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NEW REACTORS ACROSS THE GLOBE: A Nuclear Power Renaissance

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With concerns about global warming and energy security on the rise, countries the world over are taking a new look at nuclear energy. Some are building new reactors as fast as they can.

They are coming from everywhere in Australia; shirt-sleeved workers from every corner of the continent heading to a remote stretch of the South Australian desert. There is no water, and not much of anything else either. But the Olympic Dam mine is located here. And the mine is hiring.

The company currently employs about 700 miners, who have already dug several kilometers of tunnels under the desert. The area is so bone dry that drinking water must be pumped through a system of pipes from a distant spring. Recently, there has even been talk of building a desalination plant. After all, uranium mining requires water -- lots of it -- and Australia wants to remain the world's second largest supplier after Canada.

The explanation for the government's enthusiasm for nuclear power can be found in a report by nuclear physicist and former IT manger Ziggy Switkowski. As if on cue, he enthuses about the need for more nuclear power plants: Australia must start building reactors so that the first one can be completed in 2020. If a concerted effort is made, another 25 could be online by mid-century. On the one hand, this would help the country improve its poor record of carbon dioxide emissions. On the other, it would allow Australia to tap an almost inexhaustible source of energy; the country possesses more than 38 percent of the world's accessible uranium reserves.

The international atomic energy lobby loves such talk. Almost 21 years after the Chernobyl disaster, and just a couple months after the most recent breakdown at Sweden's Forsmark reactor last July, the risks associated with nuclear power are largely fading into the background. So too are questions about the disposal of spent nuclear fuel and atomic weapons. The industry, in short, is preparing for a new boom.

Plans for more nuclear plants

Currently there are 435 atomic reactors generating electricity in 31 countries across the globe. They fill 6.5 percent of the world's total energy demand and use close to 70,000 tons of enriched uranium per year. Atomic plants produce one-sixth of the total electricity supply -- roughly on par with hydropower.

That number may soon rocket upwards. At present, 29 nuclear power plants are under construction and there are concrete plans to build another 64. Another 158 are under consideration. On the other end of the equation, only six are slowly being shut down in preparation for decommissioning. In response to the growing demand, the price for uranium has increased seven-fold since 2002 and now sells for $72 per pound (454 grams). The fact that no final storage place exists for highly radioactive waste is considered to be but a secondary problem. Indeed, the only terminal repository apparently free from political opposition is that in Finland's Eurajoki where such a site is now under construction. There, nuclear waste will be stored at a maximum depth of 520 meters in shafts bored deep into the granite bedrock.

The main obstacle to the construction of nuclear power plants is no longer the anti-nuclear power lobby, but

the huge costs of building them. Whereas in 1970 a brand new reactor cost $400 million, a plant now runs as much as 10 times higher. In the last three decades the nuclear power industry has received subsidies of about $1 billion -- the electricity generated may be clean from a global warming point of view, but it's not cheap.

Nonetheless, power plant construction companies are hoping for a renaissance. E.on has applied to build a new plant in Romania's Cernavoda and Siemens expects orders to triple in the next five years. General Electric too expects a number of new reactors to be built within the next decade, says Ferdinando Beccalli-Falco, a GE manager.

Indeed, a lots of companies stand to benefit. The industry is celebrating the "strategic shift" and preparing for a boom with mergers en vogue. Japan's Toshiba has acquired US-based Westinghouse, General Electric is working together with Hitachi and Mitsubishi Heavy is flirting with the Franco-German global market leader Areva NP, in which Siemens holds a stake.

Admiration of France

Until now, France has been virtually alone in its reliance on nuclear technology: Eighty percent of its domestically produced power comes from nuclear plants. The 59 plants allow the country to be mostly self-sufficient, and now this strategy is once again being held up as an example.

Lithuania, for example, urgently wants to replace its aging Ignalina nuclear reactor. Doing so would allow the country to decrease its dependence on Russia, but the price tag is some 3 billion. Ukraine also wants to build more nuclear power plants in order to increase its self-sufficiency, despite the trauma of Chernobyl. Bulgaria and the Czech Republic are both discussing building two new nuclear reactors each.

Poland is considering building a nuclear plant after 2020 since its domestic coal-fired power plants could soon run afoul of EU regulations. Next year the EU wants to tighten the emissions requirements for such polluters. Sites under consideration include Gryfino and Klempicz near Posnan, both of which are close to the German border.

Britain's Labour government wants to prepare the way for new atomic power plants by easing the approval process; many of its aging coal-fired power plants will have to close as a result of new EU standards. Gas-fired plants could help to close the gap, but Europe's two most important suppliers, Russia's Gazprom and Algeria's state-owned Sonatrach, in August signed an agreement that has aroused suspicions in London and Brussels that they will create a cartel similar to OPEC.

EU Commission President Jose Manuel Barroso adroitly side-stepped the issue last Wednesday when announcing the EU's new energy strategy. Germany is joined by a number of other EU countries in their skepticism toward nuclear power. But he did not conceal his committee's sympathy for atomic power, citing both environmental reasons and issues related to securing Europe's energy supply. Canada and Australia, the two most significant uranium suppliers, are reliable partners. Other suppliers include Kazakhstan, Russia, Uzbekistan, Namibia and Niger. Kazakhstan wants to surpass Canada as the world's leading uranium supplier by 2010, which explains why French, Chinese and Japanese companies are racing to invest there.

India is considering building 19 new reactors, while China wants to construct at least 63 facilities that will be able to supply 50 giga-watts of power. In emerging market Indonesia a single, very modest, nuclear reactor will go online in 2011. In contrast the US is talking about building more than 20 new plants after a 20-year construction moratorium. Washington is providing tax incentives for power plant operators and it also wants to ease the process of obtaining the required permits.

But who is going to pay?

President George W. Bush already enthuses about a "Global Nuclear Energy Partnership" to foster the use of

nuclear power while also monitoring to ensure that the technology is not misused by North Korea, Iran or al-Qaida. The US has budgeted $250 million to support the partnership, and the Hill & Knowlton public relations company, which worked for the government during the first Gulf war, has already launched a PR campaign to promote nuclear power.

The need for advertising seems unavoidable, since even the most enthusiastic supporters of the new atomic era cannot deny that it brings with it the same old risks. No one can rule out a meltdown. And no one can guarantee that civilian nuclear research won't be misused. Furthermore, no one knows who is going to pay for all the new facilities.

Moscow wants to build about 30 new reactors, in part because Gazprom doesn't want to sell natural gas on the domestic market at low prices. The Kremlin speculates that it will be able to obtain $30 billion from foreign investors to fund their construction, but this money is not likely to appear soon.

President Putin has called for the former superpower to take a "giant leap" by expanding its nuclear energy sector, but at present it only has one factory capable of manufacturing turbines and reactors. Consequently, Russia can only build one new nuclear power plant every three years. On the other hand, Russia also wants to sell nuclear technology abroad at discount prices, charging roughly 30 percent less than France for its reactors.

Despite the lofty ambitions and impressive figures, the fact remains that 1.6 billion people still do not have access to electricity, while 2.4 billion are forced to meet their energy needs with wood, straw or manure. In this respect, Steve Kidd, the director of strategy and research at London's World Nuclear Association, could be correct. In the nuclear industry, Kidd says, many such grandiose plans often turn out to be delusional.