

U.S. Congress Must Forge Ahead With Nuclear Power

by Marsha Freeman

Globally, a nuclear renaissance is under way.

On Jan. 9-10, a conference on the peaceful uses of nuclear technology in Africa was hosted by Algeria and the International Atomic Energy Agency (IAEA). "Algeria has the right to benefit from atomic energy without constraint or undue interference," stated Ramtane Lamamra, Algerian secretary general of the Atomic Energy Ministry, expressing the sentiment of those in attendance, who represented 45 African nations. The results of the deliberations will be presented for action to the summit of the African Union at the end of January.

In December 2006, Tunisia announced that it plans to have its first nuclear plant on line in 2020. Russian President Vladimir Putin discussed cooperation on civilian uses of nuclear energy with King Mohammed VI of neighboring Morocco last Fall.

During the Summer of 2006, Nigeria's President Olusegun Obasanjo pledged that his oil- and uranium-rich nation would build its first nuclear power plant within 12 years. In August, Obasanjo inaugurated the Board of the Nigeria Atomic Energy Commission, to advise the government on nuclear policy.

In Ibero-America, General Electric was awarded a contract by the operator of Mexico's Laguna Verde nuclear power plant at the end of 2005, to provide the engineering analysis required to boost the plant's electricity output by up to 20%. On Dec. 30, 2006, General Electric announced that, together with Japan's Mitsubishi Heavy Industries, a \$300 million bid will be submitted for the Laguna Verde upgrade.

The new government in Mexico also has before it a proposal for building new nuclear power plants. In the Fall of 2006, Energy Minister Fernando Canales told reporters that Mexico should build at least two new reactors. The Laguna Verde plant supplies 5% of Mexico's power consumption. The IAEA, Canales reported, recommends that nuclear power should provide about 20% of a nation's power usage.

Argentina has committed its resources to complete the Atucha II nuclear plant, left unfinished for two decades, and will consider construction of its fourth nuclear power plant. In October 2006, Argentina's National Atomic Energy Commission announced that it had begun hiring engineers, chemists, physicists, technicians, and other experts to "jumpstart"

its nuclear industry.

More than half of the approximately 30 nuclear power plants now under construction globally, are being built in Asia. In addition to plans to add dozens more reactors in India and China over the next two decades, plans for first nuclear power plant projects are in various stages of maturity in Vietnam, Turkey, Malaysia, and Indonesia. Even the Philippines, New Zealand, and Australia have reopened the door to discussion of going nuclear.

The first new nuclear power plant built in Europe in decades is under construction in Finland. Even in Germany, where the previous Social Democratic/Green government made it the law to phase out of all of that nation's nuclear power plants, Chancellor Angela Merkel has cautioned that this policy must now be reconsidered, in view of the vulnerabilities of relying on oil and gas. Great Britain has put the possibility of new nuclear plants on the table, and Russia is embarked on an ambitious project of adding up to 40 new nuclear power plants, and rebuilding and modernizing its nuclear research and development enterprises, and manufacturing industry.

Where's the United States?

But in the United States, which was a pioneer in nuclear science, technology, and manufacturing, but has squandered that leadership for the past 30 years, allowing itself to fall victim to a well-organized "post-industrial" campaign to destroy civilian nuclear power, the process which has been slowly and inadequately under way (see, for example, *EIR*, July 7, 2006), is in danger. The Democratic Party majority, which now assumes its legislative leadership responsibilities, has promoted the most unscientific energy policies, driven principally by environmental hoaxes. In fact, halting the growth of commercial nuclear power over the past three decades has severely *damaged* the environment by increasing the use of coal, as well as worsening the standard of living of the majority of this nation's citizens.

Lobbying on Capitol Hill for anti-nuclear policies, under the guise of promoting a "sustainable" energy future, began before the 110th Congress was even sworn into office. On Dec. 27, a letter was delivered to Congressional leaders by 102 "business, environment, energy policy," and consumer groups, urging that the Federal government shift money out of nuclear energy research and development programs, in to "cleaner, safer, and sustainable energy sources." This is a proposal for national economic, as well as environmental, suicide.

In the last session of Congress, Democrats rallied around a bill drafted by the staff of now Senate Majority Leader Harry Reid (D-Nev.), and introduced by Sen. Maria Cantwell (D-Wash.), with 23 Democratic sponsors. The bill was titled, the "Clean Energy Development for a Growing Economy (Clean EDGE) Act." The bill set a target of 10% of the production of electricity from "renewable" sources, and called for

accelerated development of the infrastructure to distribute gasoline “alternatives,” such as ethanol. Meanwhile, Democratic political has-been Al Gore, has been barnstorming the country, advising the public to invest in swimming lessons for the coming global warming deluge.

Six months ago, and continuing into the November 2006 mid-term elections, Democrats had the gall to describe their anti-science plan as a “new Apollo Program for energy independence.” The ten-point program, based on the “biomass, wind, and Sun” policies that have flopped since the mid-1970s, despite more than \$20 billion in Federal R&D and tax breaks and incentives, would have made pro-nuclear President Kennedy, who initiated the Apollo program to land a man on the Moon, turn over in his grave.

The excuse for this Luddite, back-to-nature “energy” policy cannot even be that the Democratic Party is reflecting the will of “the people.” In poll after poll taken over the past year, considerably more than half of the respondents indicated that they believe new nuclear plants are needed and should be built. The highest pro-nuclear sentiment is in the communities where nuclear power plants are in operation.

Through political horse-trading, whereby Democrats were willing to support increased Federal funding for nuclear energy in return for companion increases in “renewable” energy and conservation, the United States has set out on a path, albeit tentative and too slow, to once again become a leader in nuclear technology. It is time for energy policy to be based on science, not Cheneysque corporate stealing, or Gorey tales of environmental catastrophe.

Saving the Environment?

One irony in the Democrats’ “bold energy plan” is that a primary goal is to end the Federal subsidies to the oil industry. All well and good. But apparently, Congressional staffers with short memories are unaware that it was these same big oil companies, such as Exxon, Standard Oil, and other friends of Dick Cheney, that created the anti-nuclear “environmental” movement 30 years ago, from which the Democrats are taking their cue. Grants from corporate trusts and foundations were the moving force behind the protests and lawsuits that led to the cancellation of more than 100 nuclear plants—not concerned mothers and bird watchers.

For those who protest that “benign” sources of “natural” energy, such as windmills and solar, are needed to protect the environment from the effects of burning fossil fuels, should consider that it was the dead stop in building new nuclear plants in the 1980s that led to the massive increase in the use of the most polluting method of producing electricity: burning coal. States, such as California, that had planned to go entirely nuclear, found themselves forced to continue to rely on fossil fuels for power, instead.

In other countries, the continued reliance on burning coal, which resulted from pressure from the United States against nuclear power, has a directly life-threatening impact. In

TABLE 1
Energy Flux-Density
(Megawatts per Square Meter)

Solar—biomass	.0000001
Solar—Earth surface	.0002
Solar—near-Earth orbit	.001
Fossil	10.0
Fission	50.0 to 200.0
Fusion	trillions

The measure that must be used to compare various sources of energy production is energy flux-density. The more concentrated the energy produced, the more economical and efficient it is. As is seen here, there is a five-fold increase in energy flux-density using nuclear fission as compared to fossil fuels, and solar energy should not even be seriously considered.

China, cities that burn coal suffer from pollution which affects the health of all residents. Each year, more than 5,000 miners lose their lives, producing the more than 1 billion tons of coal that fuel the Chinese economy.

Why didn’t U.S. utilities just build windmills and solar energy farms, when they were politically prevented from going nuclear? Despite any “feel good” emotions attached to using the “free” energy of the Sun and bio-waste from animals, the fact is, these “soft” energy sources are uneconomical and waste energy.

Table 1 explains why. The efficiency, and therefore economic viability, of any source of energy is measured by its energy flux-density. This refers to the amount of energy produced that passes through a cross-section of the surface of the energy-producing process, such as a boiler, and is measured in megawatts per square meter. The more concentrated, or dense, the energy produced, the more efficient, less wasteful, and more economical it is.

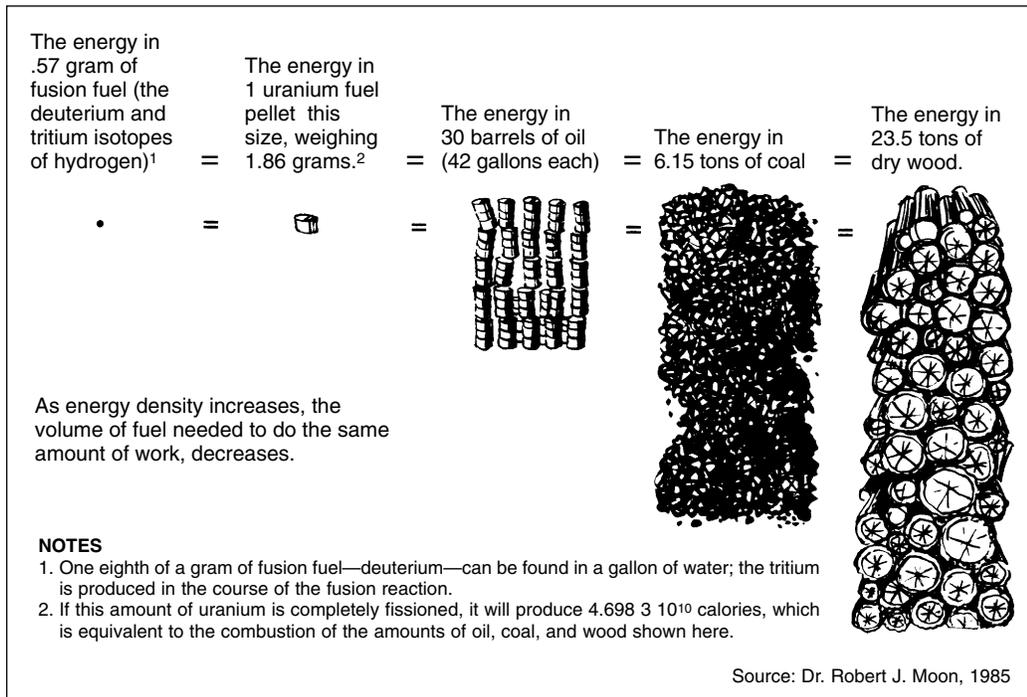
Solar energy may be “free,” but it is a highly dispersed source of energy. The cost of using solar collectors to capture sunlight, and solar cells or other techniques to convert it to electricity, is determined by the fact that at the Earth’s surface, the density of the energy is only ten thousandths of a megawatt. To create as much electric power as one factory-sized coal-burning plant, thousands of acres of solar collectors would be required.

The use of fossil fuels, where energy is not simply collected, but heat is generated through the chemical process of combustion, brings the energy flux-density up to the megawatt range. Hence, one industrial power plant can provide power for hundreds of thousands of households. Moving forward to nuclear reactions, today’s fission technology provides at least a five-fold increase in energy density, and the development of nuclear fusion will create entirely new forms of energy, not relying on heat at all, but the unique qualities of nuclear reactions.

Energy flux-density parameters can be directly translated

FIGURE 1

Fuel and Energy Comparisons



into the amount of fuel required to produce equivalent amounts of energy. **Figure 1** provides a comparison of various fuel sources, where the energy in one uranium fuel pellet in a nuclear power plant, for example, contains the energy equivalent to 30 barrels of oil, and 6.15 *tons* of coal.

The halt in nuclear power plant construction, and in the development of the next generation of technologies, such as high-temperature nuclear reactors, fast neutron reactors, and fusion, not only has vastly increased pollution and lowered productivity throughout the world economy, it has delayed the introduction of the non-electric uses of nuclear energy that are critical for the future.

Why Go Nuclear?

More than 2 billion inhabitants of this planet have no access to electricity. The world's largest nations—China and India—which also have the largest number of people who are poor, recognize that nuclear energy is the most efficient and safest large-scale energy option for economic growth.

But fission is not just a more efficient way to produce heat, in order to boil water, and produce electricity. Based not on chemical combustion, but on nuclear reactions, fission is a prerequisite to solve the most critical resource challenges facing mankind.

As Lyndon LaRouche has stressed, the world is quickly exhausting the supply of fossil water that “came with” our planet, so new sources of fresh water must be created. These

will be economically produced making use of high-temperature nuclear reactors that will increase the efficiency of desalination technology multi-fold.

Furthermore, the Democratic Party Platform and sponsored legislation insist that the United States must wean itself from reliance on petroleum for transportation. But proposing that foodstuffs, such as corn, that are needed to feed a malnourished world, be used to produce ethanol and other “bio-fuels,” would be a human as well as energy disaster. The economical production of the transportation fuel of the future—hydrogen—depends upon using water as a feedstock. Such hydrogen production can only be achieved on a large scale through the use of high-temperature nuclear applications.

With the appropriate level of support, the world could be entering the nuclear fusion era before the middle of the current century. Raw materials processing, the creation of new isotopes for widespread industrial and medical applications, space propulsion for safe trips to Mars, all will become available in a fusion economy.

The new Democratic Party leadership in Congress has the responsibility to toss overboard the past decades of post-industrial ideology that have led to the current takedown of the physical economy. Energy is the lifeblood of an economy, and only the application of the most advanced energy technologies will bring the collapsing U.S. economy back to life.