Energy and space - a pragmatic connection

By Dmitry Sevastiyanov, Director General, Gazprom Space Systems

In Russia, the oil and gas industry is a major factor in the country's economy. It is Russia's main export, a source of taxes and the sponsor of social initiatives; its development is vital for the country. Today, Russia's economic modernization calls for migrating from a raw material extraction driven economy to a hi-tech economy. It is no accident that Russia's largest energy sector player anticipated the current model many years ago and now its largest space sector player as well.

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Obviously, everything in the world is basically interconnected, but the nature of some connections is worth wondering about. Energy and satellite telecommunications, for example - just what connects them? Is it pure chance or something more?

Similar philosophy

The star of our company went up in the 1990s, so to say, from a gas torch; our parent company is the largest Russian energy company. And we, working at the juncture of gas, space and telecommunication industries believe that this relation bears deep if not cosmic character.

Let me explain.

Large energy companies have global aspirations. Each of them, strategically, in its own way aims at gaining or preserving world leadership.

In the world ratings, top positions in terms of revenues are held by companies from the energy sector. But the global reach of these companies is defined not only by their incomes, but also by the geographical scale of their activity. Here, again, oil and gas and power companies, working worldwide, are far ahead.

What about satellite communications?

The revenue of the satellite communications sector is noticeably inferior to the energy-producing sectors. The turnover of the entire world satellite communications industry might be compared to that of a single, and not the largest, energy company.

Still, it does not give the satellite players an inferiority complex - on the contrary, they are both global and both profess almost the same business philosophy. Satellites cover vast territories; they reach practically any point of the Earth and quickly deliver reliable communications in remote areas including those where major oil and gas extraction operations are expanding - regardless of climate, the existing communications infrastructure, or lack thereof.

People need energy at every corner of the Earth. Communications satellites provide essential support for the technology and operations of energy production, transportation and distribution; satellites help energy companies carry out their socially significant mission. In addition, satellites link populations in remote areas to another highly important component of civilized life - information. The information gaps, the almost total lack of information, in some parts of the world, make the populations of these regions non-competitive - indeed, almost non-existent - in a global context. Satellite communications are the most effective tool for smoothing this inequality.

It is no accident that the most prominent decorations in the offices of both power and satellite telecommunications companies are world maps.

Pragmatism

Well, this is just philosophy, but business is pragmatic. What are the mutual practical interests of the energy and space sectors?

The main driving force of satellite telecommunications today are the TV and broadband services that give the population access to information and entertainment. Of course, these applications are important, but there are also other more serious reasons for satellite communications development. These include governmental services, such as, unfortunately, accompanying government operations in 'hot points', corporate communications and, first of all, helping maintain oil, gas and energy production.

The share of the corporate sector in the total volume of satellite communications services is estimated by experts as a bit more than ten per cent, but satellite operators assign considerably much greater importance to their portfolio of corporate sector. Besides the fact that, as a rule, companies are good sized clients, their use of telecommunications services is expected to grow considerably with time.

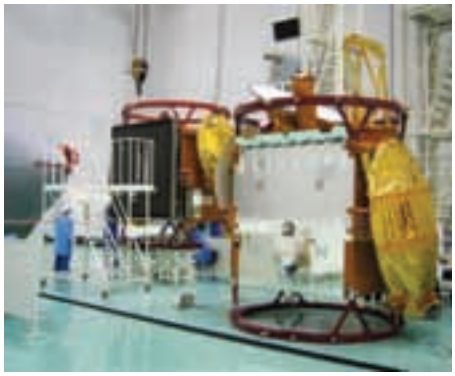
The world oil and gas industry has to keep developing very quickly to meet growing demand. The steady increase of world energy resources needs stimulates sector companies' efforts to prospect for oil and gas deposits to drill wells and extract hydrocarbons. So, in some regions the quantity of exploited wells increases by 15-20 per cent a year. These operations, as a rule, take place in areas with underdeveloped or totally absent infrastructure - including those on the World Ocean shelf, where now about a third of the world oil and gas volumes are produced. The share of shelf deposits is expected to increase. Indeed, the production of land-based deposits is already declining and the wells newly opened on land are considerably inferior to shelf deposits.

It is a promising niche for satellite communications. Although platforms will not use satellite exclusively, it is likely to remain the pre-eminent solution for most off-shore communications. Modern oil and gas corporations live in the epoch of the integrated solutions, inseparable from information systems, and satellite communications show maximal effectiveness in combination with ground fibre-optic, radio-relay, cable and wireless networks. In practice, the deployment of such integrated communications structures almost always stipulates the use of satellite technologies.

Russian experience

It is well-known that today the oil and gas industry is the basis of Russia's economy. It is the main export component of the country, the basic source of taxes and the sponsor of social initiatives. Therefore the development of this sector is vital for the country.

Like the energy production, satellite telecommunications in Russia bear a significant social responsibility. Satellite communications reduce distances, which is especially important in Russia whose huge territory is both a competitive advantage and a big problem.



There is another aspect of extractive and hi-tech industries connection, seen distinctly in Russia. There is, so to say, a certain inverse relation. Our country's leaders have determined the course that Russia will follow for its economic modernization; a transition from the model of raw material extraction driven the economy to a vision of a hi-tech oriented economy. In addition to the direct state financial support of this transition, there is a sound appeal to big business, including that of oil and gas, to take an active part in this process. As an oil and gas company entering the satellite business, we anticipated this shift in strategy by many years - and it has been worth it; satellite telecommunications is quite a profitable business with a good return on investment.

There is another reason why space technology is playing a growing role in the energy sector. Most oil and gas companies have a huge infrastructure; its effective functioning requires not only reliable communication, but also a constant monitoring. That is why the space-based systems for remote sensing of the Earth, in combination with other monitoring technologies, for example, UAVs (*unmanned aerial vehicles*) will be more and more in demand by the energy sector, so those in the space sector are all developing or considering these capabilities.

Our experience suggests that energy and space are decisively connected by mutual practical interest. ●