
'GREAT ENTERPRISE' PROGRAM

U.S. nuclear exports: the potential demand

by Steven Bardwell

Every modern industrial nation was built by a series of "great projects." The United States owes the prosperity of its western states to the building of the transcontinental railroads and power dams, and the industrialization of the southern states to the Tennessee Valley Authority. Germany was created by the *Zollverein* customs union project of Friedrich List, which unified the country with canals and roads. Siberia today is becoming an economic power because of the construction of the Baikal-Amur Mainline, a huge northern parallel to the Transsiberian Railroad.

None of these economic transformations could have been accomplished with a piecemeal set of infrastructure projects. Rather, a new conception of geography, of economic reality, and a vision of "man's domination of nature" was required which transformed the economic laws of that time and country.

The necessity of industrial development of the Third World today demands a similar vision of global economic transformation. The industrialization of the developing sector cannot be accomplished with an incremental program of construction of new roads, dams, or energy production, even if such projects were being funded—which they are not. Only a break with the current collapsing monetary system can permit the restarting of infrastructure building. The world today needs a series of "great projects."

This insight was the starting point for the "great projects" proposal contained first in *EIR* founder Lyndon LaRouche's International Development Bank document (1975) and the later proposal of Japan's Mitsubishi Research Institute in 1981. In both of these documents, a series of continental transformations are proposed for Africa, southern Asia, Siberia, North America, the Amazon Basin, and the Middle East.

Proposed projects include the greening of the deserts of the Sahara, Sahel, and the Arabian peninsula; the construction of a dam across the Bering Straits that would control sea currents flowing from the Arctic Ocean, and temper the atmospheric conditions in the North Pacific Ocean; and creating a vast lake in the Congo and Chad regions of Africa by damming the Congo River, which would also improve the natural conditions in the area. Three major canals, including a new Panama Canal, the Kra Isthmus Canal linking the Indian Ocean and the South China Sea, and a canal in the

Qattara Depression in North Africa are also proposed. Water control projects for North America, the Indian subcontinent, the Mekong Delta, and South America, would also generate vast amounts of hydroelectric power.

The role of energy

Both the LaRouche and Mitsubishi proposals, while not specifying how the energy for such projects would be generated, stress the critical role of energy in these projects—on the one hand, the incredible energy deficit in the developing sector today; on the other, the astronomical requirements for energy in any serious development strategy.

The Fusion Energy Foundation commissioned a study on the solution to this energy deficit by Jon Gilbertson, a nuclear engineer with long experience in the field of commercial energy production. This study, summarized below, came to a number of striking conclusions:

1) In agreement with other analyses of energy consumption, the role of electrical energy was found to be qualitatively different than that of thermal energy. Electricity seems to be a unique "driver" for industrial growth because of its ability to provide high-intensity forms of energy. With an energy flux density (kW/m^2) many orders of magnitude higher than fossil fuel combustion, electricity is cheaper and more efficient. The rate of industrial growth, while not closely correlated with total energy use, is very closely tied to the rate of growth of electrical energy. Historically, the rate of electrical energy growth must be one and a half times the rate of desired economic growth.

2) The biggest impact of advanced technologies in the production of energy is not in the direct creation of tangible output, but rather in increases in productivity that are induced by the introduction of those technologies. That is, not all electrical energy technologies are economically equivalent; nuclear electrical energy, for example, not only produces electricity more cheaply than coal or oil, but more importantly acts as a transmission belt for the spread of new technology, more highly skilled manpower, and more efficient production techniques into an economy. This characteristic of nuclear energy very closely resembles the overall impact of infrastructure investment more generally: Its main economic significance is the increase in productivity that results from faster and more reliable transport and communications.

3) To take advantage of these properties of electrical energy, and especially nuclear electrical energy, will require a massive expansion of the world's nuclear construction capacity. Not only are present facilities inadequate for the construction of nuclear plants on the scale necessary, but present construction *technologies* are inadequate.

4) Gilbertson proposes the full-scale use of construction techniques which have been proven to be capable of powering a massive expansion in nuclear construction but have yet to be implemented. These standardized, floating nuclear technologies, as we document here, offer the only realistic way out of the growing energy deficit.