

**M. Prokhorov's presentation at the joint meeting of the Presidium of the Russian Academy of Sciences and the MMC Norilsk Nickel Management Board  
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**NORILSK NICKEL AND RUSSIAN ACADEMICIANS PROMISE A  
BREAKTHROUGH IN HYDROGEN ENERGY AND FUEL SELLS TECHNOLOGIES**

First of all I would like to express our gratitude to the Russian Academy of Sciences for the enthusiasm of their scientists who have joined the collaborative efforts to develop the field of hydrogen fuel energy.

In today's presentation I will focus on the strategy of Russia in the development of hydrogen energy and fuel cells.

Unfortunately, by the present moment Russia has lost its status of a leading economic power. Our state is currently ranked in the second dozen of developed countries and besides, it is highly dependent on export. I believe that in this situation high technologies should become the foundation for our future development.

Our goals are bold and ambitious: we want to be included in top-ten leading economically developed countries by 2010. Although, in my opinion when the economic growth rate is 10% per year we'll never achieve this goal, but only slightly narrow down the gap. If, for example, the economic growth rate in Russia is 8% per year and 1% in America then we'll be able to cope with the task only in 236 years.

Cooperation with the Russian Academy of Sciences has lead our company to one very interesting conclusion. We believe that activities related to the development of hydrogen energy and fuel cells represent a unique opportunity for Russia to become one of the world's major players. Let me put forward some arguments to prove this idea.

Nowadays our world is on the verge of a new technological revolution and industry transition to a new level of technology. We are aware of several mistakes made in the recent history of Russia. In the '60s, for example, the USSR actually lost its chance to achieve a technological breakthrough, and this resulted in a lag between Russian and Western industries, becoming really insurmountable by the end of the '80s. However, the countries which are "kings-of-the-hill" today could miss the important moment of retrofitting on their march to a new level of technology, and this will lead them to dramatic retardation in developing necessary up-to-date infrastructure.

Today our country is given an opportunity to break immediately into the new economy. Actually I'm convinced that we have no other choice. The main objective of hydrogen technology development is to reduce our dependence on the existing energy sources – oil and gas. Presently they are the core of our economy, the basis of our budget. But if the implementation of new economy results in 15 years in decreased oil and gas consumption, Russia will be exposed to a depression model of development. We can and we should start immediately to develop the hydrogen energy.

In order to compete in high technologies a competitive advantage is needed. And Russia obviously has such a competitive advantage. It is based on the fundamental research of the Russian Academy of Sciences and palladium metal stock required for the production of hydrogen-fueled engines. Moreover, our country controls about 50% of this metal world's production. This allows me to conclude that **as a matter of fact we are given a historical chance to propose to the President and the Government of the RF to consider the hydrogen energy development program as the national economic strategy that will restore Russia's status of the great economic power.** And I think it should be done with assistance of the President's High Technology Council.

What requirements will be set for our R&D work by the world economy? Firstly, we should go ahead of the world market development. Why? Unfortunately, our domestic market is still weak in this area and in the beginning our products should be sold on the Western market.

That means that we should thoroughly analyze the existing Western analogues in order to make our products acceptable and moreover - needed by the market. Secondly, to achieve immediate qualitative breakthrough we should look into the future and analyze the market forecasts for 2010-2012.

The highest priority here is to organize the financing of R&D in hydrogen energy. It is natural that Norilsk Nickel's funds are certainly insufficient to finance all activities in this sphere. To make the breakthrough it is necessary to consolidate state resources and to create centralized programs, as well as to attract resources of oil and gas companies involved in the energy industry. Moreover, I believe that raising funds for further development is not enough. A detailed state order for the products implementation is needed, since as a rule it is extremely difficult to introduce any new economy when the infrastructure is not prepared. Thus, in my opinion a separate program should be elaborated for the introduction of our jointly developed products. This will inevitably influence the education: new professionals will be required for the new system of economic relations.

Some comments regarding our joint integrated program. In its framework we would like to set up a whole implementation chain from initial scientific research to pilot tests and document registration. The second task which is essential from my viewpoint is to choose proper key directions in the hydrogen energy development. The third task is to ensure efficient coordination of our activities. Let's call this "mindset adjustment". And here the Academy's Council should assume the major responsibility. Finally, we intend to set up a "Palladium Center" which would allow us in the nearest future to speed up the development of this metal application.

Closing my presentation I would like once again to draw your attention to a point in which I'm absolutely sure personally: we are holding a key to the national program that will allow our country to reentry the ranks of world's leading economic states. It can be regarded as a historical task. The future should work efficiently. Thank you.