



REQUEST FOR PROPOSALS

Commercial Sector Energy Efficiency Measure Shape Development January 5, 2024

I. Contracting Organizations

The Northwest Power and Conservation Council's (Council) Regional Technical Forum (RTF) is issuing this Request for Proposals.

A. The Council

The Council is an interstate compact agency formed by the states of Idaho, Montana, Oregon, and Washington as authorized by Congress in the Pacific Northwest Electric Power Planning and Conservation Act, 16 U.S.C. §839, et seq. The Council is composed of eight Council members, two appointed by the governor of each of the four states. Congress charged the Council with developing two major planning documents:

- A program for the protection, mitigation and enhancement of fish and wildlife affected by the development and operation of hydroelectric facilities in the Columbia River Basin, and
- A plan for meeting the electric energy needs of the Pacific Northwest for the next 20 years that includes an examination of conservation, renewable, and conventional energy sources that are available to meet those needs.

Congress also charged the Council with informing the Pacific Northwest public of major regional power issues and insuring widespread public involvement in the formulation of its regional power plan and fish and wildlife program.

B. The RTF

The RTF is an advisory committee to the Council. Per a congressional directive, the RTF was chartered in 1999 to:

- Develop standardized protocols for verification and evaluation of energy savings,
- Track regional progress toward the achievement of the region's conservation and renewable resource goals, and
- Provide feedback and suggestions for improving the effectiveness of conservation and renewable resource development programs in the region.

- Conduct periodic reviews of the region’s progress toward meeting its conservation and renewable resource goals.

II. Services Sought by the RTF

The RTF utilizes rigorous processes and significant collaboration and review in developing its energy efficiency savings, cost, and lifetime values. In addition, each energy efficiency measure has a savings shape; that is, a definition of when those savings occur throughout a given year. With a savings value (kWh/year) and a savings shape, the capacity value of the energy efficiency measure can be calculated. Many of the shapes being used today are sourced from the End Use Load and Consumer Assessment Program (ELCAP) study from the 1980’s or from the [California End-Use Survey](#) (CEUS) and these shapes may not be accurately reflecting current and local savings profiles. In addition, the Northwest region is conducting the [Northwest End Use Load Research Project](#) (EULR), but that study is limited and won’t be completed for a couple years.

In 2016-2018, the RTF hired a contractor to develop a systematic process for assessing the reliability of load shapes used by the Council and RTF. In addition, the contractor completed a review of all RTF UES measures to assess the reliability of load shapes selected, provide assessment of alternative load shapes where appropriate, and provide recommendations to the RTF as to potential next steps for improving reliability. The results are included in the Memo, “Capacity Benefits of Efficiency: Load Shape Recommendation Memos” and can be found at the following link: <https://rtf.nwcouncil.org/capacity-benefits-efficiency-load-shape-recommendation-memos/>.

With this request for proposals, the RTF seeks the update of its [library of savings shapes](#) for the commercial sector, which are housed in ProCost, by developing a set of energy efficiency and end-use load shapes for various measures. Depending on the measure, savings shape development may require the use of RTF EnergyPlus models, or identification and use of other secondary data sources. Additionally, multiple savings shapes may be needed for certain measures where temperature or building type usage patterns impact the savings.

For this study, the RTF anticipates the following tasks:

- **Identify List of New Savings Shapes:** Working with Project Manager, Contractor should develop an initial list of shapes to be developed. The RTF anticipates development of shapes for between 25-35 measures (draft list provided in Table 1 below), with some measures requiring multiple iterations of shapes.
- **Review Library and Identify Opportunities to Condense Existing Measure Shapes:** The RTF is in the process of determining if there is an opportunity to condense the number of savings shapes used in measures. Contractor should work with RTF and Council staff to identify opportunities to build an average savings shape for certain measure applications.
- **Identify Process for How to Produce Savings Shapes:** Contractor should determine the process by which each saving shape will be developed as some will require modeling and others secondary research. Through this process, Contractor should work with the Project Manager to determine other necessary components to savings shape development, including any assumptions around baselines and needs for distinct shapes to align with Council/RTF analysis (e.g.: whether a separate shape is needed for the cooling vs heating components or different building types). For any shape requiring modeling, Contractor is expected to use the RTF’s existing EnergyPlus commercial building models. As part of this

task, Contractor should provide recommendations on how the work in this contract will ensure reliable shapes and potentially align or improve upon the process detailed in the Capacity Benefits of Efficiency: Load Shape Recommendation Memos.

- **Produce Savings Shapes:** Contractor will develop the savings shapes. Through this process, Contractor will be expected to work with the project manager to refine the number of shapes per measure based on factors that have significant impact to the shapes (e.g., explore whether climate zone or building type distinctions are significant enough to warrant different shapes). The RTF expects some iteration in this process to ensure that the savings shape suite is robust enough to account for significant differences, but not so large as to be unwieldy to maintain.
- **Validate and QC:** The Contractor shall compare the newly developed shapes to existing shapes from other sources and provide some indication of the level of confidence in each new shape relative to other sources. One additional comparison source that may be useful includes the Lawrence Berkeley National Laboratory data set, "[End-Use Load Profiles for the U.S. Building Stock.](#)"

Proposals should include these and/or any other tasks proposers believe will be required for successful completion of this work.

Table 1. Draft Measure Saving Shapes to be Developed

Shapes Needing Modeling	Shapes Not Requiring Modeling	Shape Modeling Undetermined
Advanced Rooftop Controls	Clothes washers	Circulation pump ECM and drive
Chiller system retrofit	Data centers (embedded)	Commercial refrigeration
Fans	DHW – showerheads	
Heat pump upgrade	Commercial Lighting	
Unitary AC upgrade	Smart plug power strips	
Variable Refrigerant Flow	Clean water pumps upgrades to VS	
VHE-DOAS	Air compressors	
Grocery refrigeration	Commercial Ovens, rack, combi, and convection	
Heat pump water heater - small size	Computers	
Variable speed chiller	ENERGY STAR® laptops	
Web-enabled thermostats	Fryer	
	Griddle	
	Hot food holding cabinet	
	Pre-rinse spray valves	
	Steamers	
	Water cooler controls	

For reference, the list of Council and RTF building types is summarized in Table 2. Also included is an indication of whether each building type has an associated EnergyPlus building model and if that model has been roughly aligned to total monthly billing data.

Table 2 – Council and RTF Building Types and Associated EnergyPlus Building Models

Primary Activity	2021 Plan Building Type	RTF Aligned EnergyPlus Model (Yes/No)	Gross Floor Area in Square Feet
Office	Large Office	Yes	>50,000
Office	Medium Office	Yes	5,000 to 50,000
Office	Small Office	Yes	<5,000
Retail	Extra Large Retail	No	>100,000
Retail	Large Retail	No	50,000 - 100,000
Retail	Medium Retail	Yes	5,000 - 50,000
Retail	Small Retail	Yes	<5,000
School	School K-12	Yes	Any
School	University	No	Any
Warehouse	Warehouse	Yes	Any
Retail Food Sales	Supermarket	Yes	> 5,000
Retail Food Sales	MiniMart	No	< 5,000
Restaurant	Restaurant	Yes	Any
Lodging	Lodging	Yes	Any
Health Care	Hospital	No	Any
Health Care	Residential Care	Yes	Any
Assembly	Assembly	No	Any
Other	Other	No	Any

The following deliverables will be required for the successful completion of this work:

- A Microsoft Excel workbook containing the final savings shapes. The RTF will provide guidance as to the required formatting of the final shapes. The RTF expects two formats for each savings shape: one 8760 shape and one “compressed” format with template details to be provided by RTF and Council staff.
- All source data, documentation, energy model inputs, and analysis used to derive the final savings shapes. If pre- and post-consumption shapes are utilized to derive the final savings shapes, those shapes should be provided as well.
- A memo documenting the methodology and data sources used for the derivation of each shape.

III. Timeline and Budget Expectations

Proposers shall include the proposer’s estimated costs. Proposals should be based on time and materials, with a not-to-exceed limit, and include a detailed cost estimate.

The RTF would like to complete this project in the 2024 calendar year. The specific timing of the studies and completion is flexible and can be coordinated with the selected contractor.

IV. How to Submit a Proposal and Required Elements

Proposals shall be submitted to the RTF in electronic format by **February 16, 2024**.

Proposals shall be emailed to:
Northwest Power and Conservation Council
Laura Thomas
RTF Manager

Proposals shall include the following elements:

- Contact information and brief description of the firm submitting the proposal
- Description of the technical and management approach to complete the work and deliver the services
- Qualifications of all personnel who will be working on the project
- Budget proposal that includes the hours and rates of all personnel, with a not to exceed cost
- Reporting schedule and project timeline
- Web site addresses or listing of similar work that can be reviewed by the proposal evaluation team
- Any other material the proposer deems pertinent

Any questions regarding this RFP shall be directed to Laura Thomas. Please note that responses will be limited to correcting errors in the RFP or clarifying the RFP's provisions. If questions received identify significant information that would assist proposers in submitting proposals, such information will be made available by reasonable means, such as posting on the RTF's webpage, to all persons or entities who have received the RFP to ensure all proposers have access to the same information.

V. How the RTF Will Select a Final Proposal

An evaluation team will review the proposals. The team will be comprised of staff from the Council's Resources Team and RTF's contract analyst team. Proposals will be evaluated based on the proposed approach to and the qualifications for the services sought in Section II above. The evaluation committee will also consider the proposer's cost of service.

VI. Right to Reject and Proposal Costs

The RTF reserves the right to reject any and all proposals and may cancel, modify, or revise this RFP at any time. The RTF shall not be obligated to procure any services resulting from this RFP. Neither the Council nor the RTF is liable to any proposer for any loss or expense caused by or resulting from a delay, suspension, or cancellation of the RFP, award, or rejection of any proposal. Proposer shall bear all costs incurred in developing and submitting its proposal.

VII. Project Schedule

Proposals Due:	Friday, February 16, 2024
Selection of Winning Proposal(s):	Week of February 26, 2024
Project Start Date:	Week of March 4, 2024 (or as agreed to)

VIII. Equal Opportunity

The Council and the RTF promote equal opportunity for all individuals without regard to race, color, national origin, religion, sex, gender, gender identity (including gender expression), sexual orientation, marital status, age, disability, genetic information, military or veteran status, or any other protected status in accordance with applicable federal, state, and local laws.

IX. Diversity, Equity, and Inclusion

Responders are encouraged to review the Council's [inclusion statement](#). The Council is interested in learning from and encourages, in all opportunities, the participation of those who are also taking steps to ensure diversity, equity, and inclusion in their work. To this end, please consider providing a response to the following questions. Providing a response is voluntary. Responses will not be considered in proposal evaluation and selection.

- Please indicate if you are a small, minority, woman, or veteran-owned business.
- Please outline any efforts taken at your organization to promote diversity, equity and inclusion in your organization's practices or policies, including, for example, staffing and contracting

X. Disclosure Notice

The Council does its work in public as required by the Northwest Power Act. The Council, although not a federal agency, complies with the Freedom of Information Act. The Council's policy is available for review on our [website](#).



Updated February 8, 2024

Questions and Response Regarding the RTF's Commercial Energy Efficiency Measure Shape Development Request for Proposals

Question: Will the RTF consider proposals for a subset of the measure savings shapes listed in the RFP?

Response: The RTF will consider proposals for a subset of the noted savings shapes in the RFP, but preference will be given to proposals that cover the full scope of the RFP. Proposals for a subset of savings shapes should demonstrate expertise with that specific subset of measures, as well as detail how proposers will ensure a consistent process is developed and maintained across all savings shape work to support overarching tasks.

Question: Could you please confirm if the models available [here](#) are the ones the contractor is expected to use?

Response: Yes, this is the correct location for the models that would be used for the measure savings shape work.

Question: According to the RFP, some of the prototype buildings are not aligned with regional billing data. Is the contractor expected to research data and calibrate these models?

Response: The contractor is not expected to conduct a full calibration of the model, similar to other commercial model calibrations performed at the RTF; however, at a minimum, contractor is expected to compare modeled results against best available data.

Question: We understand that the models are parameterized using the Modelkit tool. In case a specific HVAC system template is not available in the RTF library, is the contractor expected to develop it?

Response: Yes, any HVAC system required to perform the work but not available within Modelkit must be developed by the contractor. HVAC systems can be added either within the Modelkit framework or outside of the framework as stand-alone EnergyPlus models.

Question: Is the contractor expected to address potential existing bugs in the models?

Response: No, if the contractor identifies a bug or issue with the current version Modelkit, they will need to flag this for the RTF Manager. There is established support to address and correct any issues/bugs or provide support with Modelkit to the contractor of the measure savings shape project with the models.