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General Comment

Input for NRC's Strategic Plan to provide the agency's long-term, results-focused goals and objectives and its proposed strategies for achieving them for the planning period.

Dear Sirs:

The structure of NRC is radical and leads to regulatory overshoot at times of major nuclear accidents. Once put in place, NRC regulation is rarely, if ever, taken back off of the books – even after decades of demonstrated safe operation by the US nuclear industry.

The US needs balanced nuclear regulation that simultaneously
1) encourages the growth of the highly technical nuclear industry
2) ensures public safety

Current NRC regulatory structure observes only point 2 – (ensure public safety) as its single pointed goal. In the long run, this structural defect in NRC gives rise to unwarranted levels of obstructive regulation that kills innovation that would make nuclear energy safer.

We are well beyond the point where more nuclear regulation makes US nuclear safer. Additional NRC regulation today only has the effect of pricing nuclear technology out of consideration for US communities needing power. Unwarranted levels of US nuclear regulation currently forces US communities to invest in less

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intrinsically safe fossil fuel or renewable energy power plants. Excessive NRC regulation not wisely guided by sound cost-benefit analysis makes overall energy generation in the United States less safe as it prices up intrinsically safer nuclear power while forcing US communities to choose to build less safe fossil fuel or renewable energy power plants instead.

Sincerely, Robert Steinhaus

Attachments

Murkowski_NRC_Regulation

Murkowski_NRC_Budget_Reduction

The way we pay the cost of nuclear regulation will have long term impacts on the vitality of the nuclear industry and the quality of life in America.

Nuclear Energy is a vital industry in the USA. Cheap energy saves manufacturing and jobs and can directly offset higher American labor costs in daily international competition. Our world is a global economy where products are made on a sustainable basis where they can be manufactured at the locations providing the best overall value to the consumer. Cost is a major component in best overall consumer value. If, at the end of the day, the cost of American energy is higher than the cost of Chinese coal and nuclear American manufacturing will continue to go offshore until wages for American workers go below the cost of Indian and Chinese labor which gluts and overhangs the world labor market.

We can really build better less waste generating nuclear energy than we currently deploy. Nuclear technology that, when you consider all elements of cost throughout the power generation fuel cycle, from mining the ore to finally disposing of the waste contaminants just costs much less than current Light Water Reactor technology.

We are coasting on nuclear technology that was pioneered by the Navy in the 1950s. The technology has gotten refined over the years and is safe but is not optimized for waste generation or cost or proliferation resistance. We could transition in the course of one decade to Thorium fueled technology in Molten Salt Reactors pioneered at Oak Ridge National Laboratory and produce

- 1) one hundredth the amount of high level Minor Actinide Waste [1].
- 2) that reduced one hundredth part of high level Minor Actinide Waste has less than one thousandth the amount of long term radio-toxicity as current LWR technology [1].

[1] Le Brun, C., "Impact of the MSBR concept technology on long-lived radio-toxicity and proliferation resistance", 2005
http://hal.archives-ouvertes.fr/docs/00/04/14/97/PDF/document_IAEA.pdf

A five year development program of about 1.8 billion a year for five years would fund the update of the Molten Salt Reactor to benefit from three decades of additional regulation experience, materials, and instrumentation technology and would provide utilities with a NRC preapproved reactor design for a significantly improved nuclear power reactor.

The way we currently fund the regulation of nuclear reactors stifles innovation in this industry and prevents innovators to improve and revitalize this critical technology. We currently require manufactures to pay up front the full cost of regulatory review before they can build any new design. This is an overwhelming burden to small start-up companies that would innovate and bring new vitality to the industry and defend American nuclear innovation. The only players that can pay up front the costs of NRC regulatory review are the few established large nuclear industry players. Regrettably, none

of the remaining large nuclear industry participants are any longer American companies so, effectively, current regulation practice locks out smaller American innovators that would actually bring better less waste generating American designs to market for American power utilities for the benefits of future generations of Americans and leaves large Asian and French foreign interests firmly in control of the future of nuclear power generation in America and in foreign control of this critical industry.

Why not find another way to pay the salaries of NRC regulators other than charge multi-million dollar fees for agency evaluation of new technology?

The large existing American nuclear industry is sold off and in various advanced stages of life support. The regulators at NRC only know how to regulate one style of nuclear technology (traditional Uranium-Plutonium Fuel Cycle – Light Water Reactors). Anything new (Thorium fuel Molten Salt Reactors that are less costly and generate one hundredth the amount of waste and also produce essentially no Plutonium that could be covertly diverted into weapons) would require NRC to significantly adjust to innovate pertinent new regulation appropriate for the new technology.

We have created a regressive regulation environment for nuclear innovation.

America has lost the capacity to manufacture the large forgings needed to form reactor vessels for modern Light Water Reactors (these are now only being made in Japan). Westinghouse and the nuclear portion of General Electric Energy are owned by Asian (Japanese and Chinese) firms. Profits from sales of General Electric and Westinghouse reactor will now go to supporting foreign economies and new nuclear manufacturing jobs will be created in those foreign lands.

We need to revitalize the American nuclear industry. While it makes sense in the short term to immediately build Westinghouse, General Electric, and Areava reactors so as to achieve independence from foreign oil it would be wise and beneficial to take steps to support a disruptive American nuclear technology that is not currently dominated by large foreign firms. There is no more disruptive yet safe nuclear technology than Oak Ridge National Laboratory pioneered Liquid Fluoride Thorium Reactors (LFTR) . Commercialization of LFTRs would allow America to recapture the domestic power generation industry with American nuclear technology a make America a continuing world supplier of advanced energy technology rather than signally the capitulation of technical leadership to Asia.

Why is LFTR Thorium nuclear technology disruptive?

LFTR Thorium nuclear technology is economically disruptive because it is significantly less expensive than current dominant Light Water Technology owned and dominated by foreign interests. When total fuel cycle costs are considered end everything from the relative costs of mining the ore to the final costs of safe disposal of the wastes Thorium LFTR technology is less costly and less costly by a significant margin. Thorium LFTRs have the highest power densities for the ratings of their reactor cores of any known type of fission nuclear reactor. The direct consequence of this fact is that to generate a given amount of power from a LFTR you require a smaller physical configuration and you need less cement and steel than any other fission nuclear technology. Instead of large cement and steel above ground containment buildings costing hundreds of millions of dollars it is safe to build LFTRs in underground, as

suggested by LLNL director Edward Teller, in installations 10 meters underground that are far cheaper to build and far less vulnerable to terrorist strikes by captured aircraft liners, etc than current above ground containment buildings. Accident conditions that require the building of large expensive containment buildings (core melt downs, primary coolant failures, high pressure events from superheated steam coolant) cannot occur with LFTR reactors.

Why is LFTR Thorium nuclear technology excellent?

The way we pay the cost of nuclear regulation will have long term impacts on the vitality of the nuclear industry and the quality of life in America.

Using applicant payments to pay the costs of regulation stifles innovation and prevents small American technology companies from entering the NRC regulated nuclear industry.

There is a disruptive nuclear technology that would allow America to recapture a nuclear industry that has effectively been sold to large French, Japanese, and Chinese foreign interests. Thorium fueled Liquid Fluoride Thorium Reactors are safer, cheaper, and more proliferation resistant nuclear technology that would allow American technology innovators to retake supply of American power utilities with American pioneered and American built nuclear technology. Light Water Reactor technology is now fully owned by foreign interests (large LWR reactor vessel forgings can now only be manufactured in Japan). Safer and less costly LFTR technology can be manufactured immediately in the United States creating US manufacturing jobs.

[2] Bloomberg March 13th, 2009 – “Samurai-Sword Maker's Reactor Monopoly May Cool Nuclear Revival” By Yoshifumi Takemoto and Alan Katz
<http://www.bloomberg.com/apps/news?pid=20601109&sid=aaVMzCTMz3ms>

I was happy to hear President Obama's positive statement during the State of the Union Address about building new nuclear power plants. I was also encouraged when that statement was seemingly followed up with an expansion of the DOE's authority to provide loan guarantees for new nuclear energy production facilities.

Unfortunately, I recently discovered that the Chairman Jaczko of the NRC has decided to save a few pennies for the government and request \$13.3 million LESS in 2011 than his agency received in its 2010 appropriation.

If this presidential budget submission request is not corrected by decisive congressional action, it will lead to continued NRC bottlenecks driven by a scarcity of adequately trained and experienced license reviewers. The noted scarcity of office space and conference areas required to efficiently drive through the detailed process of reviewing the mountains of paper associated with each application will continue to plague the agency and demoralize its employees. NRC needs adequate staff to handle the additional load of new license applications and on a longer term basis there is need to reduce the burden of paperwork that has to be generated by applicants and reviewed by NRC staff. It is my understanding that current combined operating license applications are about 17,000 pages in length. To revitalize the US economy reliable power from nuclear energy is needed. The regulatory process needs to be streamlined and simplified to something akin to the process used by the industrial competition in France and South Korea. An inefficient and hostile regulatory process can lose America the chance to preserve and grow the nuclear industry. Better and less expensive nuclear power will be in great demand by an energy starved world and this is an area where America could compete and dominate if regulatory obstacles are lowered and practical projects are allowed to progress to the granting of licenses to build and operate new plants.

Please do what is in your power to insure that adequate funding to permit new nuclear energy be built. New nuclear power plants are needed to support the US economy and preserve American quality of life. Please take action to insure that the NRC does not become a choke point in the effort to build new nuclear power plants.

Sincerely, Bob Steinhaus

[1] NRC News Issue 10-020 "**NRC PROPOSES REDUCED FY 2011 BUDGET TO CONGRESS**"

<http://www.nrc.gov/reading-rm/doc-collections/news/2010/10-020.html>

in pdf form:

http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTADo1&ID=100320181