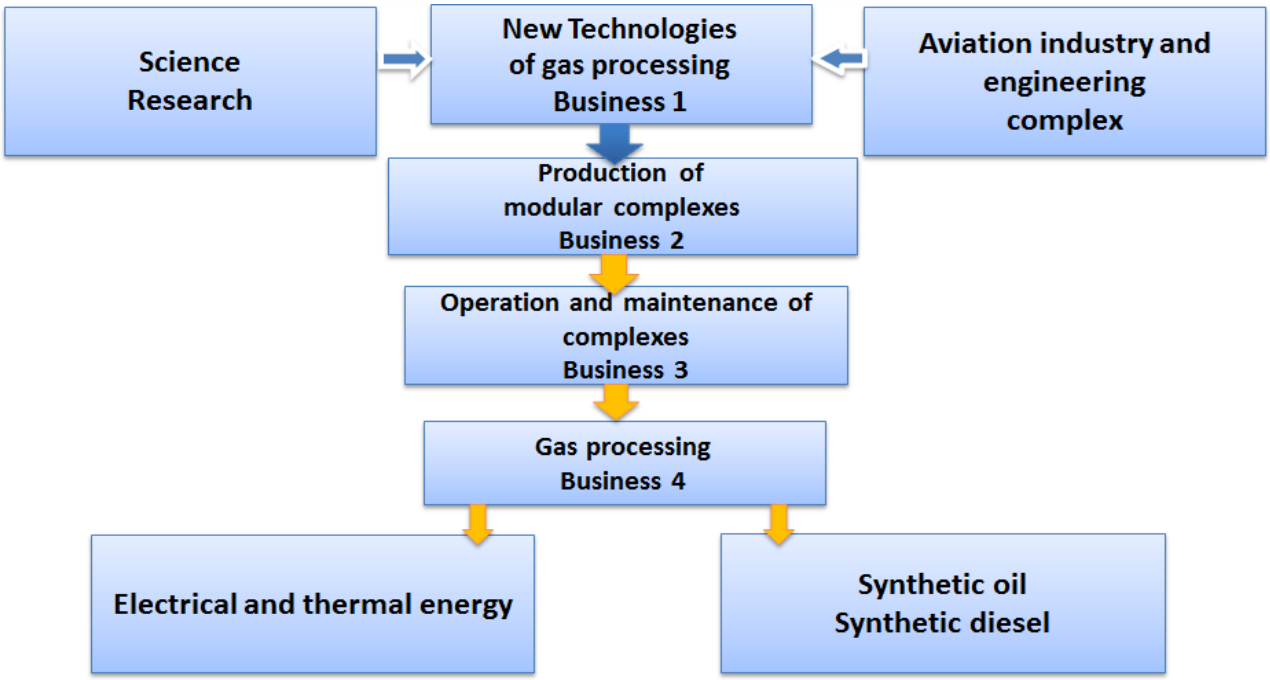
a) expansion of an existing design office, and pilot-industrial plant in Samara;

b) preparation of documents for international patents;

c) preparation of technical documentation and then transfer it to the companies - subcontractors;

d) manufacturing pilot plant GTL complex for existing customers to create on its basis design documentation;

e) create a framework for coordinating the process of receiving orders, transfer orders for manufacturing equipment companies-subcontractors, procurement of equipment available in market and sales of finished products.

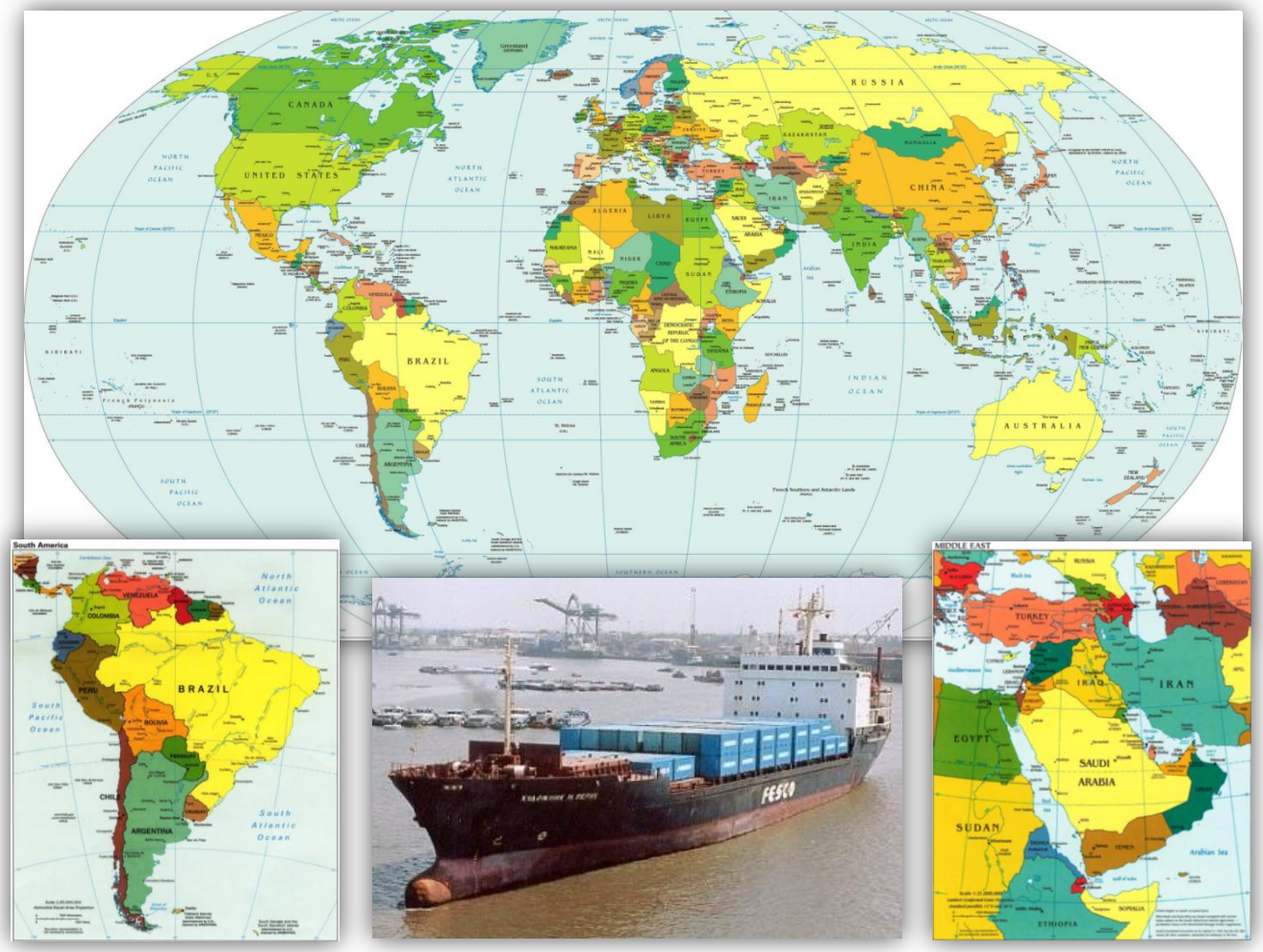


In fact, it all about creating a new field of high technology chemical engineering-oriented sources of hydrocarbon gas, which has a low flow rate, duration of operation of individual wells and their distance from the consumer and low commodity prices.

The use of BMC GTL processing of unused gas resources allow to fill the projected reduction in production of natural oil, to preserve its resources for future generations, and at the same time increase the efficiency and flexibility of the transportation of energy resources to world markets. Serial production of BMP GTL will help create new jobs, transport infrastructure and the development of remote regions. Entering the global market, where the modular equipment using technologies are impossible, delivery BMC GTL in countries with unused gas, creates unique opportunities for the export of engineering products.

Equipment export:

- Modular gas processing complexes in stable synthetic products have high export potential
- Countries with gas resources, remotely from markets, are ready to purchasing a block-modular systems



Financial performance of the BMC GTL project

For processing of 20 billion gas in "synthetic oil" should produce complexes:

Name	Number of plants	The cost of 1 complex
BMC-GTL-10	2000	$5 million

Processing of 1 trillion m^3 of natural gas will provide 500 million tons of high quality "synthetic oil", 300 million tons of synthetic diesel.

For processing of 1 trillion m^3 of unused natural gas resources:

Name	Number of plants	The cost of 1 complex
BMC-GTL-10	25000	$5 million
BMC-GTL-20	5000	$30 million
BMC-GTL-250	2000	$100 million

BMC GTL have great export potential in countries with resources of natural gas, associated gas, shale gas which far from the markets of its sales.

It's a country in South America, the Persian Gulf, and others. With the depletion of large deposits of natural gas it is necessary to engage in the trafficking small gas fields, new sources of local energy resources - shale gas, gas of methane ice - it is invariably lead for increasing in demand of BMC GTL.

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