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We've Got a Calculator; We Can Count Money

RUSSIAN BUSINESS / STRATEGY : Andrey Melnichenko discusses how he is building his business and shares his opinions.

Andrey Melnichenko keeps out of the limelight. To the wider business community, he is best remembered as the head of the energetic, if not hyperactive, MDM Bank, which enjoyed a golden period in the late 1990s and early 2000s. However, Mr Melnichenko left the bank more than eight years ago, since when he has been gradually building up his industrial assets: the fertiliser company EuroChem, the coal producer SUEK, and the Siberian Generating Company (SGC). Our business journalist and business analyst are genuinely impressed by the scale of his plans, especially with regard to EuroChem. Today, EuroChem is the world's ninth-biggest fertiliser business, but Mr Melnichenko aims to bring it into the top three. More than 10 billion dollars has been invested in EuroChem, SUEK and SGC in the past five years, and another 10 billion is to be put in over the next five. The payback period for some long-term investments is twenty years. Today, Mr Melnichenko is 43.

Mr Melnichenko - By 2005, we had a stable management system, and a potential long-term development strategy had begun to emerge. EuroChem made the decision to enter the potash business, and SUEK the coal-fired power and heat generation business. In competition with leading global mining companies, EuroChem acquired a licence to mine potash ore at the Gremyachinsk deposit, while SUEK supported the consolidation of major shareholdings in RAO UES and a number of its subsidiaries, based on which the Siberian Generating Company (SGC) was created in 2008.

— What was your main motive?

— The chance to work seriously on building a global leader in an attractive industry. I believed that with EuroChem we could build a world-leading company in the industry, whereas I couldn't see any chance of building something of global significance in the financial sector. In 2011, I became a controlling shareholder, and in 2013 I bought out Sergei's interests in SUEK and SGC. Those two companies and EuroChem form the core of my portfolio today.

Don't scare us with green energy

— SUEK is Russia's biggest coal producer. Is there not a threat that the fuel and energy mix might shift away from this type of fuel for environmental or other reasons?

— World energy consumption is growing. The idea here is the same as with the reasons for the inevitable intensification of agriculture in the future: due to population growth, and with continuing economic growth, more and more people want to live better. Energy is food for cars, and the world's increasing population is improving its quality of life, using more and more cars, which are using more and more energy. When people have got used to a full and comfortable life, it's hard to change that, especially in today's 'flat' world, where information travels at enormous speed. People don't want to depend on the weather; people want to experience and communicate —hence the increasing demand for heating, cooling, lighting, desalination, purification, relocation and computing. I believe that this demand will increase even further, outstripping the increase in economic energy efficiency. Authoritative forecasts have total energy consumption increasing by around 35 to 40 percent in the next twenty years.

Surprising as it may seem, the more humans extract minerals, the more reserves that may be extracted in the future they find. The main reason for this is the continuous improvement in geological exploration and mining methods. It has been repeatedly claimed in the last hundred years that we are close to using up our accessible resources, but as yet things are quite the opposite. I don't particularly worry that my iPhone isn't renewable: in a couple of years, I'll probably throw it away and replace it with something more technologically advanced, and I'll have no hard feelings about it.

— What about the impact of fossil fuel burning on the greenhouse effect? How actively are Western regulators affecting the balance?

— It is pointless to deny the existence of the greenhouse effect and the impact of human activities on carbon dioxide emissions. In the last 250 years, its concentration in the atmosphere has risen from 0.03 to 0.04 percent, and of the 200 billion tonnes of carbon dioxide entering the atmosphere each year through the carbon cycle almost 10 billion comes from human activities (incidentally, the human impact on the nitrogen cycle, mainly through the nitrogen fertiliser production process, is significantly greater: up to 60 percent of the nitrogen entering the atmosphere comes from human activities). And if the present trend of increasing consumption of fossil energy continues, the risk of an increase in the average temperature is great. I agree that it would be best to avoid this. But in real life, with limited resources it makes sense to concentrate on what is most important. It is important not to make a mistake here: the cost of a mistake is tens of millions of human lives. According to the World Bank, 1.1 billion people in the world do not have access to electricity; according to the WHO, 1.5 million people die every year from inhaling pollutants produced from cooking on open fires. The reason here is exclusively economic: they need investment in infrastructure; they need affordable electricity.

I think that the renewable energy technologies being promoted so much today —biomass, wind and solar— do not have great prospects, and will not particularly help us in the fight against climate change, and promoting economically unpromising technologies through government subsidies or regulatory restrictions on the use of traditional fuels, including nuclear power, is nothing other than an unjustified diversion of resources away from tackling real problems.

— Why?

— Hydropower generation today makes up about 6 percent of the world's primary energy production. Fresh water may be called a renewable resource, but it is also extremely limited. Competition for it, primarily from farming, is very high. The side effects of developing hydropower generation also need to be taken into account: the death of creatures living in the water that have been deprived of their usual migration routes; the loss of significant land resources to reservoirs; and the sometimes not entirely voluntary mass resettlement of people.

The International Energy Agency estimates that the technical potential is there to roughly double world hydropower generation. With the growing demand for energy, that gives us at most 7 to 8 percent in the foreseeable future.

The main problem with biomass is that its production competes for farmland with food production. Today, about 5 percent of arable land already is used to produce biofuel. Humans need 2,200 to 2,500 calories a day, our cars need hundreds of times more, and we already use 38 percent of our land mainly to produce the energy humans need. I do not believe that humans will be ready to seriously increase this proportion in order to grow food for cars.

— Even so, the whole of Germany is covered with wind turbines…

— Wind and solar power together make up roughly one percent of all electricity production. The fundamental problem is that natural energy is poorly concentrated. To extract a significant amount of poorly concentrated energy, you need to extract it from a large spatial volume. That large volume means you need a lot of dirty non-renewable materials to produce a small quantity of clean renewable energy. For example, it takes 550 tonnes of iron and steel to produce one megawatt of wind power, as opposed to 35 for coal-fired and five for gas-fired power stations.

Furthermore, the low concentration of the energy means using a large area of land —in figures, we're talking roughly one square metre to produce one watt of wind power, or, for solar power, from five watts in countries that are not that sunny (Germany) to 20 watts in sunny deserts. There is probably the potential to increase productivity, primarily in the case of solar generation, but, again, this will never exceed the average natural solar radiation per square metre —about 170 watts.

Here's a striking example: to provide power to everyone in the USA would require solar panels over an area about the size of Spain, or wind turbines over an area about the size of Kazakhstan. For biomass, the energy density of production is 0.5 watts per square metre, so the idea of meeting the current requirement of 16 trillion watts of energy from this source would necessitate allocating roughly half the land to plantations.

For comparison, the density achieved in electricity production at coal-fired power stations today is at least two orders of magnitude greater —up to 1,000 watts per square metre, and that's including the land used to mine the coal.

You're right: Germany does indeed seem covered in wind turbines. However, coal makes up 44% of Germany's energy mix, but roughly 20% of Russia's. And I think the world would look even worse with noisy, vibrating, tall and very metallic generating structures taking up an area a thousand times greater than that of the land taken up today by the compact sites of coal mines and power stations. There are also environmental problems. Recently, a sad statistic caught my eye: a single wind farm in Altamont, California, kills 20 to 25 golden eagles every year; the fate of the orangutans driven out by the increasing biofuel plantations in Indonesia is also source of serious concern.

Furthermore, let's not forget that the sun doesn't shine at night and the wind doesn't always blow at a constant strength.

That said, energy storage technology is getting cheaper. There is a trend towards local distributed generation.

I sincerely believe in advanced batteries. More than that, I think a good battery is a coal man's best friend: The fact is that the most economically attractive market for substitution when this technology is developed will be the most expensive fossil fuel market: oil. Electricity will displace petrol and diesel, but so-called renewables will not be able to seriously increase their share of overall electricity production.

In terms of distributed energy, things are not that simple either. Most of the world's population live in urban areas now, and this proportion is expected to increase to 70-80 percent by 2050. Today's big cities are very energy-intensive: New York, for example, consumes roughly 100 watts of power per square metre. Bearing in mind the one watt per square metre for wind power and 5 to 20 watts for solar power, that gives pause for thought. That said, distributed renewable energy will undoubtedly find its local niche, albeit mainly where the wind is constantly strong or the sun shines brightly, where there are no problems with access to land, fresh water and biodiversity, but at the same time there is demand for electricity.

— **But what about replacing coal with gas?**

— I do not believe in the full and final victory of gas over coal, especially in Asia, where energy consumption is increasing rapidly. Coal is significantly cheaper and more accessible; its reserves are much distributed more equally around the planet. It is true that burning coal gives off more carbon dioxide —the figure that gets mentioned is 'about twice as much'.

However, I think a better assessment of the impact on the greenhouse effect would cover the full production cycle, including extraction, transportation and burning. Natural gas is methane, and the impact of methane on the greenhouse effect is about a hundred times greater than that of carbon dioxide in the first twenty years after the emission, and about twelve times greater in the longer term. When gas is extracted and transported, methane leaks into the atmosphere, but there are significantly fewer methane leaks from coal seams when coal is mined, and none during transportation. Looking at it this way, we come closer to a figure of 'about twenty percent more', which is now comparable. Further research, I expect, will show that everything will be different in different markets (for example, due to the difference in the length of gas transportation legs and the state of the pipeline system), but I believe that our commonest and cheapest fuel will continue to play a key role in our energy mix for a long time to come.

An important way in which coal differs from gas is in the large number of impurities harmful to humans and the environment that it contains: sulfur, nitrogen, mercury, particulate pollutants — but the modern, economic clean coal technologies used at the coal-fired power stations built in the last twenty years are fully capable of capturing these emissions. In terms of reducing carbon dioxide emissions from coal burning, the main development is obvious: modern coal-fired power stations are three times as efficient as those built earlier. In general, the world's coal-fired power stations are significantly older than its gas-fired ones, so simply shutting them down and replacing them with new ones will reduce carbon dioxide emissions.

In Russia, meanwhile, defining the development of cogeneration —combined production of heat and power— as key objective is long overdue. For example, the energy conversion efficiency from burning coal at a station running in cogeneration mode reaches 70 to 80 percent, as opposed to the average energy conversion efficiency for conversion into electricity, which is about 30 to 35 percent.

At the same time, gas will account for a greater share of energy production, primarily because it is becoming cheaper to produce, thanks to progress in the development of extraction methods and transportation. For example, in recent years shale gas has been putting serious pressure on coal in the power station supply sector in the USA. Plus, the capital costs of building gas-fired power stations are lower than those of building coal-fired ones.

— Coal prices are currently not the highest. How is that affecting SUEK?

— The 'shale revolution' in the USA and the simultaneous economic slowdown in the countries that are the biggest coal consumers have led to a cyclical surplus of coal production over demand. This has caused prices to collapse by half, from 110 to 55 dollars a tonne. This is the lower price level since 2005. I believe that in three or four years the market will balance out through higher demand.

SUEK's strategy is to be the most competitive and reliable supplier of Russian coal in the domestic and export markets. An important competitive advantage we have over our colleagues in Russia is our production assets in seven Russian regions, enabling us to mitigate the risks of production and supply disruption. Meanwhile, the company is actively developing coal mining and enrichment in the Russian Far East and Eastern Siberia, enabling us to rapidly increase sales to priority Asian markets. At the same time, we are investing in optimising the costs of delivering the product to the customer: wagons, ports (including a modern coal port built from scratch at Muchke Bay, which will be brought up a transshipment capacity of over 20 million tonnes a year over several years, and the modernised port of Murmansk), freight, and a sales network in target markets.

Like EuroChem, SUEK aims to work directly with customers, offering them the best product for their specific needs. For example, a station without a desulfurization unit will pay a premium for a low sulfur content; a market aiming to minimise ash production will pay for a reduced ash content in proportion to each calorie burned. By mixing different grades of coal, both mined and bought on the market (so-called 'blending'), in order to turn available resources into a desired product, you can make a certain additional profit.

— In these market conditions, are you planning to increase production and grow your share of the market?

— In the domestic market, we do not see any particular potential for growing our market share. In terms of exports to Europe, we are hardly likely to, given the reduction in coal consumption there. But if this country decides to invest in developing the port of Taman, this will open up a route to the emerging markets of Turkey, Egypt and Morocco for Russian coal —and we will certainly use it.

There are good prospects in the East; the market for coal traded in the Pacific Basin continues to grow, and we plan to grow somewhat there, primarily by developing mining in the regions closer to the sales markets than the Kuzbass, where Russia's export steam coal traditionally comes from.

— Is SUEK profitable in its day-to-day operations?

— Yes, SUEK is a fully sustainable company. Even if the situation with global coal mining changes dramatically and prices fall even further, we'll be able to watch the film to the end.

— Where does the Siberian Generating Company fit into your model?

— When we assumed operating control of our energy assets in 2008, they were in a poor state (the stations were 30 to 70 years old). Over several years, we implemented a programme involving building and upgrading ten generating units under power supply contracts worth 85 billion rubles in total, and these two new gigawatts of power provided the technical and economic basis for the company's further growth. The challenge now is to finish developing a suitable management system and, perhaps, scale up operations. With the business strategy, everything is also clear: enhance operational effectiveness and reliability, and increase the proportion of economically and environmentally much more effective cogeneration, replacing heat-only boiler stations in the heating market and power stations running in condensation mode in the electricity market. At the end of the day, SGC is laying the foundations for ensuring rapid business and industry growth in the future in the Siberian regions we are putting our faith in.

We need explicable regulation

— What is your assessment of the general economic situation in Russia? How long will the crisis last, and where are the factors that might speed up the recovery?

— In recent years, our government has been concentrating more and more on short-term tactics, something encouraged by the need to overcome one crisis after another. In the industries I work in, these tactics boil down to price control.

In crop farming, the government's main efforts are aimed at reducing grain prices in the domestic market, which, in turn, is having an adverse economic impact on the main agricultural suppliers —oil companies, seed and crop protection agent producers and fertiliser producers. With energy, the government is trying to ensure a guaranteed supply of electricity and heat to anyone who wants it, also at an artificially low price. This is slowing down and stopping investment in modernising energy companies and replacing heating and electricity networks, is hampering the development of the power plant industry and engineering, and is having an adverse impact on fuel suppliers. Suspecting, inspecting and proposing redistribution through some incomprehensible and ever more artificial method is much easier than building and creating long-term value.

Doing something better in any form of industry, be it crop farming or electricity or heat generation, is only possible by investing capital and applying organisational effort. This is where the first choice comes: the government can either raise money through taxes and invest it independently, or entrust this process to professional capitalists. The main difference is that a private investor risks their own money and money raised on the market, while a government-authorised institution risks public money, collected through administrative procedures. I believe that entrusting an entrepreneur to invest what is theirs is morally and economically better.

Accordingly, I believe that the government's role should mainly boil down to ensuring attractive conditions for private investment, primarily to reducing the risks of unpredictable actions from the government itself, as well as to encouraging competition. In crop farming, I'm for the market, and for not having export duties, but I'm also for domestic market prices no higher than the worst price for supplies to export markets. If there is a risk of the independence of our country’s domestic and foreign policy being affected by the impact on supply chains for food imports from hostile forces, and if that risk has genuinely been professionally assessed, and ensuring food self-sufficiency has been adopted as the best strategy, well, then, that is the price we pay for the country's security.

But let's then try to use our limited economic resources to combat the unlimited number of threats at least by improving the effectiveness and transparency of their use —such as by offering government grants directly to producers of products that in a pure market environment it would not make sense to produce in our country at all, just as ultimately we all pay for government spending on other areas of security. Let's allocate such grants in an open and clear way to those producers who are able to ensure the necessary volume of production for the least amount of subsidies per unit of production.

The tradition that has developed in recent years of an annual dialogue between farmers and the government, followed by a dialogue between farmers and resource suppliers, with the government's involvement, seems extremely ineffective to me. First, the crop farmers are persuaded of the benefits to the country's economy of subsidising meat production at their expense, then they jointly persuade the processors of the benefits of subsidising the consumer market (with retail chains being brought in) at their expense. As a result, the farmers, for their part, ask the government to support the idea of getting the resource suppliers to support the farmers by supplying mass-market fertilisers and diesel oil at a special price. The main argument for the fertiliser producers here every year is the threat to introduce export duty.

In the end, the winners out of these annual machinations are those who can make the most noise and grab a disproportionate share of the concessions available. Consequently, for example, there is no serious investment in this country in the fertilisers most required in the domestic market, and no serious investment in creating modern retail chains competing with each other for customers and able to influence the change in the pattern of fertiliser consumption towards ones that are more specialised and effective. In my opinion, this merry-go-round is exactly what our farming industry doesn't need.

With energy, things are even more confused. On one hand, a huge success of the reform of RAO UES was the entry into the industry of an entire class of qualified and responsible investors, both Russian (IES, SGC, Inter RAO and Gazprom) and foreign (Fortum, Enel and E.ON). On the other hand, the reform was started and not brought to its logical conclusion. The main problem is the uncertainty in the target model for the housing and utilities sector. This makes it impossible to define the target state of either the retail electricity market or the heating supply sector, which is even more important in our conditions. And without definitively defining the model for the heating market the half-started reform of the wholesale electricity market cannot be completed. Likewise, the lack of finality in the retail and wholesale electricity markets is preventing the network facilities from being put in order.

— What do you mean by that?

— The problem with district heating lies in the fact that objectively the most effective form of this business is a regional monopoly. Almost always in our large cities it is significantly more justified from economic and environmental points of view to produce heat at two or three large CHP plants that also produce and sell to the market electricity, than to produce heat at dozens of separate heat-only boiler stations. The heat transport system is also much more effective and reliable with a single duly motivated professional operator. The monopolist, of course, needs to be regulated —by requiring it to provide services of guaranteed quality, a transparent procedure for connecting new customers, and so on. At the same time, the monopolist needs to be paid, and the question arises as to what sort of pay is adequate.

In my view, the alternative boiler station model, which the government has been discussing for the past two and a half years, is the best. The gist of the model is that in the absence of a market, the price for the monopolist should be such as would have been determined in the market, had it been competitive, i.e., the price had been determined as a result of competition between the latest boiler stations. It is reasonable to assume that the price in such a market would be no lower than the average full (including return on investment) cost of production for its participants, but at the same time would hardly be much higher, as if it were it would be better for the customer to build their own boiler station.

— What about now?

— Now it's surprising. Based on the cost of production, the regulator sets a lower price for a cheap supplier, and a higher one for a more expensive one. The profit margin is determined as a percentage of sales. In other words, there are two prices for the same product in the market: cheaper for a more effective market participant, and more expensive for a less effective one. Consequently, the less effective are driving out the more effective, and out of all the different participants concerned about the state of the housing and utilities sector it is not possible to identify and call to account anyone who will admit that this mess is the result of their actions.

The alternative boiler station model will lead to people paying more for heat. In some regions, the price will rise, but in others it will fall. On average nationwide, the alternative boiler station price will be roughly 25 percent higher than the current level. However, no one needs the price to go up that far in one go. There needs to be a clear and fixed timetable for the increase that investors taking a long position can use for their investment plans. Today, people's heating expenses make up 4 to 5 percent of the consumer goods basket on heating on average, but with the alternative boiler station rate that will increase to 5 to 6 percent if there is no increase in real incomes.

Introducing this pricing model would lead to an investment boom in the industry, with a colossal multiplier effect for suppliers and subcontractors, and would significantly increase energy efficient and reduce carbon dioxide and other harmful emissions. In ten years or so, problems with heating will remembered in much the same way as problems with not being able to connect a telephone in a flat are today.

Clearly, the government would have to support a certain section of the population, but, again, a transparent process for getting that support to those who objectively need it would undoubtedly be more effective than the alternative. The alternative is for the government to invest directly in maintaining utilities infrastructure. Based on the experience of bringing the infrastructure of cities like Sochi and Vladivostok up to scratch, we can roughly estimate the cost. There is not enough money in the budget for this alternative for the whole country. By concentrating potential resources on direct support for the socially disadvantaged, on the other hand, we could effectively and quickly overhaul the system for supplying utilities to all our big cities, and there would be money left over for much more.

— **Are you hopeful that the government will decide to implement the proposed model?**

— To be honest, not very. And other market participants are not that optimistic either. We can now say with certainty that private capital has started to move out of the heating business. Many municipalities now own CHP plants, with responsibility for the unavoidable technical deterioration of these complex technological facilities. Unfortunately, as yet no senior figure has shown serious concern about the fact that facilities costing tens of billions of rubles are being given away by their owners in order to avoid the costs of running them at a loss. There are more and more examples of this: Rubtsovk and Sharya CHP plants, Novokuznetsk or the complex of three CHP plants in Tver, given away to companies with authorised capital of 10,000 rubles for a symbolic payment.

Why would you, if you're not a crook thieving off the stolen business whether it makes a profit or a loss, but a long-term investor putting money in with the aim of making an honest return on capital, take part in such an unfavourable undertaking, thus bearing at minimum reputational responsibility for maintaining in a proper condition something that for such money it is not possible to maintain in a proper condition?

It seems to me that the government feels that this situation may be dragged out for a long time. I don't. There are more accidents, the cost of the business constantly increases as it falls apart as well —and the customer still pays for all that in one way or another, but in the end everything is more expensive. I don't think that benefits our country in any way.

OFFSET

The most capital-intensive EuroChem, SUEK and SGC projects in Russia are:

— fitting out potash plants in Perm Krai and Volgograd Oblast

— building new ammonia plants in Leningrad Oblast and Stavropol Krai

— developing a gas field and building a gas processing plant in Astrakhan Oblast

— creating new mining and enrichment facilities at a coal mine in Khabarovsk Krai

— developing a new coking coal deposit in Zabaikalsky Krai and steam coal deposit in Buryatia

— projects to increase coal-mining capacities in the Kuzbass

— building up the fleet of SUEK and EuroChem's own wagons.

— further developing transshipment facilities at the ports of Ust-Luga, Murmansk, Tuapse and Vanino.