Nuclear Power Counterproductive in Addressing Climate Change

By Michael Mariotte

The nuclear power industry and its allies on Capitol Hill are attempting to make the case that a revival of this deservedly moribund industry could help the world's efforts to combat the looming crisis of human-caused climate change.

But like everything else in the nuclear industry, which is increasingly hidden from public view by homeland security concerns, the reality belies the surface impression.

In fact, using nuclear power to address climate change would not only be ineffective; it would be counterproductive, and would inevitably fail—hastening the global warming the world is trying desperately to prevent.

First, nuclear reactors are essentially pre-deployed weapons of mass destruction, the most tempting terrorist targets imaginable. It is unconscionable, if not downright irresponsible, to advocate a proliferation of these targets around the country under the false pretense that they will ease the impacts of climate change.

Second, even if the nuclear fuel chain were emissions-free—which it is not—sufficient new nuclear capacity cannot be built fast enough nor inexpensively enough to make a meaningful difference. According to two recent studies, one by MIT and one by the National Commission on Energy Policy, 300 or more new atomic reactors would be needed in the U.S. alone, and 1500 or more worldwide (there are currently 440 operating worldwide), if nuclear power is to have any significant impact on greenhouse emissions.

That means building a new reactor somewhere in the world, starting today, once every six months for the next 60 years. We don't have that long for nuclear power to make a difference, and such a schedule is impossible anyway. Our most recent experience with atomic reactors, those coming online in the 1980s-90s, confirms that reactors take an average of 8-10 years to build (the last US reactor to come online, Watts Bar in Tennessee, took 23 years).

Further, US reactors coming online in the 1980s-90s cost an average of $4 Billion each; the cost of such a program would be prohibitive—in the trillions of dollars. Given limited resources, this would prevent virtually any spending on sustainable energy

technologies that actually could be implemented speedily, could create millions of new jobs, and could effectively mitigate global warming.

An escalated nuclear program would not only be cost- and time-prohibitive, but it would create new problems. To handle the lethal radioactive waste so many reactors would produce, a new Yucca Mountain-sized atomic waste dump would be needed somewhere in the world every 3-4 years.

Yet Yucca Mountain itself is foundering in falsified scientific data and inability to meet regulatory requirements, 18 years after it was designated by the US Senate as the sole high-level waste dump in the US. No country has yet solved the radioactive waste issue. Quintupling the amount of waste produced before a solution is found would engender massive public opposition to a nuclear construction program that is impossible to begin with.

Why risk all this to stem global warming, when other, more sustainable energy technologies such as wind power exist and are growing rapidly and economically?

But of course the nuclear industry's dirty secret is that nuclear power is not emissions-free. When one looks at the entire nuclear fuel chain, the technology is responsible for substantial emissions. Uranium mining, processing, enrichment, fuel fabrication, reactor construction, and waste storage all result in greenhouse emissions. Nuclear power is actually closer to natural gas in terms of emissions than it is to wind or solar power. Yearly costs per 1000 kg avoided CO2 emissions is $68.9 for wind and $132.5 for nuclear power while energy efficiency improvements are seven times more effective at reducing greenhouse gases, per dollar spent, than nuclear power.

Finally, nuclear power—which produces only electricity—cannot even begin to address the single greatest global warming problem: the burning of oil for transportation. If the US Senate is serious about mitigating climate change, it must greatly increase vehicle mileage standards and provide major incentives for hybrid and other advanced vehicle technologies. Failure to do so would be an indication that the Senate is far less concerned with addressing climate change than it is in satisfying its campaign contributors from the nuclear industry.

We do need to address the global climate crisis—urgently. Nuclear power is not up to the task. Indeed, using nuclear power to wean us off fossil fuels would be like using heroin to combat alcohol addiction: it would be ineffective and we wouldn't like the results.