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March 27, 2020

Mark L. Johnson
Executive Director and Secretary
Washington Utilities and Transportation Commission
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Ref: Docket No. UG-170003

Cascade Natural Gas Corporation (Cascade) submits the following comments in the referenced docket in response to the Washington Utilities and Transportation Commission (WUTC) Notice of Opportunity to File Written Comments on Proposed Rules issued February 12, 2020. The comments are organized according to the order of the proposed rules.

REF: WAC 480-xxx-030 Definitions, (5) "Load Study"

The Nature of Load Research Studies

Load research studies typically involve installing special metering devices on a sample of customers so that consumption data can be collected at daily, hourly or even minute-by-minute intervals. The data from such studies can be used for a number of purposes. Traditionally, load research has supported electric load forecasting activities, complex rate design studies (e.g., time-of-use), integrated resource planning, demand-side management planning and impact evaluation, and system operations planning.

Load research projects are complex undertakings that involve coordination among several areas of an energy utility. Some significant steps include:

- Study design and planning
- Sample selection
- Customer selection and recruitment
- Installation of measurement and communication devices
- Data retrieval, storage and editing
- Data analysis and applications

Each stage of the process must be carefully conducted to ensure the integrity of the load study. Decision points occur at the design and sample selection stages regarding time intervals between meter readings, time period for data collection, and degree of customer segmentation; choices that are determined by the purpose of the load study. Customer recruitment and equipment installation must be completed in a manner that maintains the integrity of the load sample and data retrieval must be monitored to minimize loss of load data and to correct measurement errors. In the end, statistical and other analysis must be performed to draw meaningful conclusions from the consumption data.[1]

The electric utility industry conducts extensive load research programs; numerous useful studies and technical manuals are available from industry organizations such as the Edison Electric Institute and the Electric Power Research Institute.

Complex electric load research studies are often initiated to determine the respective hours in a day when solar Distributed Generation (DG) customers are exporting excess self-generated electric load to the distribution system or receiving electric load from the utility; the purpose for which is two-fold: 1) assigning costs to the DG class of customers for their use of the distribution system and the native generation resources they use, and 2) to value the excess solar generated load placed on the distribution system, based on avoided generation and transmission costs, in order to properly reimburse the DG customers. This example of an electric load research study provides a contrast to the purpose for which a load research study is intended for a gas utility; that is, the determination of a coincident peak day demand for each of its core customer classes for use in a cost of service study (COSS).

Use of AMR for Load Research Studies

The eventual deployment of updated AMR equipment throughout Cascade's dispersed service territory on the premises of its core customer classes will facilitate load research projects. However, for purposes of daily collection of consumption data from the respective core customer groups and recognition of geographical differences where average heating degree day ("HDD") levels may vary, a sample size for each unique geographic area and the duration of the sampling period must be determined. An acceptable level of sampling error must be established as well as an estimate of the mean and variance of the population from which the sample will be drawn. Even with the installed updated AMR equipment, Cascade may still be required to pay a third-party provider for the compilation, storage and transfer of the daily sampled consumption data over the course of several months of a heating season. Following computation of the mean base load and temperature sensitive factors for each sampled subpopulation, it will then be necessary to adjust the sampled consumption data from a single heating season to the core customer classes' respective populations as well as the use of regression analysis to forecast and align the

[1] *Load Forecasting Methods*, American Gas Association Statistics and Load Forecasting Methods Committee. Copyright, 1995.

class level recorded demands captured under periodic peak day weather conditions with Cascade's design day weather planning criteria.

Throughout the course of this rulemaking docket Cascade has taken the reasoned position that the gas load research study of the type described in the proposed by the draft rules does not represent an improved and cost-effective approach to determining class level design day peak demands for use in a gas utility's COSS. First, notwithstanding the significant cost, potential program pitfalls and data weaknesses alluded to earlier that load research studies may encounter, adequate consumption data already exists in years of monthly billing records for the entire population of Cascade's core customer classes, from which statistically sound regression analysis results are currently produced on an ongoing basis. This load data provides reliable class level design day peak demands for use in the COSS, which more than adequately meets the gas utility industry definition of a "load study."

Second, in order to ensure satisfaction of core customer demand on the coldest days, Cascade's load forecast methodology, as detailed in its IRP,[2] develops three peak day usage forecasts. These peak day forecasts enable Cascade to make prudent distribution system and gas supply related resource capacity planning decisions to fulfill its responsibility to provide adequate heating load under all but force majeure conditions, particularly as most space-heating customers will have no alternative heating source during the coldest days in the event gas does not flow. The three weather scenarios that are analyzed in the Cascade forecasting model are the following:

- Average peak HDDs;
- System-wide max peak HDDs; and
- Max city gate peak HDDs.

Each individual city gate load center's forecasted peak demand is determined by rate class.[3]

The forecasting methodology employed by Cascade in each of its IRPs is fully vetted by the Technical Advisory Group, including Commission Staff, and Cascade continually pursues enhancements to its demand forecasting methods, as documented in its Two-Year Action Plans. It logically follows that the design day demands of its core customer classes that are produced from this rigorous and fully transparent process should be employed in the allocation of peak demand related distribution costs in the COSS and in the assignment of upstream pipeline and storage capacity costs in the Company's PGA filings. Accordingly, Cascade has provided "redline" edits to the referenced Load Study definition (highlighted).

REF: WAC 480-xxx-060 Definitions, (1) (e) The abbreviations for the functionalized costs.

The "Stor" function should include electric to account for utility scale battery or other electricity storage technologies are employed on the utility's distribution system.

[2] Cascade Natural Gas Corporation, 2018 Integrated Resource Plan: UG-171186, Section 3 Demand Forecast.
[3] Ibid, Appendix B.

Cascade has provided "redline" edits to the referenced section (highlighted).

REF: WAC 480-xxx-060 Definitions, Cost of Service Methodology, Table 3, Storage.

Account numbers were added for Liquified Natural Gas (LNG) Terminaling and Processing Plant, and Operation and Maintenance (O&M) expenses.

REF: WAC 480-xxx-060 Definitions, Cost of Service Methodology, Table 4, Natural Gas Cost of Service Approved Classification and Allocation Methodologies.

Distribution Mains – Clarification is needed that distribution mains are classified as Demand; and the system load factor is the basis for the split of costs at the Allocation step between Design Day and Annual Throughput.

Storage – Clarification is needed that costs classified as balancing are allocated to all customer classes based average daily injection / withdrawal experience throughout the year in the storage reservoir.

If you have any questions, please contact me at (509) 734-4593.

Sincerely,

/s/ Michael Parvinen

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Attachments

DRAFT COST OF SERVICE RULES

Chapter 480-07 WAC

WAC 480-07-510(6).

(6) Cost of service studies. The ~~company's~~ initial filing must~~: (a)~~ I~~i~~nclude a~~ny~~ cost of service study~~ies~~ that complies with Chapter 480-xxx WAC.~~the company performed or relied on to prepare its proposals; (b) identify all cost studies conducted in the last five years for any of the company's services; and (c) describe the methodology the company used in all such cost studies. If the cost studies are in the form of a model, the company must provide a copy of, or reasonable access to, the model that will enable the commission to verify and modify the model's inputs and assumptions.~~

New Chapter

WAC 480-xxx-010 Purpose.

(1) The purpose of these rules is to establish minimum filing requirements for any cost of service study filed with the commission. These rules are designed to streamline, improve, and promote efficiency in analyzing rate cases, clarity of presentation, and ease of understanding. The minimum filing requirements will allow for comparisons of cost of service studies.

(2) The cost of service study is one factor among many the commission considers when determining rate spread and rate design. The commission may also consider, as appropriate, such factors as fairness, perceptions of equity, economic conditions in the service territory, gradualism, and rate stability.

WAC 480-xxx-020 Applicability.

(1) The rules in this chapter apply to any person or party who files a cost of service study in any proceeding before the commission.

WAC 480-xxx-030 Definitions.

(1) "Allocation factor" means a mathematical expression of the specific cost relationship among revenue requirement and ~~rate schedules~~customer classes.

~~(1)~~(2)"Common function" means costs that can be functionalized to both electric and natural gas operations.

~~(2)~~(3)"Cost of service study" means a study that identifies and calculates, using regulatory accounting rules and principles, the extent to which customers ~~on~~ in various ~~rate schedules~~customer classes cause costs to a utility. This study correlates a utility's costs and revenues with the service provided to customers in each ~~rate schedule~~customer class.

(4) "Electric ~~D~~distribution ~~S~~system peak" means the maximum load of the Washington portion of a utility's distribution system within an identified time frame.

~~(3)~~(5)"Load study" means a statistical analysis of ~~interval~~ load data collected from a representative group of ~~sampled~~ customers to estimate the load profiles of ~~rate schedules~~customer classes over an appropriate time ~~minimum 12 month~~ period commensurate with the purpose of the load study. Load profile estimates of ~~rate schedules~~customer classes shall be hourly (or sub-hourly) for electric, and daily for natural gas. A load forecast or load projection model derived from daily or monthly metered usage data is ~~not a~~ sufficient ~~substitute~~ for a natural gas load study. Load studies should be conducted at a minimum every five years.

~~(4)~~(6)"Parity ratio" means a ~~rate schedule~~ customer class's revenue-to-cost ratio divided by the system's revenue-to-cost ratio. This ratio shall only be presented to the commission as either a percentage or a decimal.

~~(5)~~(7)"Revenue-to-cost ratio" means revenue at current rates divided by the revenue requirement. This ratio shall only be presented to the commission as either a percentage or a decimal.

~~(6)~~(8)"Special contract" means a negotiated service agreement between a utility and a customer approved pursuant to WAC 480-80-143.

~~(7)(1)"System peak" means the maximum load of the Washington portion of a utility's distribution system within an identified time frame.~~

WAC 480-xxx-040 Minimum Filing Requirements.

(1) All cost of service study results must be filed in the following forms, available from the commission: electric cost of service template; and, gas cost of service template. In addition, the following must be provided contemporaneously with all cost of service studies:

(a) Supporting testimony. All cost of service studies must be filed with supporting testimony and exhibits. If supporting testimony or exhibits reference, discuss, or specifically rely on data, models, calculations, or associated information found only in the supporting work papers, the supporting testimony or exhibit must cite to the work papers.

(b) Supporting work papers. In addition to complying with WAC 480-07-140(6)(a)(ii), a~~A~~ll supporting models, calculations, data, and associated information must be provided to the parties in a manner that allows for the verification and modification of all of the model's inputs and assumptions. This includes:

(i) All models must be fully functional, which requires, at a minimum, that cells are linked where possible and all formulas are calculable. Wherever ~~possible~~practical, all associated calculations necessary to support the results of the study must be consolidated in the same electronic workbook file.

(ii) Any macros in a model must be explained in a narrative. The narrative must also identify where each macro is found in the model.

(iii) Each electronic cost of service workbook must have an index identifying links to any external~~each~~ spreadsheet ~~and its relationship to other spreadsheets~~.

(2) Companies that provide electric and natural gas service must file a cost of service study for their electric and natural gas operations simultaneously. If a company providing electric and natural gas service files a general rate case for only one of its services, the company must apportion the common costs shared by both services in lieu of filing a cost of service study for the service not included in the general rate case.

WAC 480-xxx-050 Cost of Service Study Inputs.

(1) The rate schedule usage data for any cost of service study must come from the best available source: advanced metering technology, including advanced metering infrastructure (AMI), and advanced meter reading (AMR);, or, a load study.

(a) For utilities with AMI, the use of data from a load study must be explicitly justified.

(b) For utilities with AMR, data from AMR may be used if granularity of the data ~~is~~ meets or exceeds hourly ~~or sub-hourly~~ for electric and~~, or~~ daily for natural gas. For utilities with AMR with the data granularity required by this subsection, the use of data from a load study must be explicitly justified.

(c) For utilities with other advanced metering technology, data from that metering technology may be used if granularity of the data meets or exceeds hourly for electric and daily for natural gas. For utilities with other advanced metering technology with the data granularity required by this subsection, the use of data from a load study must be explicitly justified.

~~(c)~~(d)For utilities that do not have advanced metering technology described in subsections (1)(a), (1)(b), or (1)(c), ~~AMI or AMR with the data granularity required by subsection (1)(b),~~ a load study must be used. Data from special contracts may be used in a load study.

~~(d)~~(e)Street lighting schedules may be estimated and, if so, the estimation method must be explicitly presented in testimony and exhibits.

WAC 480-xxx-060 Cost of Service Methodology.

(1) A cost of service study filed with the commission must be calculated using an embedded cost method.

(a) Electric studies shall use the FERC accounts outlined in Table 1 of subsection (3) to functionalize the cost of service. Costs shall be directly functionalized where information is available. Functionalized costs will be classified and allocated by the methods outlined in Table 2 of subsection (3).

(b) Natural gas studies shall use the FERC accounts outlined in Table 3 of subsection (3) to functionalize the cost of service. Costs shall be directly functionalized where information is available. Functionalized costs will be classified and allocated by the methods outlined in Table 4 of subsection (3).

(c) FERC accounts not included in Table 1 or Table 3 of subsection (3) but identified in a cost of service study must be accompanied by a rationale for the functional method chosen in the supporting testimony.

(d) If an allocation method in Table 2 or Table 4 of subsection (3) requires direct assignment, any similar remaining costs in the account may not be allocated to the classes included in the direct assignment; except in circumstances where that class derives a direct benefit from the non-direct assigned costs. If a particular account contains several cost items, of which only certain items in the FERC account are directly-assigned, the cost items that are not directly-assigned will be allocated as appropriate.

(e) The abbreviations for the functionalized costs are:

"Gen" is an abbreviation meaning the generation function, for electric;
"Prod" is an abbreviation meaning the production function, for natural gas;
"Tran" is an abbreviation meaning the transmission function;
"Dist" is an abbreviation meaning the distribution function;
"Stor" is an abbreviation meaning the storage function, for natural gas, and electric where utility scale battery or other electricity storage technologies are employed on the utility's distribution system;
"Cust" is an abbreviation meaning the customer function; and,
"Comm" is an abbreviation meaning the common function.

(2) In addition to filing a cost of service study as required in subsection (1), a party may file a cost of service study based on a system-wide econometric study or a system-wide marginal cost study.

(3) Tables 1 – 4 of this subsection outline the functionalization, classification, and allocation methods required by subsection (1).

Table 1 – Electric Cost of Service Approved Functionalization Methodologies

Functionalization	FERC Account Numbers
Generation	151, ~~253~~152, 310 – 317, 330 – 337, 340 – 348, 500 – 515, 535 – 545.1. 546 – 557
Transmission	350 – 359.1, 560 – 573
Distribution	252, 360 – 374, 580 – 598
Customer	235, 901 – 905, 907, 908* 909– 910
Common	920 – 935, working capital allowance
Gen/Tran/Dist/Cust/Comm	301 – 303, 403, 403.1, 404 – 407
Gen/Tran/Dist/~~General~~Comm	105, 107, 108, 111, 154, 165, 281, 282, 389-398
~~Gn/Tr/Dist/Comm~~	~~154, 165, 281, 282~~
Allocate based on sub-account	182.3, 253, 254

*Expenses included in account 908 that are related to conservation must be functionalized as ~~power~~ generation related.

Table 2 – Electric Cost of Service Approved Classification and Allocation Methodologies

Functionalized Cost	Classification Method	Allocation Method
Generation	~~Scenarios~~Renewable future peak credit with net power costs allocated on energy	~~Scenarios~~Load net of renewable generation, using 12 coincident peaks. Net power costs are allocated using annual energy usage at the point of generation.
Transmission	~~Scenarios~~Demand	~~Scenarios~~12 coincident peaks.
Distribution Substation	~~TBD based on the results from the scenarios~~Demand	Direct assignment to large customer classes based on load ratio share of substations they are fed from; for this allocator only, the utility may determine "large customer." All other classes use an average of the relative share of the summer distribution system coincident peak and the relative share of the winter distribution system coincident peak.
Distribution Line Transformers	~~TBD based on the results from the scenarios~~Demand	Secondary customers directly assigned where ~~possible~~practical. All remaining costs are allocated using a relative ratio of transformers at current installation costs. Allocation to the lighting class(es) may be based upon its proportion of non-coincident peak to the sum of non-coincident peaks for all secondary voltage customers.
Distribution Poles and Wires	~~TBD based on the results from the scenarios~~Demand	Primary system customers are allocated using the same method as distribution substation, where practical. When not practical, allocate using 12 distribution system non-coincident peaks. Secondary system customers are allocated using 12 distribution system non-coincident peaks~~the same method as distribution line transformers~~.
Service Lines	Customer	Average installed cost for new service lines multiplied by customer count relative to average installed cost.
Meters	Customer	Average installed cost for new metering multiplied by customer or meter count.
Customer Service/Billing	Customer	All costs assigned by weighted customer counts.
Administrative & General and General Plant	Depends on functionalization of account	Property insurance and property taxes based on allocated plant; pensions and employee insurance based on salary and wages; FERC fees based on energy; revenue-based fees allocated by class relative share of total revenue. The remainder of administrative & general and general plant costs shall be allocated as deemed appropriate. An explanation of the allocation method used must be included in testimony.

Intangible Plant	Depends on functionalization of account	Each type of intangible and amortization in a separate account, allocated using appropriate factors. A materiality threshold ~~of the lower~~ of 0.5% of intangible plant ~~or $750,000~~ will be applied.

Table 3 – Natural Gas Cost of Service Approved Functionalization Methodologies

Functionalization	FERC Account Numbers
Production	~~710, 711-736, 740-742,~~ 800-813~~, 804.1, 805.1, 808.1, 808.2, 809.1, 809.2,~~
Storage	350-356, 352.1, 352.2, 352.3, 364.1-364.8, 814-826, 830-837, 840-843, 842.1-842.3, 843.1-843.9, 844.1-844.8, 845.1-845.6, 846.1-846.2, 847.1-847.8
Transmission	365.1, 365.2, 366-371, 850-867, 870,
Distribution	374-387, 871-881, 885-894
Customer	901-905, 907, 908*, 909-910
Common~~General~~	~~389-399, 920-929, 930.1, 930.2, 931~~920-~~935~~932, working capital
Prod/Tran/Dist/~~General~~Stor/Comm~~on~~	101.1, 104-108, 111, 114, 115, 117.1-117.4, 165, 182.3, 186, 190, 228.1-228.4, 229, 235, 252, 253, 255, 281-283, 301-303, 389-398, 403~~, 403.1, 404-407, 407.1-407.4, 408.1, 409.1, 410.0-411.1, 411.4, 411.6-411.9, 412-414, 421~~
~~Common~~	~~Working capital~~
Allocate based	182.3, 254

*Expenses included in account 908 that are related to conservation must be functionalized as ~~power~~ production related.

Table 4 – Natural Gas Cost of Service Approved Classification and Allocation Methodologies

Functionalized Cost	Classification Method	Allocation Method
Distribution Mains	~~Scenarios~~ Demand. System ~~load~~Load Factor basis for Allocation	~~Scenarios~~Design day (peak) and annual throughput (average) based on system load factor.
~~Transportation~~ Transmission Main	~~Scenarios~~Follows Distribution Mains	~~Scenarios~~Follows d~~D~~istribution m~~M~~ains.
Distribution Assets	~~TBD based on the results from the scenarios~~Demand	~~Measuring and regulating station equipment is allocated the same as distribution mains~~Follows distribution mains ~~[TBD on methodology] except large industrial customers are allocated all average related costs, unlike the distribution main allocator which excludes small pipe~~.
Storage	Determined on a case-by-case basis.	Costs classified as balancing are allocated to all customers based on ~~winter sales~~average daily injection / withdrawal experience. All remaining costs are allocated with a ratio based on average winter sales that exceed average summer sales.
Services	Customer	Allocated to ~~rate schedule~~customer class based on the class average service installation cost. Large customers are directly assigned based on a special study; for only this allocator, it is up to the utility to determine "large customer."
Meters	Customer	Average installed cost for new metering multiplied by customer or meter count.
Customer Service/Billing	Customer	All costs assigned by weighted customer counts.
Administrative & General and General Plant	Depends on functionalization of account	Property insurance and property taxes based on allocated plant; pensions and employee insurance based on salary and wages; FERC fees based on energy; revenue-based fees allocated by class relative share of total revenue. The remainder of administrative & general and general plant costs shall be allocated as deemed appropriate. An explanation of the allocation method used must be included in testimony.
Intangible Plant	Depends on functionalization of account	Each type of intangible and amortization in a separate account, allocated using appropriate factors. A materiality threshold ~~of the lower~~ of 0.5% of intangible plant ~~or $750,000~~ will be applied.

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WAC 480-xxx-070 Exemptions.

(1) A petition for exemption from any part of this chapter pursuant to WAC 480-07-110 must include~~In addition to the requirements of WAC 480-07-110(2)(c), any petition for exemption from this chapter must provide evidence sufficient to demonstrate~~:

(a) A cost of service study that complies with this chapter;

(b) The proposed cost of service study for which the petitioner seeks an exemption; and

(c) A description of the circumstances under which the exemption should be granted.~~-~~

~~(a) The proposal significantly improves the accuracy of the cost of service study in comparison with a cost of service study complying with this chapter, including:~~

~~(i) A detailed explanation of how the proposal significantly improves the accuracy of the cost of service study; and,~~

~~(ii) A description of the conditions under which the proposal should be applied, and how the conditions are currently met.~~

~~(b) The proposal represents improvements so significant and compelling that the commission should consider incorporating the proposal into this chapter.~~

(2) Under WAC 480-07-500(4), the commission will reject or require revision of any filing presenting a cost of service study that does not fully comply with this chapter unless a commission order has granted an exemption from this chapter.