CARBON FREE
POWER PROJECT
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LO-140863

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Docket No. 99902052

U.S. Nuclear Regulatory Commission
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SUBJECT: License Structure for the Carbon Free Power Project Multi-Module NuScale Power Plant

REFERENCE: Letter from CFPP LLC to the NRC, "NuScale Power, LLC Submittal Entitled "Carbon Free Power Project (CFPP) Regulatory Engagement Plan", Revision 1, on behalf of CFPP, LLC," dated August 12, 2022 (ML22224A238)

The purpose of this letter is to inform the NRC Staff of the license structure that will be requested for the Carbon Free Power Project (CFPP). In the referenced letter, the license structure for the CFPP was envisioned as a white paper. This letter provides the information in a succinct manner without the need for a white paper. The CFPP LLC requests a public meeting in June 2023 to present and receive NRC feedback on the CFPP license structure described in this letter.

The CFPP combined license application (COLA) will be the first license application for a multi-module small modular reactor (SMR) nuclear power plant to undergo NRC licensing review. While multi-unit large nuclear power plants are common and often have some shared structures, systems, and components (SSC), the NuScale design planned for CFPP is unique in the co-location of six reactors (i.e., NuScale Power Modules [NPMs]) within a common reactor building with other shared support features. The NRC and industry have recognized such designs raise the issue of how best to structure the license(s) for multi-module power reactor facilities (e.g., how many licenses to issue and how to address the shared SSC [common SSC]).

In SECY-14-0095, "Status of the Office of New Reactors Readiness to Review Small Modular Reactor Applications," Staff identified the need for an applicant to identify a preferred license structure so that Staff could proceed to finalize the licensing approach. CFPP conducted a study to determine the preferred license structure for the CFPP. Based on that study, CFPP will request a separate combined license (COL) for each NPM with common SSC addressed by a license appendix incorporated in each COL. This letter highlights important outcomes of that study and areas for further engagement with NRC Staff.

Background

In SECY-10-0034, “Potential Policy, Licensing, and Key Technical Issues for Small Modular Nuclear Reactor Designs,” NRC Staff identified the structure of a license for multi-module SMRs as a potential policy issue. The Staff focused on the effective duration of the license “particularly when one module can begin operation while other modules are being built and installed.”

Thereafter, NRC Staff issued SECY-11-0079, “License Structure for Multi-Module Facilities Related to Small Modular Nuclear Power Reactors.” The Staff proposed and provided a short analysis of several license structure alternatives:

- Single facility license
- Master facility license and individual reactor module licenses
- Individual reactor module licenses, with two variations for addressing common SSC

NRC Staff tentatively recommended individual reactor module licenses as the preferred approach, but did not exclude any of the options as infeasible. After further engagement with stakeholders, the Staff intended to further develop a specific proposal for Commission consideration and approval.

Subsequently, in SECY-14-0095, NRC Staff determined to await an SMR license application prior to finalizing a recommended license structure approach. In response, CFPP conducted a license structure study and is providing this letter in advance of the COL application so that the Staff may further development of the license structure approach.

Discussion

History and Precedent
For large-scale power reactors, the NRC has issued separate operating licenses for each reactor unit. This has been the NRC licensing practice for existing multi-unit nuclear power plants under the Part 50 process and for the COLs issued under Part 52.

In 2010, the Next Generation Nuclear Plant (NGNP) project evaluated[1] the potential license structure for a modular high-temperature gas-cooled reactor. The NGNP proposed separate licenses for each module but did not address common SSC; the NGNP modules were to be largely independent from each other.

NRC is currently considering licensing operation of the subcritical hybrid intense neutron emitter (SHINE) medical isotope production facility. The facility includes eight utilization facilities and one production facility as defined in 10 CFR 50.2. The applicant, SHINE Technologies, requested issuance of a single 30-year Class 103 operating license under 10 CFR 50.

[1] Idaho National Laboratory, “License Structure for Multi-Module Facilities,” INL/EXT-10-18178, Aug. 2010 (ADAMS Accession No. ML102240273).

CFPP License Structure
The selected license structure for CFPP is the approach identified as Alternative 3b in SECY-11-0079: a separate COL for each module, with common SSC addressed in a license appendix. The license appendix would impose conditions and requirements on the common SSC and be incorporated into each COL.

Summary of License Structure Study Results
CFPP examined numerous regulatory and economic considerations to conclude that very few issues materially impacted or were impacted by the choice of license structure.

As identified in previous industry and NRC reviews, the most significant factor in CFPP's license structure selection is license duration. Alternative 3b will ensure all modules are eligible to operate for a full 40-year initial license term. Alternative 3b is also compatible with NRC's license renewal framework, which would allow all six COLs to be considered under a single license renewal proceeding.

Consistent with the NRC Staff's observations in SECY-11-0079, CFPP concluded Alternative 3b does not present any special considerations for the licensing process. The CFPP COLA will be a single application for multiple NPMs that will undergo a single license review, safety evaluation report, and hearing.

With respect to the 10 CFR 52 inspections, tests, analyses, and acceptance criteria (ITAAC) process, CFPP found that Alternative 3b is the preferred approach. The CFPP COL ITAAC will include ITAAC associated with common SSC and activities that support multiple NPMs. Alternative 3b provides the opportunity to align these common ITAAC—which must be completed only once to support all associated NPMs—with the license structure by including them in only the lead module's COL. This will reduce regulatory uncertainty with the ITAAC hearing and post-closure notification processes for the common ITAAC.

CFPP notes that there will be some administrative burden associated with a multi-license approach because there will be a docket for each license, with duplication of some documents among the dockets (e.g., notices and hearing orders). However, CFPP considers this impact to be insignificant to the license structure decision.

CFPP found that while other license structures presented potential benefits in certain areas, those benefits were outweighed by the downsides and regulatory uncertainty associated with the other alternatives.

Conclusion

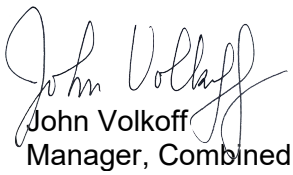
In SECY-14-0095, Staff identified the need for an applicant to identify a preferred license structure so that Staff could proceed to finalize the licensing approach. CFPP examined numerous regulatory and economic considerations to arrive at a preferred license structure. Based on that study, CFPP will request a separate COL for each NPM with common SSC addressed by a license appendix incorporated in each COL. CFPP prefers this license structure because it will ensure the full license duration for each module, with lower regulatory risk and burden than other multi-license alternatives.

CFPP requests to engage with NRC Staff at appropriate points as the Staff finalizes the licensing approach for CFPP, particularly with respect to the form and content of the common SSC license appendix.

This letter makes no regulatory commitments and no revisions to any existing regulatory commitments.

If you have any questions, please contact Susan Baughn at 541-452-7319 or at sbaughn@nuscalepower.com.

Sincerely,



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