

Committee of Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515

Copy to: Secretary Department of Energy
(via e-mail)

01/22/2014

Mr. Chairman,

Respectful members of the Sub-Committee.

I bravely consider myself as a not bad skilled professional in the Nuclear Energy, with major in the Naval Nuclear Propulsions (NNP) and Small Modular Reactors (SMR), and author of 600 paged monograph about SMR and Naval Reactors. And, approximately 10-12 years ago I did prepare a special report for one of the US government institute about modern NNP and future development perspectives. Moreover, I have significant practical experience in construction, design, testing and improvement of similar to SMR Nuclear systems, which are under perspective development today. I was invited to the United States in 1996 as an expert in this area of skills.

In the past I used to work in the Soviet Nuclear Industry (SredMash) with the most advanced Naval and civilian Nuclear systems. Today I am a U.S. citizen, and my family lives and works here. And of course I am a US taxpayer. Therefore, I feel it is my right and duty as a citizen of the United States to step forward with this letter.

Regarding the problem, I see it clearly and, more than that I was helping professionals from INEEL to adjust "road map" for the LWR Gen-4 over 10-12 years ago. Now I work for the INL, however, please note that this letter I write exclusively in private and it does not reflect the opinion of my management, and any official opinion of INL and BEA authorities. **One more time, it is my private opinion.**

On the essence of the problem:

Development Program SMR Gen-4 and future generations, especially in the part of LWR deserves serious criticism and corrections, but one of the projects I would like to point out in particular. This project is called NuScale, on the development of which a huge amount of funds was DOE granted recently. This project has already consumed a huge amount of money of stockholders (about 250 m). And as we can see, project has

being started from INEEL and DOE ideas and from some point, not from “zero” level. But no really positive results were obtained with this is inefficient and costly project. I am ready to prove it at any level and for any experts. But this expense was the NuScale shareholders money. However, now next portion of 225 m from DOE is being granted, and it concerns the US taxpayers already.

I am convinced that this project not supposed to be financed from funds of DOE for several reasons:

1. The project is not innovative not from any one aspects and contains a very large number of drawbacks, both technical and conceptual design. The idea of the reactor has long been known not only in America, but also in France, Russia and other countries. This project proposed to implement a very bad copy/clone of the Russian Naval reactor designed over 30 years ago, which is being completely tested over 15 years ago, and which was transitional version to Gen-5 reactors only.
2. The design and technical solutions contain a number of serious flaws, which were deprived in Russian reactor. These disadvantages are primarily:
 - Old design core (materials, fuel, fundamental design), construction of which has been used for over 35 years in the US commercial Nuclear Reactors, and developers are not presenting innovation and success in designing
 - NuScale does not solve the problem of the chemical interaction of the cladding and the coolant in emergency mode "Zr- steam", the problem that caused the reactors destruction at Chernobyl and/or Fukushima
 - Not confirmed credible by calculations (or these calculations were performed incorrectly) thermodynamic cycle performance parameters in determining the effectiveness of the proposed installation parameters overestimated on 5-6%, which means that the economic efficiency of the project is calculated incorrect to probably 15-20%. Estimated degree of efficiency is significantly low and could not be 28-30 as declared
 - Does not hold critics ConOps, core reloading and reactor operating algorithms control understanding. It recognizes a variety of professionals with practical knowledge in the management and operation of reactors
 - During project development, security systems being improved significantly, but still have some drawbacks, ranging from algorithms for actuating, ending, for example the amount of storage water for accidental cooling process 10+1 million gallons.

I am sure, NuScale team made significant improvement of design, but, they a trying improve 30 years old design. And of cause the biggest success NuScale achieved in presentations and sales of pretty mediocre, outdated project. Simple comparison of technical parameters and characteristics (see Technical Evaluations Procedure (TEV) attached diagram) shows that the NuScale project awarded for innovation, is in fact a bad copy of similar system that function for several decades already. And in my professional opinion is: **Government and taxpayers investments in this project are contradicts the interests of the American society, Government and science, because not containing anything innovative and technologically new.**

Please note that Russia already tested successfully the Gen-5 “Phoenix” project, the latest Naval Reactor Propulsion with supercritical steam parameters. On the basis of design of advanced Naval reactors Gen-3 and Gen-4 designed and began producing installation SMR LWR for a new civilian nuclear icebreakers and Floating Nuclear Power Plant(s) (FNPP).

Despite the difficult state of the Russian science, U.S. lag in the use of modern technology for civil nuclear power in terms of LWR SMR is about 25 years from Russia and not reducing (I do not have information about setting of NNP on real objects today). But I do not think it's right to spend money of American taxpayers on project such as NuScale, what is outdated even before it appears "in iron".

I try to contact with NuScale few times (~10), but company refused any "round table" discussion.

PS: Sorry, my English still fare from perfect.

Sincerely

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