

Fine-Tuning Russia's Floating Nuclear Plants

Peter Shchedrovitskiy is the Deputy Director General of Russia's State Atomic Energy Corporation, Rosatom. He was interviewed by 21st Century correspondent Ilko Dimov. Shchedrovitskiy's comments were translated from the Russian by Rachel Douglas.



Question: Please tell me about your projects for developing floating nuclear plants. How many of them can you build in the next decade? What are your plans for developing them?

You know, first of all, for some period of time we need to operate the one which was launched in July of this year. We are working on improving the eco-

nomonic efficiency of this type of unit, because it is a prototype, and, as with any prototype unit, there are certain problems related to fine-tuning the technol-

ogy, to cost, etc.

We are thinking about possibly switching from one type of power plant to another, with different characteristics. Therefore I would not say that we are ready yet to move to large-scale, mass production. But we believe this is one of the projects that aims to shape the global power industry of the future, which needs to be more mobile and more diversified, and needs to be more sensitive to the way consumption is organized at the micro level and to what I called, in my report [to the conference], new paradigms.

Question: What kind of cooperation

On Increased Energy Density with Fission, Fusion

Peter Shchedrovitskiy responded to a question asked at a plenary session by Executive Intelligence Review correspondent Robert Hux. His comments were translated by Rachel Douglas.

Hux: I want to get your comments, Mr. Shchedrovitskiy. I was quite stunned, in the previous panel, when the representative from India, the Power Secretary, after describing the reliance in India on coal (I don't know the exact figure, but it was maybe half of the rail grid in India being involved in transporting coal), saying that they are concerned with replacing the old coal plants with these modern coal plants that will lessen carbon dioxide emissions, but saying not a word about the fact of nuclear energy in general, and, in particular, the vast thorium reserves that exist.

Perhaps you can tell us about the relations between Russia and India along the lines of creating small, modular nuclear reactors that can exist over long time frames, perhaps 30 years, and can be used in rural areas, to provide electricity for areas off the power grid.

But, more generally, I was quite stunned, also, not just from him, but the

general conference, at the reliance on what I think has to be regarded as a 19th Century dependence on chemical combustion, when we have nuclear technologies available. Could you comment on this concept of energy flux density: What is the difference between reliance on chemical combustion of coal and natural gas, to say nothing of solar or wind, compared to having orders of magnitude, millions-fold increase of energy density, to having something like nuclear fission, and what's our potential with fusion?

Shchedrovitskiy: I heard several questions, and it's a thankless task to answer on behalf of my colleagues, but I'll try to respond to the first question.

Indeed, we cooperate with India on building thermal reactors. We have agreement in principle on building up to 16 nuclear power plant units.

At the same time, India has a powerful, well-developed strategy for the development of nuclear power, which provides for creating alongside the ongoing construction of thermal reactors a set of breeder reactors. The first of them is slated to come on line in 2011. And then,

they plan to move to the thorium cycle.

That's what I can say about our Indian colleagues, but of course it would be better to ask them directly.

As for increasing efficiency, yes, it is our view that thermal reactors are more efficient, with respect to fuel supplies, than using coal—as measured in electricity output per standard unit of fuel.

Fast breeder reactors are even more efficient than thermal reactors. Something like 100 times more efficient.

As for thermonuclear fusion, the increased efficiency indeed can be expressed by factors of hundreds of thousands, or even millions, compared with breeder reactors. But, I would like to say that fusion is definitely something for the more remote future, because in the ITER project, the first plasma is supposed to be in 2018, and the full cycle in 2028, which means we will unlikely be able to move to designing an industrial unit of this type, even with international cooperation, any earlier than 2030.

Those are the existing plans for the growth of efficiency per standard unit of fuel, through a sequence of changing technological approaches.

would you like to have with the United States?

With the United States, we are currently negotiating in the area of general infrastructure projects, i. e., on global support for nuclear power through elements of infrastructure which provide developing countries access to these technologies, without violating the non-proliferation system. And, second, I think we will arrive at a certain cooperation in science, particularly as related to breeder reactors.

Question: Lyndon LaRouche has proposed economic cooperation among Russia, the United States, India, and China to create a new financial system with fixed exchange rates. Because we have problems—speculation on energy prices is a factor that

wrecks development. Can you say something about the potential for stabilizing the international financial system?

I am not a specialist on the financial system. I have read LaRouche's books, but, frankly speaking, I prefer to speak about things in my area of competence.

INTERVIEW: JOHANNES PENZKOFER

On Joint Russian Development Projects: 'We Are Sitting in One Boat'

Johannes Penzkofer, a vice president of the Russian engineering company, GCE Energy Consulting Group, was interviewed by 21st Century correspondent Ilko Dimov. This is an abridged transcript of the interview.

Question: Since October of last year, the Chinese and Russian governments signed a strategic agreement for collaboration in the development of the Far East, including access to raw materials, building high speed rail, and development of nuclear energy. And Russia is building a breeder reactor right now in China. What is your long-term view? What do you see as areas where you need collaboration with Canada or the United States? What are the areas where we can design joint projects to work together?

I think, as we are here at the World Energy Congress, this is a very important topic. We can collaborate with all, or let's say, with the four countries that you have talked about: China, Russia, the U.S., and Canada. Especially on the tech-

nical and the equipment side, there is very much knowledge in Canada, and the U.S., and in Canada, especially with hydro energy and hydroelectric. This is what we really have to share, and use, to create a more efficient use of energy in the industry.

Question: One of the traditional problems in the Soviet Union, and in Russia, has been that things move slowly. You start building something, and it takes centuries to be accomplished. Now, there is a very surprising speedup: the modernization of the rail system. Prime Minister Putin said in a recent report, "We just doubled the rail system in Russia!" Wow, that's impressive! How were you able to achieve this success?

It's typical for Russia, that, if they make a commitment, they really do everything to fulfill this. And when the government said, "this is our strategy, our plan," the whole country was trying to follow this, and this is how it was achieved.

Question: One of the projects which



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Rosatom's design for its first floating nuclear power plant.



has existed since the strategic collaboration between Czar Alexander II and Abraham Lincoln, is the development of Siberia and of Alaska. Now we have the potential of building the Bering Strait link. We are working in the United States towards this project, and we would like to make it a reality in the visible future, in 10 years. Is there the political will in the Russian government, the friendly hands, to get people on the ground to start moving in this direction?