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General Comment

See attached file(s)

Attachments

NRC 2023 0027 Public Comment

Public Comment for Docket ID NRC–2023–0027 (NuScale Power, LLC)

I am writing to express my support in principle for the NuScale Power, LLC application for standard design certification of its small modular reactor (SMR) design. I believe that SMRs are an essential element for combating climate change and providing clean, reliable, and resilient energy.

Climate change is one of the most urgent and complex challenges facing humanity today. It is caused by the accumulation of greenhouse gases (GHGs) in the atmosphere, mainly from the burning of fossil fuels for energy. GHGs trap heat and warm the planet, leading to a variety of impacts such as rising sea levels, melting ice caps, extreme weather events, biodiversity loss, and human health risks. To avoid the worst consequences of climate change, the international community has agreed to limit the global average temperature increase to well below 2°C above pre-industrial levels, and pursue efforts to limit it to 1.5°C. This requires a rapid and deep decarbonization of the global energy system, which accounts for about two-thirds of GHG emissions.

Nuclear energy is one of the few low-carbon energy sources that can provide large amounts of reliable, baseload electricity without emitting GHGs. Nuclear power plants operate at high capacity factors, meaning they can produce electricity continuously regardless of weather conditions or time of day. Nuclear energy can also complement variable renewable energy sources such as wind and solar, by providing grid stability and flexibility. Moreover, nuclear energy can offer other benefits such as enhancing energy security, reducing air pollution, creating jobs, and supporting economic development.

However, nuclear energy faces several challenges that limit its potential contribution to climate change mitigation. These include high capital costs, long construction times, public acceptance issues, safety and security concerns, waste management problems, and proliferation risks. Moreover, nuclear energy is not immune to the effects of climate change itself, such as water scarcity, heat stress, flooding, and storms, which can affect its operation and performance.

SMRs are advanced nuclear reactors that have a power capacity of up to 300 MW(e) per unit, which is about one-third of the generating capacity of traditional nuclear power reactors. SMRs have many advantages over traditional nuclear power plants that make them more suitable for addressing climate change challenges. Some of these advantages are:

SMRs can be factory-assembled and transported as a unit to a location for installation, making them more affordable to build than large power reactors, which are often custom designed for a particular location, sometimes leading to construction delays.

SMRs can be sited on locations not suitable for larger nuclear power plants, such as remote areas that currently rely on shipping in diesel fuel or have limited grid capacity. SMRs can provide low-carbon power for industrial applications or rural electrification.

SMRs have enhanced safety and security features that ensure no offsite consequences and no need for operator actions, AC or DC power, or coolant addition for an unlimited duration in the event of any design basis accident.

SMRs have higher efficiency and flexibility in power generation and grid integration, as well as potential applications for process heat, desalination, and hydrogen production.

SMRs can increase economic development and job creation opportunities for the US nuclear industry and manufacturing sector.

The NuScale SMR design is a natural-circulation, pressurized water reactor that incorporates unique design and passive safety features, providing enhanced margins of safety. The NuScale SMR has demonstrated a very low core damage frequency and a negligible large early release frequency in its probabilistic risk assessment. The NuScale SMR also has the ability to operate independently of the grid and load follow without compromising safety or performance.

In conclusion, SMRs are an important option for combatting climate change by providing clean, reliable, and resilient energy. SMRs can overcome some of the barriers that limit the deployment of traditional nuclear power plants and offer additional benefits for various markets and applications. The NuScale SMR design is a promising example of an innovative SMR technology that can contribute to decarbonizing the global energy system and achieving climate policy targets.

I urge the Nuclear Regulatory Commission to approve the NuScale Power, LLC application for a standard design certification of its SMR design. I believe that this will be a significant milestone for advancing the deployment of SMRs in the United States and around the world.

Michael Ravnitzky
Silver Spring, Maryland