



PETITION FOR ADOPTION, AMENDMENT, OR REPEAL OF A STATE ADMINISTRATIVE RULE

Print Form

In accordance with RCW 34.05.330, the Office of Financial Management (OFM) created this form for individuals or groups who wish to petition a state agency or institution of higher education to adopt, amend, or repeal an administrative rule. You may use this form to submit your request. You also may contact agencies using other formats, such as a letter or email.

The agency or institution will give full consideration to your petition and will respond to you within 60 days of receiving your petition. For more information on the rule petition process, see Chapter 82-05 of the Washington Administrative Code (WAC) at <http://apps.leg.wa.gov/wac/default.aspx?cite=82-05>.

CONTACT INFORMATION *(please type or print)*

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COMPLETING AND SENDING PETITION FORM

- Check all of the boxes that apply.
- Provide relevant examples.
- Include suggested language for a rule, if possible.
- Attach additional pages, if needed.
- Send your petition to the agency with authority to adopt or administer the rule. Here is a list of agencies and their rules coordinators: <http://www.leg.wa.gov/CodeReviser/Documents/RClst.htm>.

INFORMATION ON RULE PETITION

Agency responsible for adopting or administering the rule: Washington State Building Code Council

1. NEW RULE - I am requesting the agency to adopt a new rule.

The subject (or purpose) of this rule is: _____

The rule is needed because: _____

The new rule would affect the following people or groups: _____

2. AMEND RULE - I am requesting the agency to change an existing rule.

List rule number (WAC), if known: On-site renewable energy system requirement for Commercial Buildings over 10,000 sq. ft.

I am requesting the following change: _____

This change is needed because: _____
Documentation supporting the code adoption is massively flawed; no reasonable person could conclude the code "justified" as required by the APA. See Attachment.

The effect of this rule change will be: _____

The rule is not clearly or simply stated: _____

3. REPEAL RULE - I am requesting the agency to eliminate an existing rule.

List rule number (WAC), if known: On-site renewable energy system requirement for Commercial Buildings over 10,000 sq. ft.

(Check one or more boxes)

It does not do what it was intended to do.

It is no longer needed because: _____

It imposes unreasonable costs: _____

The agency has no authority to make this rule: _____

It is applied differently to public and private parties: _____

It conflicts with another federal, state, or local law or rule. List conflicting law or rule, if known: _____

It duplicates another federal, state or local law or rule. List duplicate law or rule, if known: _____

Other (please explain): _____
Methodological and data errors (understated costs and grossly overstated benefits) permeated the cost-benefit analysis available to the ABCC at the time the code was adopted. See Attachment.

Attachment

Petition for Repeal of the Provision in the Recently Adopted Commercial Energy Code Requiring On-Site Renewable Energy for Commercial Buildings over 10,000 square feet - (Proposal 21-GP1-078)

Summary

Rules adopted by the State Building Code Council (SBCC) are defined as “significant legislative rules” under the State’s Administrative Procedures Act (APA), RCW 34.05.328(5). As such, the SBCC must determine “that the probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs and the specific directives of the statute being implemented.” RCW 34.05.328(1)(d). Furthermore, the rulemaking file must include “documentation of sufficient quantity and quality so as to persuade a reasonable person that the determinations are justified.” RCW 34.05.328(2).

The only “documentation” available to SBCC members at the time of their April 22, 2022, adoption was a profoundly flawed and biased economic analysis¹ (analysis). As such, **no reasonable person** could conclude that the probable benefits of this code change are greater than the probable costs.² Therefore, WPUDA requests that the rule be repealed pending a proper and complete economic analysis. Only with a credible analysis can the SBCC determine if this code provision is in the public interest.

Cost Effectiveness

A code proposal is cost-effective when the present value of expected future benefits returned is greater than the present value of its initial and ongoing costs over the life of the investment (in this case 30 years). Unfortunately, the analysis apparently relied on by the SBCC both ignored important categories of costs and benefits associated with on-site renewable electric generation systems and grossly mis-calculated the value of the electricity that would be produced by those systems. This latter error is so egregious that it invalidates the ability of any reasonable person to conclude that the proposal is cost-effective.

The value society receives from on-site generation is similar to the value from conservation programs. The Northwest Power and Conservation Council (NWPPCC) has a finely developed approach to assessing cost-effectiveness of proposed conservation investments. That approach considers multiple categories of costs and benefits that are directly applicable to on-site

¹ Preliminary Cost-Effectiveness of Renewable Energy Proposal for the Washington State Energy Code, PNNL-SA-170654, February 25, 2022.

² WPUDA made this same point several times during the code development process. Unfortunately, the identified errors in the cost-benefit analysis were not addressed. See letters date September 11, 2021 and March 8, 2022, from WPUDA to the SBCC c/o Mr. Stoyan Bumalov; and WPUDA testimony at the public adoption hearing on February 25, 2022.

renewable investments. Applying this approach to the renewable generation mandate will reveal whether this code is truly cost-effective:^{3, 4}

<p><u>Benefits: NPV of</u></p> <ul style="list-style-type: none"> Energy Capacity Avoided Annual O&M Other Fuel Benefits (e.g., NG) Non-Energy Impacts Avoided Periodic Replacement 	<p><u>Minus</u></p>	<p><u>Costs: NPV of</u></p> <ul style="list-style-type: none"> Capital Cost * (1+admin) Annual O&M Other Fuel Costs Non-Energy Impacts Period Replacement
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Benefits

Energy: The analysis used \$0.092/kWh as a value of electricity that would be produced by an on-site PV generation system. From the provided explanation, this value appears to be a weighted average of monthly retail revenue for commercial buildings in Washington divided by the quantity of electricity delivered to those buildings. The revenues and electricity delivery were monthly numbers from December 2020 through November 2021 as reported by the United States Energy Information Administration’s Electricity Power Monthly report. The analysis states that these data were the most recent available at the time it was prepared.

This approach is both technically and economically incorrect. \$0.092/kWh DOES NOT represent a reasonable projection of the value of the electricity produced by an on-site renewable generation system.

There are two technical issues. First is that retail revenue must recover many utility costs apart from energy including: personnel, infrastructure (both revenue and bond financed), A&G maintenance, conservation, customer assistance, (profit for IOUs), etc. These non-energy costs would not change with imposition of this new code. And for many electric utilities non-energy costs represent more than half of overall costs. Second, historical costs are unrepresentative of future values given the massive changes occurring throughout the electric utility sector. The cost-effectiveness calculation needs to project a future stream of values for the produced energy – not base its analysis on past values.

The economic issue ties into this future projection. The economically correct way to estimate future energy values is to project, on an hourly basis, the production cost of the resources that the on-site generation would displace over 30 years. This is a monumental challenge as the specific displaced energy resource will vary hour-to-hour, day-to-day, and year-to-year.

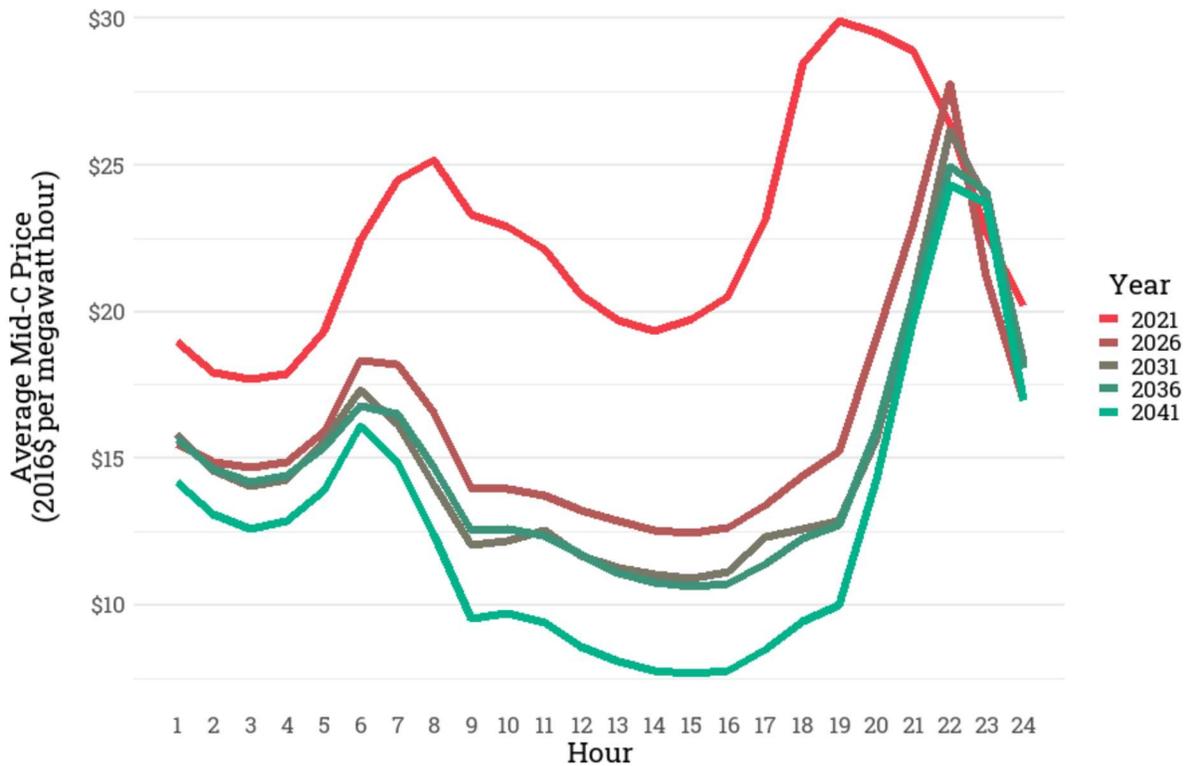
³ Method for Determining the Cost-Effectiveness Limit for Conservation, NWPCC, https://www.nwcouncil.org/2021powerplan_cost-effective-methodology/

⁴ From this point forward, roof-top PV systems are the presumed on-sight renewable energy systems. This is the same assumption as made in the February 25, 2022, Preliminary Cost-Effectiveness Analysis.

Fortunately, the NWPCC has projected those values during the development of their 2021 Northwest Power Plan and those values are illustrated in the following two graphs.⁵

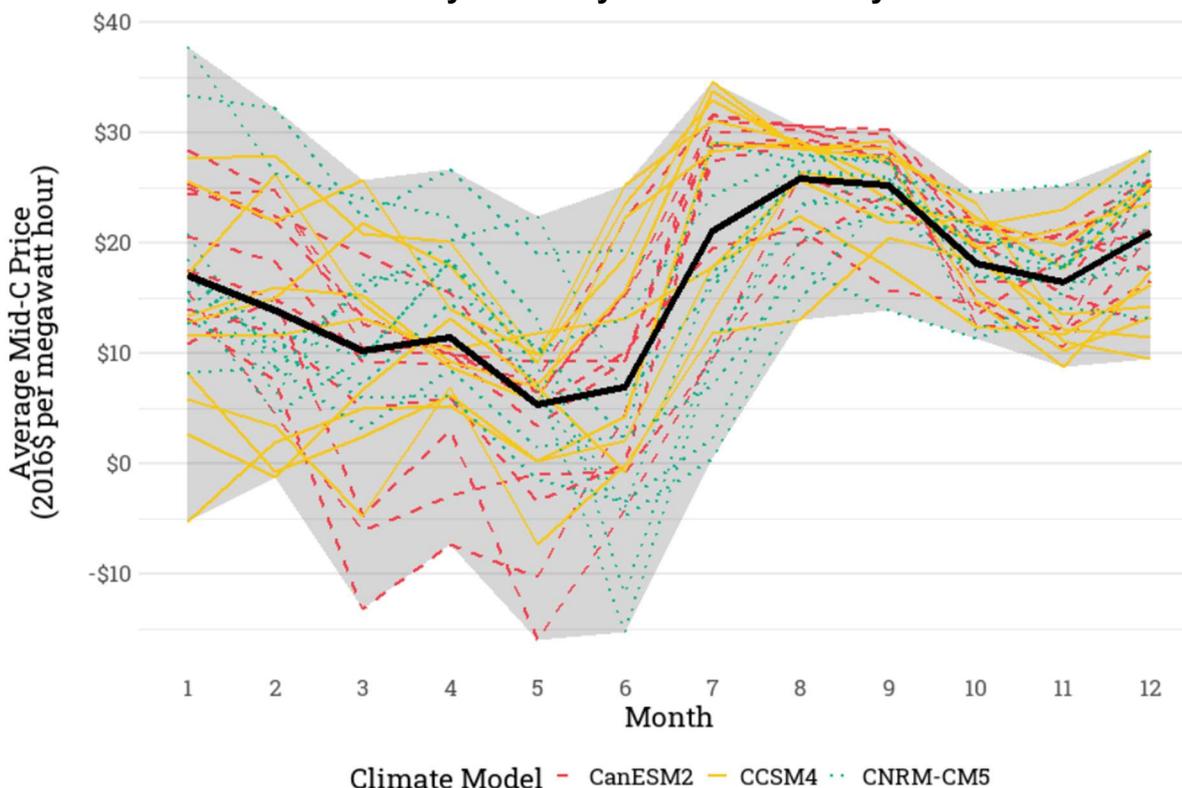
It is clear from these graphs that the NWPCC expects wide variations in the value of energy between hours, months and years; with 2041 values roughly half of what they were in 2021. Moreover, by 2026 the NWPCC anticipates a significant dip in value of energy during the prime-time period for solar generation (10 am to 5 pm). The projected value is less than \$0.015/kWh; or about 85% less than the \$0.092/kWh estimate provided in the economic analysis.

Mid-Columbia Average Hourly Prices



⁵ https://www.nwcouncil.org/media/filer_public/4b/68/4b681860-f663-4728-987e-7f02cd09ef9c/2021powerplan_2022-3.pdf, Pages 53-54.

2026 Forecast Electricity Prices by Climate Model Hydro Conditions



Another problem with the analysis is that it fails to account for the known time-based decline in PV systems power production (a.k.a., degradation):

NREL research has shown that solar panels have a median degradation rate of about 0.5% per year but the rate could be higher in hotter climates and for rooftop systems... This means that in year 20, the module is producing approximately 90% of the electricity it produced in year 1.⁶

Finally, unaccounted for are those periods of time for which the PV system goes off-line due to power outages due to storms or repairs and reduced production when panels are obscured due to snow, leaves or other obstructions.

Avoided Capacity, Annual O&M and Periodic Replacement: The analysis correctly attributes a “zero” value to these benefit categories. For a majority of Washington utilities, retail customer load is highest in the winter (and nighttime). So, this code requirement is likely to have minimal effect on the infrastructure needed to bring power to customers.

Other Fuel Benefits and Non-Energy Impacts: There are times during which PV production could displace natural gas generation (through the 2045 statutory ban on thermal generation-

⁶ <https://www.nrel.gov/state-local-tribal/blog/posts/stat-faqs-part2-lifetime-of-pv-panels.html>

RCW 19.405.040). The analysis did not include these energy savings and carbon reduction benefits.

Cost

Capital Cost: WPUDA does not dispute the analysis' costs estimates.

Other Fuel Costs and Non-Energy Impacts: The analysis incorrectly attributes a "zero" value to these cost categories apparently based on the assumption that "There is likely no net generation at the installed capacity as the buildings would use all available generated electricity."⁷ This is a highly speculative and likely erroneous assumption as actual electricity load during the time that roof-top generation systems are producing electricity depends on building type/use. For example, for many large distribution warehouses (~500,000 sq. ft.) the predominate use of electricity for lighting. These roof-top solar on these buildings would certainly feed electricity back into the grid – especially if those using skylights for daytime lighting. In addition, distribution warehouses of similar size are often grouped together at commercial parks. The result would be large commercial complexes that oscillate between generation and load due to the variability in the output of solar generation. Such complexes could challenge a utility's ability to keep the distribution system in balance and thereby create risks to system reliability. Further, the utility and/or the regional balancing area authority (the Bonneville Power Administration for many Washington utilities) could require such complexes to undertake lengthy and expensive generation interconnection studies to reveal if there are undue system reliability risks. Finally, the serving utility or balancing authority could impose additional integration fees if the roof-top generation creates inefficiencies in the operation of the serving utilities' own power generation portfolio, or even refuse to interconnect the building to protect grid stability. The analysis considered none of these types of costs.⁸

Annual O&M: The analysis incorrectly attributes a "zero" value to this cost category. While solar panels generally require little maintenance (especially if they are at an angle where rain washes away debris), periodic cleaning is recommended (two to four times per year).⁹ In addition, the inverters that convert the direct current from the PV panel to alternative current require regular maintenance and repair. The analysis did not include the costs of these activities (or, alternatively, the power production from panels should be decremented).

Period Replacement: Solar PV system have a typical lifespan of 25 - 30 years and thus will likely last through the time frame of the analysis. However, inverters have a life-expectancy of ten

⁷ Preliminary Cost-Effectiveness of Renewable Energy Proposal for the Washington State Energy Code, PNNL-SA-170654, February 25, 2022.

⁸ Information from conversations with utility staff members.

⁹ <https://www.solarreviews.com/blog/solar-panel-maintenance-everything-you-need-to-know>

years.¹⁰ The equipment and labor cost to replace inverters was left out of the analysis. In addition, there is likely to be costs to dispose of the panels at the end of their useful life.

Summary

Finally, WPUDA neither advocates for or against a code requirement that new large commercial buildings install minimum levels of on-site renewable generation. We do, however, strongly hold that energy codes need to have strong and trustworthy economic foundations.

Unfortunately, the analysis supporting this code provision is so fundamentally flawed, deficient, and erroneous that no reasonable person could determine whether it is in the public interest.

Therefore, we ask that this provision be pulled from the revised code pending a full and accurate accounting of its costs and benefits.

¹⁰ <https://www.solarmango.com/ask/2015/09/28/what-is-the-lifetime-of-solar-inverters/>