**Before the Washington State Building Code Council**

**October 21, 2022 Meeting**

**Comment on petition for reconsideration by Nicholas Garcia, Washington PUD Association.**

I am an economist, involved in the electric utility regulatory field for more than forty years. I have no financial interest in this matter, and no client in this matter. I comment as an interested member of the public with expertise in this area. **I recommend that the request for reconsideration be denied for cause.**

The "cause" for denying the petition is that the Council retained a nationally-recognized expert, Pacific Northwest National Laboratories, to examine the cost-effectiveness question. The consultant found that the proposed rule was cost-effective, based on a metric of the avoided retail electricity rates that the building owners would enjoy. Garcia has offered no alternative that meets the statutory directive to the Council in RCW 19.27.195.

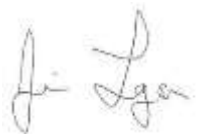
I believe this is the proper metric, and that the alternative metric that Garcia recommends, based on wholesale electricity prices, is the wrong metric to use.

The first attachment to this letter is a detailed explanation of why I believe the metric the Council has used is correct, and why the metric proposed by Garcia has no foundation in law, economics, or regulatory history.

The second attachment is a summary of my personal qualifications as an expert in this area.

I plan to attend the Council meeting on October 21, and will be available for questions.

Sincerely,



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**Detailed comment on Garcia petition for repeal of rules.**

I have reviewed the economic analysis prepared by Pacific Northwest National Laboratory, and originally included in the Council's March 16, 2022 Economics Impact Workgroup meeting packet and also attached to the October 21, 2022 meeting packet. **I believe that analysis is reasonably sound, and agree that the conclusion that the rule is "cost-effective" is reasonable. That study formed an adequate basis for adoption of the rule.**

I have reviewed the petition for repeal of the Council's renewable energy system rule submitted by Nicholas Garcia, and believe it should be dismissed for cause.[1] The stated cause should be that the Council engaged a globally-recognized expert (PNNL) to examine the question, and accepted their conclusion. I explain below why I think PNNL used the right approach and Garcia suggests a flawed approach instead.

Garcia's petition asks the Council to adopt a unique and inappropriate metric for examining the cost-effectiveness of consumer-sited energy measures, that is, reliance on wholesale market prices as the foundation of cost-effectiveness measurement. This is simply an inappropriate metric.

Garcia asks that the Council repeal the decision to require a small renewable energy system in large commercial buildings, a rule that implemented the unambiguous intent of legislation RCW 19.27.195. Garcia does not propose an alternative to the existing rule that accomplishes the statutory direction to the Council, to "adopt changes **necessary to encourage greater use of renewable energy systems.**"

This is somewhat baffling to me, given the statutory obligation of the PUDs to give priority to renewable resources in their resource planning:

> **RCW 80.52.080**
>
> **Priorities.**
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> In planning for future energy expenditures, public agencies shall give priority to projects and resources which are cost-effective. Priority for future bond sales to finance energy expenditures by public agencies shall be given: **First, to conservation; second, to renewable resources**; third, to generating resources utilizing waste heat or generating resources of high fuel-conversion efficiency; and fourth, to all other resources. This section does not apply to projects which are under construction on December 3, 1981.

Garcia claims to make this argument on the basis of cost-effectiveness, but uses a wholesale market price as his standard for cost-effectiveness. By contrast, the PNNL study used a statewide average of commercial electricity rates. The PNNL analysis

[1] My understanding of RCW 34.05.330 is that the Council must, in response to a rulemaking petition, either "enter into rulemaking" or "deny the petition for cause."

follows long-recognized principles used by the Council in every energy code update I am aware of.

In the 1979 code process, several participants argued that the Council should use a "marginal cost" analysis, as at that time, the wholesale cost of new (coal and nuclear) generating resources was far higher than the retail rates at the time, based on existing hydro resources. The Council rejected that proposal, because those were not the rates that building owners would directly incur. The Council opted to rely on retail rates as the best measure of the value of energy efficiency measures to the owners of new buildings. I believe it would be a major policy shift for the Council to discontinue this practice.

On-site energy conservation (the state's highest priority for meeting future energy needs) and on-site renewable energy production measures (the state's second priority) do not compete with wholesale electricity. They compete with a utility product that is delivered to the site, and include production, transmission, distribution and administrative costs. In addition, the line losses of 5% to 30%[2] incurred in transmitting the power to the customer are included in the retail price per kilowatt-hour. Finally, there are taxes to the consumer included in retail rates. In Olympia, for example, that tax is about 13%, consisting of a 4% state Public Utility Tax and a 9% municipal utility tax. All of these are avoided by building owner through the installation of on-site solar.

There are three possible definitions of cost-effective that the Council might consider relevant here. The first are retail rates, which the Council did rely on in using the PNNL study as the foundation for its rule. The second are "system costs" which utilities are required to use (but the Council is not) in examining not only direct costs of resources, but also quantifiable environmental costs. The third metric is actually a non-metric: accepting the statutory direction to the Council, which requires a result (increased use of renewable energy) without specifying the means by which to achieve that.

Of these, I believe the Council has selected the right metric. The finding by PNNL that the rule is cost-effective to building owners, based on retail rates, is the correct metric for a rule that requires those building owners to make additional investments.

1) **Retail Rate:**

   The first is the standard that the Council has always applied in my experience, at least since the 1979 code process: **Will the measure save the building owner more than it costs them over the life of the measure?** That is a comparison made based on the after-tax cost of the measure, compared with the after-tax cost of energy avoided by the measure. The energy cost would definitely include all of the

[2] I am the author of a paper on the value of energy efficiency in reducing line losses; the identical principles in this paper apply to on-site renewable energy. The marginal line losses during on-peak hours can reach 30%. See: Lazar and Baldwin, Valuing the Contribution of Energy Efficiency to Avoided Marginal Line Losses and Reserve Requirements, Regulatory Assistance Project, 2011 https://www.raponline.org/wp-content/uploads/2016/05/rap-lazar-eeandlinelosses-2011-08-17.pdf

delivery costs and taxes, but likely NOT include the environmental costs associated with producing or transmitting the energy. This is the approach that the Council relied on in using the PNNL study.

Garcia is specifically asking the Council to ignore this metric long-accepted in building code decisions over the past forty-three years (my first involvement with the code was in the 1979 code cycle). Further, Garcia cites example retail rates in his petition, but only included a portion of the charges, the so-called "energy" component of rates, ignoring the demand charge component of those rates. Because on-site generation often produces power in the middle of the day, when commercial loads are often highest, they often help building owners and occupants avoid both demand and energy charges. PNNL accounted for this; Garcia does not.

2) **System Cost:** System cost is the cost of not only producing energy, but also delivering it and accounting for the environmental costs and benefits. This is a statutory definition that applies to public utility districts and municipal utilities, but does not apply directly to the Council or to energy code decisions.

"Cost-Effective" is defined in RCW 80.52 (which applies to the PUDs) to include "system costs." The definition is as follows:

**RCW 80.52.030 (7) "Cost-effective"** means that a project or resource is forecast:

(a) To be reliable and available within the time it is needed; and

(b) To meet or reduce the electric power demand of the intended consumers at an estimated incremental **system cost** no greater than that of the least-cost similarly reliable and available alternative project or resource, or any combination thereof.

(8) "System cost" means an estimate of all direct costs of a project or resource over its effective life, **including, if applicable, the costs of distribution to the consumer**, and, among other factors, waste disposal costs, end-of-cycle costs, and fuel costs (including projected increases), and such quantifiable environmental costs and benefits as are directly attributable to the project or resource. (emphasis added)

That definition is what economists would call a "long-run marginal cost" approach, meaning the cost of building a NEW energy resource, plus the transmission and distribution facilities needed to deliver it to the customer. In addition, this definition includes quantifiable environmental costs and benefits. It is likely to be much higher than a wholesale market price.

Garcia is asking the Council to ignore this statutory metric, by considering only one aspect of this metric, the wholesale cost of generation at a central point of production. Garcia ignores transmission, distribution, waste disposal, end-of-cycle, and quantifiable environmental costs. If the Council were to accept the petition, and reconsider the rule, it would need an analysis that includes all of the elements of system cost. Garcia has not presented this in his petition, so the petition does not even rely on the metric of cost-effectiveness that the PUDs themselves are required to apply.

### 3) Statutory Direction to the Council

The Council has specifically been directed to adopt changes needed to "encourage greater use" of renewable energy. This is unambiguously directed at the Council by the 2019 act of the legislature.

**RCW 19.27.195**

**Renewable energy systems—Study code and adopt changes.**

The state building code council, in consultation with the department of commerce and local governments, shall conduct a study of the state building code and adopt changes **necessary to encourage greater use of renewable energy systems** as defined in RCW 82.16.110. (emphasis added)

This definition is less rigorous than the either retail rates or system cost, the two defined terms above. It can only be measured by results: DO THE ADOPTED CODE CHANGES RESULT IN MORE USE OF RENEWABLE ENERGY.

Obviously it is impossible to test this without real-world experience, but it's pretty obvious what the result of the rule will be. The current mandate to include SOME renewable energy is certain to produce a positive result (at least a little bit, which is definitely more than zero) in terms of renewable energy use. And, since SOME building owners will apply other criteria, and employ MORE renewable energy, while others would (absent the directive) likely employ LESS, mathematically it is arguable that the rule the Council has adopted will meet the requirement of the statute to "encourage greater use" of renewable energy systems. Some building owners will use MORE renewable energy, and it is unlikely that any will use LESS renewable energy as a result of the rule.

## Summary

Garcia asks the Council to ignore every statutory framework the Council might reasonably use to address the requirements of the statute. The Council has used its tradition metric, of retail rates. The Council could instead use the statutory definition of "cost-effective" applicable to PUDs, which is a long-run marginal cost metric, including all delivery and quantifiable environmental costs. Instead Garcia asks the Council to apply a metric based on wholesale power costs, something that is not available to building owners as an alternative to the requires on-site renewable energy systems.

Or the Council could simply do what it has done: implement the unambiguous directive of RCW 19.27.195, to "encourage greater use of renewable energy." And base that decision on the PNNL analysis, recognizing the US Department of Energy's National Laboratory as a qualified analytical body.

But Garcia asks the Council to use an indefensible wholesale market price metric, one with no foundation in law, economics, the public interest, or the private interest of the affected building owner.

I may not believe that the Council has done the best possible job implementing this statute. If I were to craft a different solution, it would probably require larger solar systems for some buildings, based on the available roof area, because larger systems are generally more cost-effective than smaller systems. And perhaps it would specify smaller systems for buildings with obstructed rooftops or limited available flat rooftop areas. Those are minor details.

The Council has done what the statute requires, and done so in a manner that meets the public interest in clean energy and the building owner interest in lower utility bills.

I urge the Council to deny the request for reconsideration for cause. The cause should be that Garcia has not met his burden of proof that the rule does not meet the cost-effectiveness requirement of the Administrative Procedures Act, and has offered no alternative to implementation of the directive to the Council in RCW 19.27.195, which required the Council to adopt a rule of the type it enacted.

**Qualifications of Jim Lazar**

I served on the Energy Code TAGs for the Council in the 1979, 1986, and 1993 energy code updates. In each of those cases, the Council insisted that cost-effectiveness of energy code measures be approached from the perspective of the building owner, based on their savings in retail electricity (and natural gas) rates. After the 1993 process, I increasingly dedicated by consulting practice to international work, and did not participate in subsequent state code processes except as a private citizen.

I am the author of Electricity Regulation in the US: A Guide, which is a handbook on the industry used by utilities, regulators, policymakers, and at several colleges and universities. A more detailed list of my other books and relevant publications is appended to this comment.

I was one of the authors of the State's Least Cost Planning requirements for electric utilities (RCW 80.52, the Energy Financing Voter Approval Act), was a consultant to the State Department of Commerce on the implementation of the Energy Independence Act, and a consultant to the Washington Utilities and Transportation Commission, the Washington Attorney General, and numerous other clients during my consulting career.

I am also a former PUD Commissioner.

I have served as an advisor to the state utility regulatory commissions of more than twenty states and fourteen countries. I have been retained as a consultant by numerous consumer-owned electric utilities, including Mason PUD #3 and Snohomish County PUD during the course of my consulting career.

I served on the United States Department of Energy Electricity Advisory Committee during the Obama administration.

My relevant books and other publications are listed below.

## Relevant Books and Publications by Jim Lazar

(All available for download at www.raponline.org)

### Books

Electricity Regulation in the US:  A Guide

Recognizing the Full Value of Energy Efficiency

Smart Rate Design for a Smart Future

Electric Cost Allocation for a New Era

### Other Publications Relating to Resource Evaluation and Pricing

Designing Distributed Generation Tariffs Well

Rate Design Where Advanced Metering Infrastructure Has Not Been Fully Deployed

Teaching the Duck to Fly (Strategies to align loads and resources to adapt to a higher level of variable renewable energy resources)

Distribution System Pricing with Distributed Energy Resources

Environmentally-Beneficial Electrification: The Dawn of Emissions Efficiency

Smart Non-Residential Rate Design

Beneficial Electrification (Four-part series)

Valuing the Contribution of Energy Efficiency to Avoided Marginal Line Losses and Reserve Requirements