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## Science & Technology

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# Nuclear Energy Renaissance Spreads Around the World

by EIR Staff

A dramatic series of new initiatives for large-scale transportation and energy infrastructure projects has been announced throughout Eurasia this Spring, putting nuclear power back in the lead for world economic development. Most spectacular, commitments were announced in April, to construct the Bering Strait rail and utility line tunnel that will link Asia and North America. In turn, this implies constructing the vast connecting rail routes in eastern Siberia, and the long-planned Alaska-Canada-Lower 48 States railroad. Vast new power supplies will be required for electrified rail, not just from the plentiful coal deposits in Siberia and the Yukon, but from new nuclear plants.

Such Great Projects, championed in detail by Lyndon LaRouche and Helga Zepp-LaRouche in the 1980s, will reshape the international economic and political landscape. The Eurasian Land-Bridge, promoted in 1997 by the LaRouches, is now in the top rank of priorities, as the Bering Strait breakthrough shows. Going ahead with these projects lays the basis for the overall rebirth of the world economy, once the bankruptcy reorganization of the moribund financial system frees nations from the last vestiges of monetarist strangulation.

None of the projects now under way for expanding railroads, magnetic levitation transport systems, pipelines, communications systems, or the housing, health-care, and education infrastructure that such great projects will require (including man-made water resources from desalination), can be carried out without massive increases in each nation's production and consumption of electricity. An increasing proportion of the power required to carry out these projects will necessarily be provided by the most efficient, versatile, and energy-dense form of energy available today: nuclear fission.

Whereas in late 2005, the total number of nuclear power plants in operation around the globe was 443, with only 25 under construction, as of May 2007, more than 30 plants are under construction, with dozens more newly announced commitments. This puts the near-future nuclear power plant inventory of the world in the range of 700, and rising fast.

This is a start, but what is needed to provide for the anticipated industrial growth of the Eurasian Land-Bridge and other Great Projects, is 6,000 nuclear plants by the year 2050.\*

In 2005, the United States had 25%, or 104 operating nuclear plants out of the world total—which has been stalled out in the same range for decades. But that share of the growing world total is rapidly changing. Nations throughout Asia, Eastern Europe, and Ibero-America that have been pressured for decades not to even consider nuclear power, are carrying out feasibility studies with potential vendors, to begin the process of ordering their first nuclear power plants. Nations that have already carried out those studies, are now opening the bidding process and securing contracts to build their first nuclear plants.

China, South Africa, India, and Argentina, which have developed an indigenous nuclear industry, are competing with traditional nuclear suppliers in the United States, Western Europe, Russia, and Japan, to offer nuclear technology to non-nuclear countries. And research and development programs have been accelerated around the globe, toward the development of next-generation nuclear technologies.

The world's nuclear renaissance has been centered on Eurasia. China, Russia, and India are each undertaking programs to build dozens of new nuclear plants over the next two decades. They are also now making nuclear energy available to other nations, while pursuing development of new generations of nuclear technology for the future. The nations that are optimistic about the future, are preparing for it, as this overview shows.

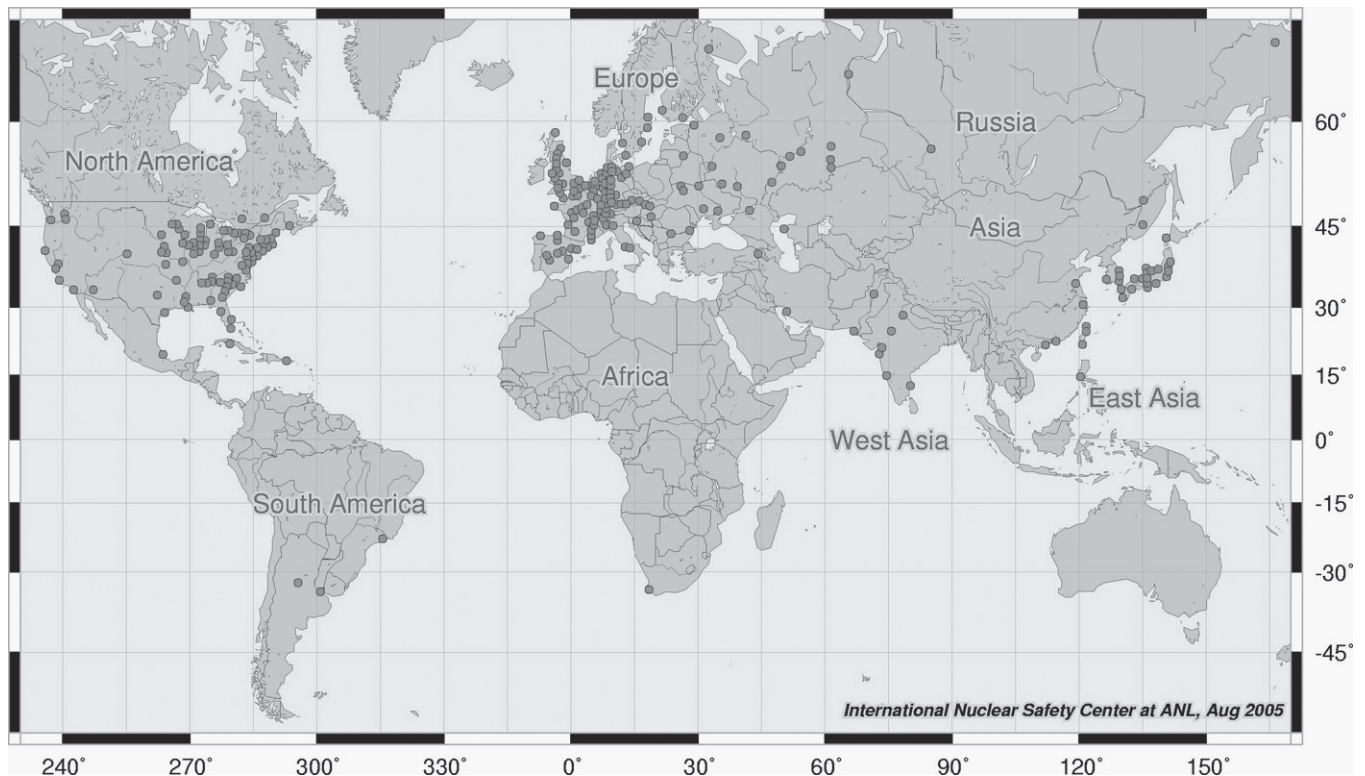
### Russia—Preparing for the Future

On April 27, Russian President Vladimir Putin signed a decree to restructure the national nuclear energy industry, an effort that has been in progress for more than a year. The dis-

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\*How to build 6,000 nuclear plants is discussed in an article by the Massachusetts State Nuclear Engineer James Muckerheide, in EIR, June 24, 2005. An online version is at [www.21stcenturysciencetech.com/Articles%202005/6000NuclearPlants.pdf](http://www.21stcenturysciencetech.com/Articles%202005/6000NuclearPlants.pdf)

FIGURE 1  
**Nuclear Power Reactors Worldwide**



Source: International Nuclear Safety Center, Argonne National Laboratory

*As of this month, 30 countries are operating 436 nuclear power plants for electricity generation, producing 16% of the world's electricity production in 2006. For an interactive version of this map with more details, see [http://www.insc.anl.gov/pwrmaps/map/world\\_map.php](http://www.insc.anl.gov/pwrmaps/map/world_map.php)*

parate enterprises that have until now been responsible for prospecting for uranium, producing fuel, building power plants, manufacturing equipment, and exporting nuclear technology, will all be under the roof of one nuclear corporation, controlled by the government.

In his annual State of the Nation address to Parliament on April 26, President Putin said that this major reform of the nuclear sector will be “the country’s second comprehensive electrification,” a reference to the massive project to bring electricity for the first time to Russia’s population, starting in the 1920s. “Power generation in Russia is to grow 66% by 2020,” he reported. The share of nuclear energy in that power production will be raised to 25%.

Russia’s nuclear industry is spreading its activities and inviting international participation. On April 10, RIA Novosti reported that Russia is considering inviting foreign nuclear companies to cooperate in the construction of a new nuclear power plant in Russia’s energy-short Far East. “Given the fact that the [nuclear] compound will be built in the immediate vicinity of Japan, I deem it right and realistic to consider coop-

eration prospects, and to engage Japanese companies—and possibly Chinese and South Korean ones, as well—in supplying equipment for the plant, and in designing it jointly,” Russian nuclear chief Sergei Kiriyenko said in Moscow. “Cooperation on the first such new nuclear power plant could pave the way to international integration in building nuclear power plants in third countries.”

In January last year, Putin made the first Russian initiative to create International Uranium Enrichment Centers in Russia, under the supervision of the International Atomic Energy Agency (IAEA). Any nation will be allowed to participate, if it respects IAEA policy and uses the uranium purely for civilian energy generation.

On May 10, Putin and **Kazakhstan** President Nursultan Nazarbayev oversaw the signing of a bilateral agreement to set up an enrichment center in Angarsk, East Siberia. This civilian-use policy of Putin is important for Japan, because it separates Russia’s military and civilian nuclear facilities. Speaking in Tokyo May 14, Shunsuke Kondo, chairman of the Japanese Atomic Energy Commission, said: “Russia’s

nuclear energy world in the past was one solid unit. There's been a great effort on the Russian side to divide these two functions." Japan has no atomic weapons and will cooperate only in civilian use of nuclear technology with other nations. Kondo said that Japan supports the idea of international uranium enrichment centers, which Russia and Kazakhstan have agreed to set up.

**Japan** is very interested in Russia's advanced fast-breeder-reactor technology, which produces plutonium which can be used for nuclear fuel. "We also want to diversify our supplier base," Kondo said. Japan already has 53 nuclear plants, generating 30% of its electricity; it plans to increase this to 40% by 2030, and to develop fast-breeder reactors.

Looking toward the future, Russia's Kurchatov Institute of nuclear science has been participating in experiments with the U.S.-based company Thorium Power on fuel rods that use thorium instead of uranium as a nuclear fuel. One of the experiments conducted was with a fuel assembly that would be applicable to those used in Russian-designed VVER pressurized water reactors. A few nations, such as India, which are poor in uranium resources, are rich in thorium reserves.

### **China—Mobilizing for Nuclear**

With ten operating nuclear power plants, China is now in the midst of a nuclear power plant build-up with the aim of adding two new power plants per year in the near term. Although China's largest plants to date have been imported, its indigenous nuclear power plant program is catching up to what is available from international vendors.

China is determined to become a major player in world nuclear energy technology. While experimental work is ongoing in development of its fourth-generation pebble bed high-temperature reactor, China plans to become independent of foreign conventional fission technology as quickly as feasible. Speaking at a conference on nuclear technology in Shanghai, as reported on April 24 by *China Daily*, Ouyang Yu of the Chinese Academy of Sciences stated that by 2017, China will have its first indigenously developed pressurized water reactor in operation.

Ouyang was seconded by the head of the China Atomic Energy Authority, Sun Qin, who stated, "By 2020, we could basically rely on our own technology." The nuclear technology China develops will also be slated for export.

China's ongoing cooperation with both the United States and Russia in building advanced nuclear power facilities is bearing fruit, to the advantage of all sides. The Chinese government has approved construction of what will become its largest-ever nuclear power plant, to be built in Shandong province on China's east coast. This project, approved in May by the National Development and Reform Commission, will use advanced technology from the U.S.

Westinghouse Electric Company, which provides third-generation million-kilowatt pressurized water reactors for the plant, according to a *Industrial Info Resources* report from Beijing May 15.

There is also progress on the large Russian-Chinese cooperation project, the Tianwan nuclear plant in the city of Lianyungang, Jiangsu province. On May 15, Russia's state-owned Atomstroyexport announced that it had completed a 100-hour test of the first power unit of the Tianwan plant and restarted it, after it had been shut down for maintenance. The tests showed no faults in the unit, and this clears the way for the unit to be put into commercial operation. Tianwan features improved Russian VVER-1000 reactors. Lianyungang, on the Sea of China, is the Eastern Terminus of the Eurasian Land-Bridge, that will connect via Central Asia to Rotterdam in the Netherlands, and therefore it is a world-class strategic rail and port center.

### **India, Thorium Leader, Plans Dozens of Plants**

The domestic nuclear energy plans of India rival those of China. At present, India has 17 operating nuclear power plants, producing 3,483 megawatts of electricity. Dozens of new nuclear plants are slated to be deployed over the next two decades, as India, at the same time, pushes ahead with development of frontier thorium-based nuclear fuel cycles. Speaking in Athens, Greece, on April 27, Indian President Kalam explained: "Thorium, a non-fissile material, is available in abundance in our country, and energy independence is India's first and highest priority." India plans to push ahead with its nuclear power technology development, whether or not the bilateral agreement negotiated with the United States is passed into law by both governments.

India's drive to expand reliance on nuclear includes the vital issue of water management; a solution to India's water problems demands the extensive desalination of seawater or brackish water. In the southern Indian state of Tamil Nadu, the governor is waging a campaign to establish 45 desalination plants, and urging Federal backing to power them with nuclear energy. But the same need exists throughout India, and there is increasing national discussion in this direction.

India is also involved in discussions with its poorer neighbors, including Bangladesh, about exporting its highly developed nuclear capability.

### **Nuclear Power Across Eurasia**

There are new nuclear power initiatives across Eurasia, many in conjunction with Russia, China, or India. In a reflection of all the motion, on May 4, even the director of energy for the Asian Development Bank, WooChong Um, said in an interview with the Associated Press, at the Bank's annual meeting, that the Bank is considering supporting the use of nuclear power. "We'll decide in the next three months or so which way we'll go." He remarked that the Bank would have

TABLE 1  
**Nuclear Units Under Construction Worldwide**

Country	Units	Total MWe
Argentina	1	692
Bulgaria	2	1,906
China	5	4,220
China, Taiwan	2	2,600
Finland	1	1,600
India	6	2,910
Iran	1	915
Japan	1	866
Pakistan	1	300
Romania	1	655
Russia	7	4,585
S. Korea	1	960
Ukraine	2	1,900
<b>Total</b>	<b>31</b>	<b>24,109</b>

Source: International Atomic Energy Agency PRIS database. Updated: 5/07/07 by Nuclear Energy Institute, <http://www.nei.org>

to add in-house nuclear experts, to be able to promote nuclear energy.

Here are a few examples of new initiatives:

On April 18, **Pakistan's** Prime Minister Shaukat Aziz reported in Beijing on his talks with his Chinese counterpart, Wen Jiabao. Aziz said proposals to build six new nuclear power plants in Pakistan with Chinese cooperation were under discussion.

Upon return to Islamabad, Aziz added that Pakistan's energy needs were increasing by 10-12% annually, and that peaceful nuclear cooperation with China would be enhanced. Pakistan's 300-MW Chasma-1 nuclear reactor was supplied by China, and began operation in 2002. Its twin reactor is now under construction. Pakistan's 2005 Energy Security Plan calls for an increase of more than 8,400 megawatts of nuclear capacity by 2015, and by 2020 to have two additional 300-MW reactors from China, two 600-MW units, and seven 1,000-MW reactors.

Elsewhere in Asia, in early April, the National Energy Policy Council of **Thailand** established a committee to conduct a feasibility study for its first nuclear power plant. The panel's chairman, Kopr Kritayakirana, said on April 23 that its first task will be to educate the public about nuclear energy, and to study the "capital and personnel required before undertaking the project."

Thailand's 15-year Power Development Plan, ending in 2021, calls for the construction of 31,800 megawatts of new power plants, 4,000 megawatts of which are to be nuclear. Kopr, who is an advisor to the Science and Technology

Minister, said that using nuclear power was necessary, because of high oil prices and the high cost of other renewable sources.

For the past few years, **Vietnam** has been discussing the prospects of building its first nuclear power plant. "We hope that this year the official approval from the government will be sealed [so] we [can] start to carry out the feasibility study on nuclear power," Ta Van Huong, from Vietnam's Minister of Industry, told Dow Jones at a conference in Singapore on March 21. The plan is to build the first plant by 2015, with a second unit on line five years later. Vietnam is now heavily dependent on hydropower. The country already has a test reactor, which will be vital for training the required skilled manpower. The nation's electricity demand is forecast to grow at a rate of 15% per annum.

Russia signed an agreement with **Myanmar** May 15 to build a nuclear research center there, including a 10-MW research reactor. Myanmar plans to send some 300-350 people to be trained in Russian universities to work at the nuclear center. The research center would include a medical isotope production laboratory, a silicon doping system, and nuclear waste treatment and burial facilities, a Rosatom press release stated. Myanmar, one of the world's poorest nations, is under economic sanctions imposed by the United States and Europe.

## The Eastern European Corridors

The nations of Central Asia and Eastern Europe—the long-neglected critical links of needed development corridors between Europe and Asia—have no choice but to go nuclear. They are doing so in spite of the political pressure being applied by the brainwashed leaders of the European Union, who have made "no nukes" the price of membership.

**Poland**, which is anticipating membership in the EU, must go nuclear, and this is "matter of reasons of state," stated Economics Minister Krzysztof, on March 14. Following a meeting with the International Energy Agency, where economist Fatih Birol said that nuclear energy should be used more widely by countries facing energy shortages, the Polish Minister announced that within five years, Poland should decide on the site for the first nuclear plant in his nation.

The Energy Minister of **Bulgaria**, Roumen Ovcharov, has been lobbying members of the European Union to reverse their anti-nuclear stance. "There is no other solution than nuclear power," Ovcharov said in an interview in New York on March 10. "Bulgaria has already 30 years of good experience in running a nuclear power plant. It is safe. It provides very cheap energy."

Bulgaria was forced to shut down the two units at its Kozloduy nuclear power plant last December, to meet safety demands, before joining the EU on Jan. 1. Now, that country is seeking to reopen the plants, and wants to build two new reactors by 2014. "Bulgaria used to be the fourth-biggest

power exporter in Europe,” before the plants were closed, he said. Russia’s nuclear agency, OAO Atomstroyexport, has signed a contract with Bulgaria to build two 1,000-MW pressurized water reactors at Belene, on the Danube River.

On April 11, ARKA News Agency reported remarks by the Deputy Minister of Energy of **Armenia**, Areg Galstyan: “A long-term assessment of the uptrend in natural gas prices until 2025 ... shows that Armenia practically has no alternative to the construction of a new nuclear power units.” Armenia has come under international pressure to shut down its existing Soviet-designed Metsamor nuclear plant by 2016, but has made any shutdown contingent on building a replacement nuclear plant. “All the measures to put the power unit out of operation,” he said, “must not affect the development of Armenia’s energy sector and economy.” Energy forecasts, according to the Minister, suggest Armenia will need a 1,000-MW unit by 2016, and a second, similar unit, four years later.

On April 23, the Russian and Armenian governments signed an agreement to jointly develop Armenia’s untapped uranium reserves, which could make Armenia self-sufficient in nuclear energy production. An intergovernmental agreement for a joint venture for uranium enrichment will be signed in May. Armenia could become one of the few countries in the world with a full uranium production cycle, said Russian Federal Nuclear Agency head Kiriyenko, and the fuel could be supplied to the power station at Metsamor and the new ones in the future.

Russia is ready to send nuclear specialists to Armenia to begin work on a new nuclear plants, Kiriyenko said, and *IA Regnum* reported that Russia is ready to fully finance the construction project in Armenia. Russia would jointly own the plant.

In **Belarus**, President Alexander Lukashenka stated bluntly, “We are in a situation [where] only a fool will not construct a [nuclear power] station,” according to Belarusian Radio April 12. He stated that some foreign companies, interested in bidding on a power plant contract, link their participation with Belarus’s “democratization,” and its efforts to amend electoral legislation. “We will build a nuclear power station on terms that are beneficial to our country, because we have no way out. ... I wish we had at least one station on our territory,” he said. Belarus plans to start up a new power reactor in 2012, with a second following in 2015.

## Middle East Crossroads Going Nuclear

Southwest Asia, under present Anglo-American geopolitical maneuvering, is the potential cockpit for a worldwide nuclear war. But in the spirit of Pope Paul VI, who stated that the new name for peace is development, an increasing number of nations in the region see nuclear energy as the pathway to follow. Critical developments are occurring in Egypt and with the Gulf Cooperation Council.

In early April, Russian Industry and Energy Minister Viktor Khristenko told a press conference in Cairo that Russia and **Egypt** are preparing documents for cooperation on civilian nuclear energy. Egyptian press reported that Russia would provide up to three 600-MW nuclear plants. A memorandum of understanding was signed on April 11 between the two nations, to establish a Russian free-trade zone near the port of Alexandria, where parts for the nuclear plants, as well as airplane equipment and auto parts, would be manufactured.

Egypt had fully planned to go nuclear in the 1980s, but the accident at the Chernobyl plant in Ukraine, and ensuing anti-nuclear hysteria, stopped Egypt’s plans, as it did those in most of the rest of the world.

The Russia-Egypt initiative parallels an extraordinary decision made at the meeting of the **Gulf Cooperation Council** (GCC) in December 2006, to undertake a study for a proposed common nuclear program for peaceful purposes in the Persian Gulf nations. On May 6, GCC Secretary-General Abdul Rahman bin Hamad al-Atiyya reported during an interview with *WAM* that he had briefed GCC President Shaikh Khalifa bin Zayed al-Nahyan, on the progress made in the study so far. Atiyyah said that the meeting was in preparation for the forthcoming consultative summit of GCC.

Already, a series of pro-nuclear commitments is in progress. In **Jordan**, in early April, King Abdullah II said in an interview with Agence France Presse that Jordan needs “to secure the transfer and establishment of nuclear energy technology as an alternative to importing oil for generating electricity and water desalination.” Jordan imports 95% of its energy, and is one of the 10 most water-impooverished nations in the world. It hopes to have a nuclear plant operating by 2015. According to the nation’s Natural Resources Authority, Jordan has “tens of thousands of tons” of uranium reserves, which could be used to power nuclear plants.

On April 15, Dr. Mohamed ElBaradei, head of the IAEA, said after talks with Jordan’s King Abdullah II, that the IAEA “is ready to help Jordan take advantage of nuclear energy for peaceful purposes.”

In **Saudi Arabia**, a series of agreements were signed in February between Russian President Putin and Saudi King Abdullah, which are reported to include cooperation in civilian nuclear energy. Apparently Saudi Arabia would like to have other options beside allegiance to Great Britain and the United States. For decades, and back to the 1950s U.S. Atoms for Peace initiative, even oil-rich countries in the Middle East, had recognized that their wealth in the ground was finite and had planned to go nuclear.

In **Yemen**, just after the GCC announced its nuclear energy intentions in December 2006, the government expressed its support. On Dec. 29, Yemeni President Ali Abdullah Saleh was quoted as saying: “We in Yemen support the decision by the ... Gulf Cooperation Council (GCC) to study the launch of a joint Gulf program in nuclear energy for

peaceful purposes. Yemen is ready and interested to join such a program.”

## Africa—Development Agenda Restored

The only nuclear power plants on the continent of Africa are at the two-unit site at Koeberg Nuclear Power Station near Capetown, **South Africa**. The South African government is strongly committed to nuclear energy, and the state utility, Eskom, plans to complete its version of the German-designed Pebble Bed Modular Reactor, the PBMR, in 2011. Once this 165-MW prototype is online, South Africa intends to mass produce this versatile reactor for domestic consumption and export to developing nations—up to 30 plants. South Africa, which has a looming energy shortage, is also considering adding another conventional nuclear plant to its electricity grid.

Elsewhere in Africa, initial steps have been thwarted. In 1964 then-President Kwame Nkrumah of Ghana moved to build a nuclear plant in his nation, but this project was aborted when he was overthrown in a coup d'état in 1966.

Now, there is a small, but critical, renewal of effort and interest. **Angola** Minister of Science and Technology João Baptista Ngandajina said recently that his “country has limitation in the production of electricity, so why not start thinking of projects that in future could produce power from nuclear sources?” according to an online report by *Macauhub Today* May 7. Macauhub is a news service of the Macau government, used to foster business deals between the People's Republic of China and countries with Portuguese as an official language.

“What we plan to do here is the scientific development linked to nuclear energy: staff training, development of projects that help the economic and social development of the country,” Ngandajina said. Angola is now finalizing a Nuclear Energy Law to facilitate research projects and staff training, according to the report, which also points out that the new law is part of a plan to build nuclear power plants in Angola, supported by the People's Republic of China.

In **Namibia**, and among certain other nations possessing uranium deposits, bilateral negotiations are under way with Russia, to jointly develop the resources, in exchange for their first small, modular nuclear power plants.

## South America: IMF, NO! Nuclear Power, Sí

After decades of being pressured, cajoled, and threatened by the United States and the non-proliferation Malthusians to scrap their nuclear energy programs, an increasing number of nations “south of the border” are throwing the money changers of the international financial institutions out of their countries, and restarting their nuclear energy programs.

Late in 2006, **Argentina's** President Néstor Kirchner, who has led his nation back to economic sanity by kicking out the International Monetary Fund (providing a critical example to the rest of Ibero-America), announced that Argentina's

Atucha II nuclear reactor, which has been stalled for two decades, would be completed by 2010. He added that Argentina would begin construction of a fourth reactor that same year.

In late April, a ceremony was held in Australia to inaugurate the Argentine-built 20-MW Open Pool Light-Water Reactor, which will be used to produce radio-isotopes for medicine and research. Argentina has also provided indigenously built small research reactors to Algeria and Egypt.

Argentine Planning Minister Julio De Vido explained in Australia that “over the next 25 years,” 5,000 megawatts of electricity in Argentina “must come from nuclear.” That nation's nuclear technology will also be vectored toward export. Speaking on April 20 in Sydney, De Vido stated that the Argentine-designed and built standardized CAREM nuclear reactor will be ideal for developing nations.

Argentina began the CAREM Project in the mid-1980s, to produce small (under 300MW) modular reactors for export. The training and education of specialists would be included in the project. Although delayed for two decades, the program has now been revitalized. The first-generation CAREM reactor would be 25 megawatts, with later versions generating 100-300 megawatts of power.

Following the lead of Argentina, and the stated commitment of **Brazil** to move ahead with its own uranium enrichment technology to produce nuclear fuel, non-nuclear nations in Ibero-America are considering going nuclear. On April 30, Dow Jones reported on remarks made by **Venezuelan** President Hugo Chávez, at an energy summit with other Presidents from the region. “Argentina also has nuclear energy. No?” Chávez said. “I think they're even exporting. I hope they export a small plant that we can put on the border,” he remarked to his Colombian counterpart, President Alvaro Uribe.

Venezuela first entertained nuclear cooperation with Argentina and Brazil in 2005, for a research reactor. Now, the CAREM modular reactor is becoming an attractive alternative for commercial power production, even to Venezuela, which holds the largest oil and natural gas reserves on the continent.

In mid-March, a conference on nuclear power was held in Santiago, **Chile**. Sebastian Bernstein, an energy consultant based in that city, stated that “nuclear energy is now clearly an option. The cost of these projects would be competitive.” Although as of now, there is no commitment from the Bachelet government in Chile to “go nuclear,” the debate is ongoing, and a commission to study the possibility of building a nuclear power station there has been promised by the government.

**Mexico**—Ibero-America's third nuclear nation—decided two years ago that it would make the investments necessary to up-rate, or increase the electricity-producing capacity, of its Laguna Verde nuclear plants. Although new plants are under discussion, a break from the international financial locusts

will be necessary before critically needed large-scale energy investments are made.

## Western Europe: 'Back' to Nuclear

Even in Western Europe, which, with the United States, led the way in destroying its nuclear industry potential, in the hysteria generated after the accident at Chernobyl, there are second thoughts. In **Germany**, a fight, led by the LaRouche Youth Movement, is under way to reverse the insane policy of shutting down that nation's operating nuclear power plants. **France**, with 78% of its electricity coming from nuclear—the highest in the world—is planning to restart construction of new reactors. And in the **United Kingdom**, more and more policymakers see no alternative to replacing Britain's aging reactors by starting to build new plants.

In **Italy**, in mid-May, the Industry Committee of the Senate reversed a no-nuclear policy that has been in effect since 1986, and voted in favor of building nuclear power plants. The vote came in the form of passage of two amendments to a bill (N. 691) on general liberalization of the energy market. One amendment promotes research into nuclear technology. The second, calls on the government to see to installing new nuclear power plants.

The new bill marks a major shift from past policy, which had allowed the Italian state-run utilities, ENEL and ENI, to invest in nuclear research and even operate nuclear plants—but only abroad. The amendments were supported by all of the opposition and a few members from the center-left alliance, including the Speaker, Sen. Antonello Cabras. It will be taken up next by the full Senate, where a similar cross-party vote could take place. It will be more difficult to obtain the same result in the Chamber of Deputies, where the anti-nuclear lobby has greater numbers. The whole procedure will take several weeks, but in the meantime, a signal has been sent.

**Scandinavia**, which has been a center of anti-nuclear sentiment, is currently in the midst of a turnaround, led by **Finland**, which is building a new nuclear plant.

## Is the United States Following Behind?

And what about the slumbering United States giant, which has nearly one quarter of all the world's 400-plus nuclear plants? Although more than a dozen electric utilities and consortia have expressed interest, and some have taken the preliminary steps toward the construction of more than 30 new nuclear power plants, none has yet made the commitment to build one. The shortage of adequately trained nuclear personnel in the U.S. is acute; advanced civilian nuclear technology research programs progress at a snail's pace, if at all; and thanks to the aggressive foreign policies of the Cheney/Bush Administration, fewer and fewer nations, even traditional U.S. allies, are willing to put their economic future in the hands of the United States.

There is a dramatic shift going on throughout the world toward a high-technology, nuclear-powered future. Russia, China, India, South Africa, Japan, and even Western Europe are following that lead. So far, the United States is not even following behind.

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