



Regulatory Analysis for the Part 171 Small Modular Reactor Fee

Daniel C. Mussatti

Office of New Reactors

Division of Site Safety and Environmental Analysis

Environmental Technical Support Branch

Michael S. Jones

Office of New Reactors

Division of Advanced Reactors and Rulemaking

Advanced Reactors and Policy Branch

What Is a Regulatory Analysis and Why Do We Use It?

The staff of the U.S. Nuclear Regulatory Commission (NRC) performs regulatory analyses to ensure that the agency makes sound decisions regarding actions needed to protect the health and safety of the public or the common defense and security.¹

Toward that end, these highly structured and reasoned analyses ensure that the agency bases its decisions on adequate information, and that the staff arrives at its decisions by following a systematic and disciplined process that is also open and transparent, as follows:

- Identify the problem and associated objectives.
- Determine whether a proposed action is needed.

¹. NUREG/BR-0058, Rev. 4, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission," ADAMS ML042820192

What Is a Regulatory Analysis and Why Do We Use It? (cont'd)

- Identify alternative courses of action to meet the stated objectives and analyze the consequences of each identified alternative. A “No-Action” alternative is always considered before beginning rulemaking.
- Select a preferred alternative, and provide adequate justification for that action.
- Present a clear and well-documented explanation of why the NRC staff recommended the particular action.
- The details of the regulatory analysis directly support the proposed rule approach and language.

What Challenges Must This Regulatory Analysis Address?

- There are no SMRs licensed for operation yet.
- Since there is no operational data available yet to quantify the regulatory costs associated with SMRs, potential costs and benefits of deploying SMRs are based on preliminary design reviews and reasonable baseline assumptions.
- In the analysis, SMRs are considered as a reactor class, and the proposed rule is intended to neither favor nor disfavor any potential SMR design. While the NuScale design has been chosen as an example for the analysis, the NRC has taken no position on whether the SMR benefits assumed for the class for the will apply to any particular SMR design.

The “SMR Site” Concept

- The Part 171 fee applies to SMR sites, not to individual reactors.
- SMR sites contain “bundled units” which are a collection of individual SMRs that, in combination, are deemed equivalent to a reactor in the current operating fleet.
- A bundled unit can have anywhere between 1 and 4,500 MWt on a single SMR site and is independent of the number or size of the actual SMR reactor modules.

The “SMR Site” Concept

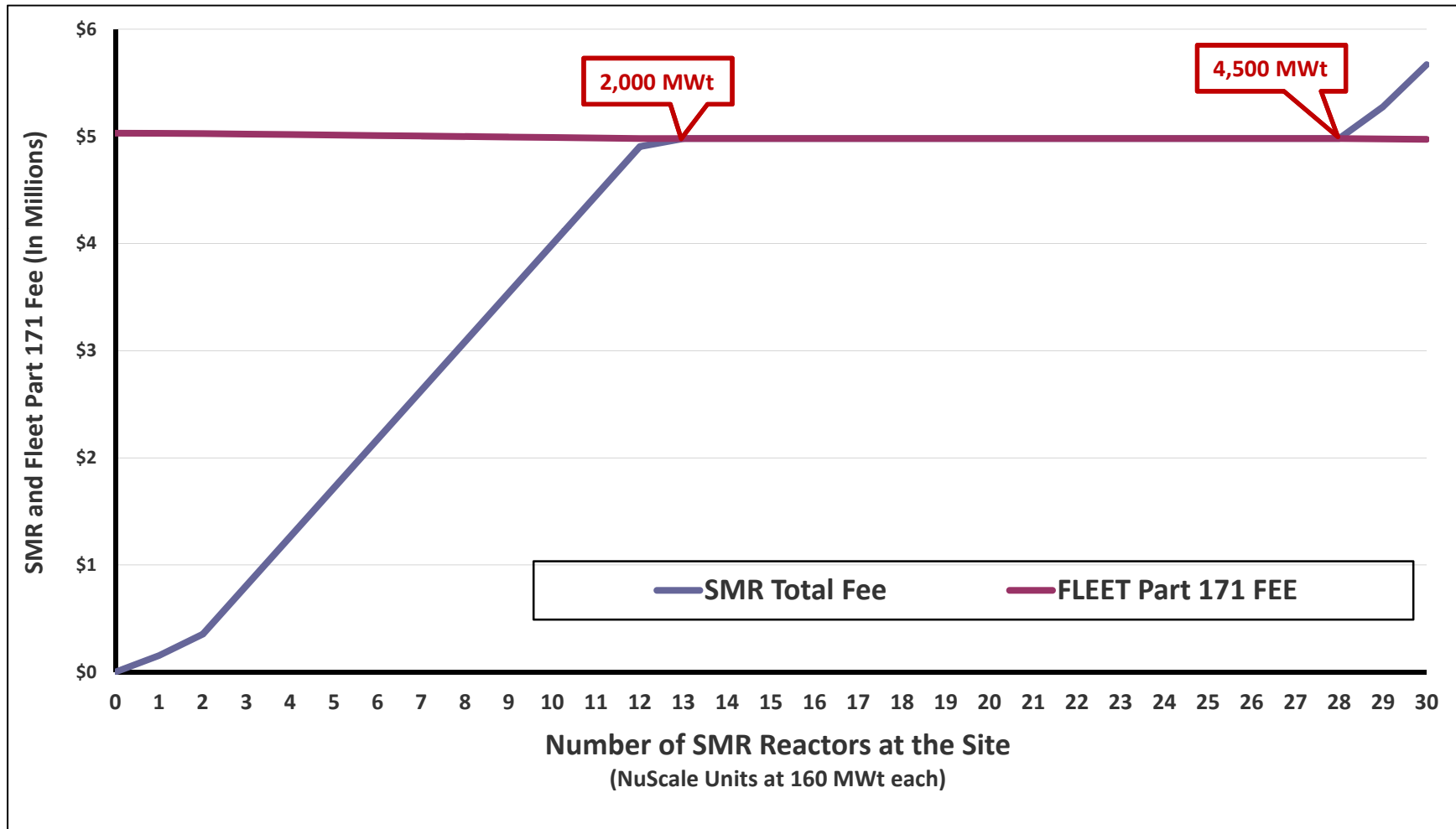
- There can be more than one bundled unit at an SMR site.
 - For an SMR site with “n” bundled units, “n – 1” bundled units must be maxed out, i.e., 4,501 MWt at a single site constitutes two bundled units—one with 4,500 MWt and the second with only one MWt.
- A bundled unit that has 2,000 MWt or less is assessed a lower Part 171 fee than the current operating fleet that is roughly proportional to the bundled unit’s total MWt.
- For very small SMR sites—with a single reactor or bundled unit with a capacity less than 250 MWt, the fee is based on research & test reactor fees.
- An SMR fee based on MWt does not favor large reactor designs over smaller reactor designs.

The “SMR Site” Concept

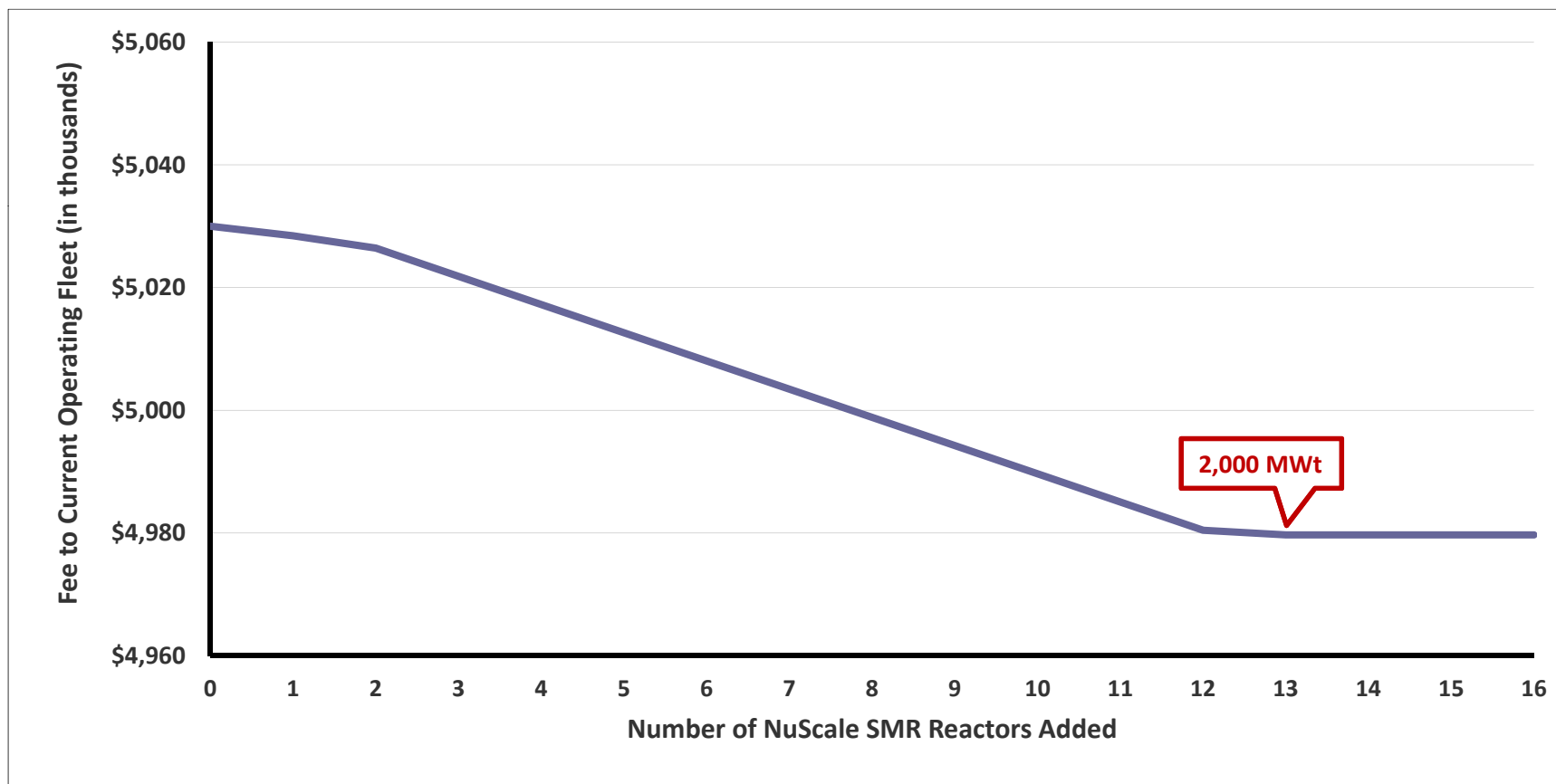
There are three size classifications for bundled units:

- “Minimum Fee” for the first bundled unit at an SMR site with cumulative thermal ratings of up to 2,000 MWt
 - If the first bundled unit is less than or equal to 250 MWt, the only fee assessed is the Minimum Fee
- “Variable Fee” bundled units (those with cumulative thermal power ratings greater than 250 MWt but less than 2,000 MWt)
 - Until the first bundled unit at a site reaches the 2,000 MWt, bundled units over 250 MWt but less than 2,000 MWt are assessed a Minimum Fee and a Variable Fee based on their cumulative capacity
- “Maximum Fee” bundled units with cumulative thermal ratings between 2,000 MWt and 4,500 MWt
 - All bundled units on an SMR site with a cumulative capacity between 2,000 MWt and 4,500 MWt pay a Maximum Fee that is equivalent to the fee paid by the current fleet of large light water reactors

The Part 171 Fee for an SMR Site as the SMR Fleet Grows



The Part 171 Fee for the Current Fleet as the SMR Fleet Grows



The Part 171 Fee Structure From a Cost per MWt Perspective

