



Puget Sound Energy

Meter Upgrade Project and Schedules 171 Implementation Status Report

Reporting Period:

January 1, 2018 – December 31, 2023

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Introduction

Pursuant to paragraph 32 in Order 01 of consolidated Dockets UE-180860 and UG-180861¹, Puget Sound Energy (“PSE”) provides its seventh report of the status of PSE’s Meter Upgrade Project² and of the results and costs associated with the implementation of PSE’s electric and natural gas Schedules 171 Optional Non-Communicating Meter (“NCM”) Service.

Order 01 in Dockets UE-180860 and UG-180861 required PSE to file a status report every six months (January 31 and July 31) regarding the implementation status of its Schedule 171 Optional Non-Communicating Meter Service. However, going forward from the 2023 reporting period, the semi-annual NCM reporting requirement has been discontinued per the Commission’s Final Order 24/10 in consolidated Dockets UE-220066, UG-220067, & UG-210918. This change was proposed by PSE because that PSE believed annual reporting was sufficient for monitoring NCM optional service. Both Commission Staff and Public Counsel supported ending the NCM semi-annual report to streamline PSE’s reporting to the Commission.

This report reflects the meter exchange results and the Schedules 171 transactions and accounting records as of December 31, 2023, for the years of 2018-2023. The data presented in this reporting includes preliminary and transactional data that will be supplemented and updated as data becoming available and new NCM events occurred. The costs associated with the implementation of the NCM service outlined in this report are not final and not comprehensive as this optional service requires on-going customer care, operations management, and information technology support. Additionally, some of the implementation and operation costs of electric and natural gas NCM service are recorded in the Advanced Metering Infrastructure (“AMI”) implementation and operation costs, which are not included in this report.

Although the new electric and natural gas Schedules 171 Optional NCM Service are available to customers in the AMI deployment area beginning on July 1, 2019, PSE’s preparation and customer inquiries about the NCM service began in 2018 when PSE initiated its Meter Upgrade Project, prior to approval of the new optional service on July 1, 2019.

PSE resumed all Meter Upgrade Project activities on May 5, 2020, following the conclusion of Washington Governor Inslee’s March 23, 2020 “Stay Home – Stay Healthy order”³. Until the beginning of 2023, PSE’s AMI equipment installers resumed activities with enhanced safety protocols for COVID-19. This includes additional personal protective equipment, including face coverings, practice physical distancing at all times, and post signs at all installation sites asking passersby to maintain appropriate distance. Likewise, all customer communications (e.g.,

¹ Order 01, Order Allowing Tariff Revisions to Go Into Effect Subject to Condition, dated 1/11/2019. In Order 01 paragraph 32, the Commission orders that “Puget Sound Energy must file a status report every 6 months beginning January 31, 2020, and a final report on the status and cost of its opt-out program no later than January 31, 2026.”

https://www.utc.wa.gov/_layouts/15/CasesPublicWebsite/GetDocument.aspx?docID=33&year=2018&docketNumber=180860

² <https://www.pse.com/pages/meter-upgrade>

³ Governor’s Proclamation 20-25, Stay Home – Stay Healthy

<https://www.governor.wa.gov/sites/default/files/proclamations/20-25%20Coronavirus%20Stay%20Safe-Stay%20Healthy%20%28tmp%29%20%28002%29.pdf>

letters, emails, robocalls, etc.) continue to include reminders about the need for physical distancing, and information about PSE’s COVID-19 safety measures. PSE will continue to follow the state’s recommendations related to COVID-19 and adapt to any changes as needed to carry out its Meter Upgrade Project.

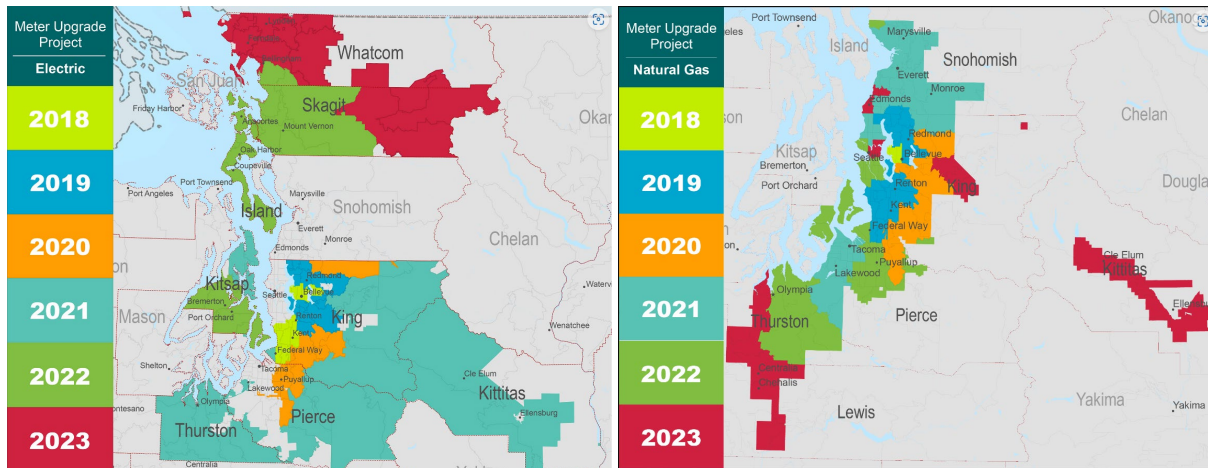
In March 2021, a new natural gas module replacement installer, Scope Services, came on board replacing the previous natural gas AMI modules installer, Tribus. Scope Services began gas module installations in May 2021 and were at full deployment scale by October 2021.

As of the end of 2023, the mass exchange of AMI electric meters and natural gas modules by PSE’s AMI equipment installers has completed. PSE personnel from electric and natural gas meter operations will continue to exchange the remaining AMI metering equipment starting from January 1, 2024, for about 24,000 electric and 20,000 natural gas meter upgrades.

The two Meter Upgrade Project maps below are the areas where exchanges are anticipated by year. These maps are updated frequently and available at pse.com/meterupgrade.

Electric Meter Upgrade Project Map

Natural Gas Meter Upgrade Project Map



Reporting Elements

1. Status of the Meter Upgrade Project, including geographic areas where AMI meters have been installed and the number of meters installed.

Numbers of AMI meters and modules installed as of December 31, 2023, by quarter:

AMI meters/modules installation Count				
		Electric	Natural Gas	Total
2017	Q4	36	30	66
2018	Q1	385	0	385
2018	Q2	32,267	184	32,451
2018	Q3	67,276	14,423	81,699
2018	Q4	73,121	30,321	103,442
2019	Q1	58,385	43,707	102,092
2019	Q2	52,360	28,362	80,722
2019	Q3	53,994	42,834	96,828
2019	Q4	54,547	40,145	94,692
2020	Q1	46,797	32,453	79,250
2020	Q2	20,159	17,194	37,353
2020	Q3	61,347	51,039 ^e	112,386
2020	Q4	66,115	56,219 ^e	122,334
2021	Q1	60,346	43,789	104,135
2021	Q2	55,001	4,437	59,438
2021	Q3	62,023 ^{Note}	49,371 ^{Note}	111,394
2021	Q4	68,407	71,018 ^{Note}	139,425
2022	Q1	54,861 ^{Note}	55,783 ^{Note}	110,644
2022	Q2	60,690 ^{Note}	51,862 ^{Note}	112,552
2022	Q3	56,738 ^{Note}	53,194	109,932
2022	Q4	42,518 ^{Note}	69,860 ^{Note}	112,378
2023	Q1	25,592	32,689	58,281
2023	Q2	59,913	40,466	100,379
2023	Q3	31,882	22,325	54,207
2023	Q4	5,351	3,075	8,426
Total		1,170,111	854,780	2,024,891

Note: These numbers are updated to reflect that some of the AMI upgrades completed in the previous year showed up again later due to quality assurance audit. The natural gas numbers also include the count of additional AMI natural gas modules that were upgraded under a task code that had been omitted in the prior reporting.

Numbers of AMI meters and modules installation as of December 30, 2023, by county area:

County Area	AMI meters/modules installation Count		
	Electric	Natural Gas	Total
ISLAND	36,778	0	36,778
KING	531,525	495,328	1,026,853
KITSAP	92,762	0	92,762
KITTITAS	14,629	2,399	17,028
LEWIS	0	0	0
PIERCE	106,322	141,568	247,890
PIERCE/KING	52,648	36,870	89,518
PIERCE/KITSAP	29,480	0	29,480
SKAGIT	52,167	0	52,167
SNOHOMISH	0	115,045	115,045
THURSTON	103,333	26,279	129,612
THURSTON/PIERCE	35,455	21,081	56,536
THURSTON/LEWIS	0	16,210	16,210
WHATCOM	89,464	0	89,464
WHATCOM/SKAGIT	25,548	0	25,548
Total	1,170,111	854,780	2,024,891

Numbers of metered schedule customer count as of December 31, 2023, by county:

County	Metered Schedule Customer Count ⁴		
	Electric	Natural Gas	Total
ISLAND	38,835	0	38,835
KING	593,175	488,783	1,081,958
KITSAP	130,356	0	130,356
KITTITAS	16,021	2,451	18,472
LEWIS	2	4,254	4,256
PIERCE	134,064	171,794	305,858
SKAGIT	64,660	0	64,660
SNOHOMISH	49	154,455	154,504
THURSTON	142,191	56,636	198,827
WHATCOM	113,156	0	113,156
Total	1,232,509	878,325	2,110,834

⁴ Including counts of metered rate schedules such as residential energy use electric Schedule 7 and natural gas Schedule 23; excluding counts of rate schedules that do not require a meter such as electric lighting schedules and natural gas water heater rental schedules

2. Information on customer communication results, including the number of customers who have informed PSE of their Initial Request for service under electric and natural gas Schedules 171

All customers are sent a letter notification 3-5 weeks ahead of the exchange to an AMI meter. The letter contains information about electric and natural gas Schedules 171 NCM service. Interested customers can contact PSE via phone, email or US mail to learn about the NCM service or to request the optional service. As of December 31, 2023, PSE received a total of 15,185 electric and natural gas Schedules 171 NCM service requests associated with 9,173 electric and 6,012 natural gas meters. Of these 15,185 NCM service requests, 3,402 have been completed, 3,053 are in progress, 4,238 were rejected, and 4,492 were cancelled.

The table below provides further details about the completed 3,402 NCM service requests and associated count of the current Schedule 171 NCM customers. 775 NCM service requests have been approved but were pending billing configuration in PSE's billing system as of December 31, 2023.

	NCM Service Request Form Completed and Approved	Schedule 171 Billing Initiated and NCM Electric Meter Installed /Natural Gas AMR Module Removed
Electric	2,333	1,831
Natural Gas	1069	796
Total	3,402	2,627

3. The number of customers on electric and natural gas schedules 171, including a) the non-payment disconnection count, b) the bill payment assistance status, and c) status of their Schedule 171 One-Time Charge Payment

	Electric	Natural Gas
Schedule 171 billed accounts as of 12/31/2023	1,831	796
Number of Schedule 171 accounts with non-payment disconnection during 1/1/2017-12/31/2023	28	6
Number of Schedule 171 accounts with bill payment assistance during 1/1/2017-12/31/2023, including pledges from the federal government, PSE or organizations that provide assistance through PSE	119	47
Count of Schedule 171 One-Time Charge ⁵ 7/1/2019-12/31/2023	291	68

⁵ Schedule 171 One-Time Charge is applicable to the NCM service request made by a customer at a point of delivery where an AMI meter has already been installed and the customer is not an active participant of PSE's Schedule 129 Low Income Program at the time of their NCM service request .

4. PSE costs associated with the implementation of electric and natural gas schedules 171, including capital costs and maintenance costs for information systems, meter networks, meter exchange, meter reading, and other related costs associated with providing service under electric and natural gas Schedules 171

The following table summarizes some of the capital costs and maintenance costs associated the implementation of electric and natural gas schedules 171. The NCM service related costs that are recorded within the Meter Upgrade Project costs during 2018 through 2020 are not included in the table below.

As PSE moves toward to the completion of its AMI meter/module exchange, PSE will gather information that allows PSE to understand how much the rest of rate payers are subsidizing NCM customers.

	2018 ^{Note 1}	2019 ^{Note 1}	2020 ^{Note 1}	2021	2022	2023	1/2018-12/2023 ^{Note 1}
Electric NCM Installation Costs ^{Note 2}	\$0	\$15,277	\$40,559	\$35,849	\$50,921	\$60,490	\$203,096
Gas NCM Installations	\$0	\$23,003	\$22,893	\$14,747	\$26,784	\$12,695	\$100,121
Electric NCM Reading Set-up Costs ^{Note 3}	\$0	\$0	\$43,227	\$8,220	\$8,014	\$0	\$16,233
Gas NCM Reading Set-up Costs ^{Note 3}	\$0	\$0	\$15,195	\$4,980	\$3,986	\$0	\$8,967
Electric NCM Reading Costs ^{Note 4}	\$0	\$0	\$18,621	\$49,513	\$72,667	\$81,572	\$265,600
Gas NCM Reading Costs ^{Note 4}	\$0	\$0	\$13,130	\$18,693	\$36,499	\$39,082	\$122,598
Electric NCM Customer Service and Project Management Related Costs ^{Note 5}	\$0	\$0	\$14,042	\$422,383	\$343,494	\$336,926	\$1,116,845
Gas NCM Customer Service and Project Management Related Costs ^{Note 5}	\$0	\$0	\$10,341	\$316,307	\$139,540	\$176,943	\$643,131
NCM Information System Capital Costs ^{Note 6}	\$1,521,425	\$2,280,046	\$12,291	\$0	\$0	\$0	\$3,813,761

- Note 1: The NCM service related costs that are recorded within the Meter Upgrade Project costs during January 1, 2018, and December 31, 2020, are not included in the amount.
- Note 2: Amount reflects the electric NCM installation costs that have been invoiced by the contractor by December 31, 2023. For the 2022 amount, the revised total includes a restating of 2022 costs that were recorded in 2023.
- Note 3: Amount reflects the annual NCM reading set-up costs that had been invoiced by the contractor in 2023, which do not include the annual setup costs for 2023. The costs for 2020 have been restated to exclude the 2020 NCM meter reading costs that were included as metering reading costs in prior reporting.

- Note 4: Amount reflects the NCM reading costs that had been invoiced by the contractor in 2023. The costs for 2020 have been restated to include the 2020 NCM meter reading costs that were included in the annual NCM reading set-up costs in prior reporting.
- Note 5: Amount reflects PSE labor costs associated with customer care staff and the project team working on the management of NCM service operations. As the mass deployment of AMI installations by the contract installers ending in 2023, PSE personnel in the NCM team and the Meter Upgrade Project team has been assigned to different functional areas. 2023 costs reflected the accounting records as of December 31, 2023, and additional adjustments to reflect the costs that should have been included in 2023 in the NCM costs but got recorded in non-NCM orders.
- Note 6: The NCM information system capital costs are the costs associated with SAP work management and interface configuration and programming changes to support the NCM service. The works include adding new rate schedules and charges, enabling NCM service request tracking, expanding bi-monthly meter reading and billing functionality, automating customer NCM communication, and integrating and testing systems.

5. Revenues associated with electric and natural gas Schedules 171

Schedule 171 For the period of 7/1/2019-12/31/2023	Additional Bi-Monthly Service Charge		One-Time Charge	
	Per Meter	Total Billed	Per Meter	Total Billed
Electric	\$15	\$402,315	\$90	\$26,280
Natural Gas	\$15	\$206,925.00	\$50	\$3,400

6. Number of Initial Requests that did not result in a submitted and completed Service Request

As of December 31, 2023, PSE has received 15,185 NCM service requests. 4,492 requests have been cancelled by customers and 4,238 NCM service requests have been rejected by PSE per the terms and conditions of Schedule 171. As outlined in electric and natural gas Schedules 171, this optional non-communicating meter service is available only to residential customers residing in a single-family dwelling (or a multi-plex residence of up to four units) that are in the area where PSE has started the deployment of AMI meter upgrade. In addition, customers have to complete a NCM service request and meet the requirements and responsibilities for service outlined in the tariff schedules.

7. Number of electric and natural gas Schedules 171 customers who discontinue service on Schedule 171

As of December 31, 2023, total of 651 NCM services have been discontinued, 100 at customer request and 520 because of that the initial NCM customers have moved out. The remaining 31 accounts' NCM service was discontinued by PSE because PSE personnel had not been able to read the meter for four consecutive months as provided for in PSE's electric and natural Schedules 171⁶ section 8:

8. The Company may refuse or revoke the Installation of a non-communicating meter at the Customer's premises for reasons including but not limited to the following conditions:
 - a. no meter reading for four consecutive calendar months when safe access is not available for the Company's personnel and standard equipment;
 - b. current or past incidents of Customer meter tampering;
 - c. current or past incidents of Customer impeding the Company's access to meter to obtain meter reads, perform maintenance or to disconnect meter for non-payment of Gas Service; or
 - d. incidents of service disconnection for non-payment (of Customer's electric and/or natural gas accounts for communicating and/or non-communicating meters) twice within the prior 12-month period.

⁶ Electric Schedule 171: https://www.pse.com/-/media/Project/PSE/Portal/Rate-documents/Electric/elec_sch_171.pdf

Natural gas Schedule 171: https://www.pse.com/-/media/Project/PSE/Portal/Rate-documents/Gas/gas_sch_171.pdf

8. PSE discussion of other issues associated with providing service under electric and natural gas Schedules 171

A. Challenges with Manual Meter Reading

For more than two decades, PSE wirelessly read nearly all its meters. All of PSE's systems have been designed to collect meter reads wirelessly since the installation of AMR technology in the late 1990s. The reintroduction of manual reading has required the creation of entirely new internal and external processes, and company and IT structure changes.

Aside from the needed PSE business structure and process changes, customer expectations and behaviors have changed; customers have naturally adapted to no longer having to provide regular access to the meter for reading. Residences have been altered to include fences, locked gates, planted vegetation, siding, and decoration around the meter face. This can make a manual meter read difficult, if not impossible. In addition to the physical impediments to reading the meter, the necessity of having someone on customers' property is a change for the customers. Even customers who are requesting NCM require time to discuss and understand that PSE will now need access to their property on a regular basis and what that means for them.

The set up and execution of efficient internal and external processes that support the manual meter reading system for the electric and natural gas Schedules 171 NCM service in an era of wireless reading was more difficult than originally anticipated. With PSE's wireless AMR metering, PSE did not previously have a group that focused on manually reading meters, so the optional NCM service has necessitated the acquisition of additional resources to physically read meters.

Additionally, since meters have not needed to be read manually for decades, customers who participate in the NCM service are not accustomed to making their meter reasonable accessible for PSE's meter reader. For the period of January 2020 through December 2023, there have been a total of 385 access issues associated that PSE's meter readers were unable to read these non-communicating meters. 256 of these 385 instances were due to a locked gate and the customer was not there to open the gate. 61 instances were due to a dog or dogs in the yard.

The NCM service has been revoked for 21 meters (one meter in 2020, and six meters in 2021, 14 in 2022, and zero in 2023) where PSE has had access denied to read a NCM for four consecutive months.

Finally, the geographically spread out nature of the participants of the optional non-communicating meter service and their different billing schedules can make it difficult to reach all the NCM customers in the short timeframe to collect the meter read necessary to bill.

B. NCM Customer Communication and Education Needs

PSE is respectful of its customers' preferences regarding the optional NCM service. PSE's goal is to exchange all meters in a timely and reasonable manner, regardless of whether it is an AMI or non-communicating meter. As such, PSE has implemented a robust communications and education process to provide customers with the opportunity

to discuss and ask questions about the NCM service and the Meter Upgrade Project. This approach requires in-depth and time intensive conversations with customers; PSE's customer communication team has consistently found that customers have both incorrect information and numerous questions on a variety of topics that may be tangentially connected to a communicating meter. This has required shifting priorities and dedicating resources to meet the new customer needs has led to a large variance in how long customer care and communication processing takes for the non-communicating meter service. Currently, PSE has customer care representatives who are trained to communicate with customers regarding their questions related to meter exchange and the NCM service.

PSE customers have never had a metering choice and this customer choice has created a need for enhanced communication and education around meters that was previously not necessary. The meter choice and its technology is not previously something that customers had to think about and the general understanding of metering technology is low. PSE has been diligently working to ensure that customer's questions are answered in a timely fashion and they are given the information needed to make an informed choice on their meter choice. These questions have included such topics as RF⁷ v. EMF⁸, how the different metering types work, what to expect for installation, "dirty electricity", as well as 5G⁹ and if it is related to AMI, who owns the meter, just to name a few. Between January 1, 2023, and December 31, 2023, PSE's customer care representatives have taken 8,283 calls with an average call handle time of 8 minutes and 30 seconds.

The simplest request to participate in the NCM service can take a little less than an hour of employee time from initial request to arrangement of an NCM installation, but other cases have taken over 50 hours of employee time from initial request to NCM installation arrangement. PSE communicates with customers through a variety of mediums and also may need to engage multiple departments including the customer care center, communications outreach, escalated complaints, legal, and the Meter Upgrade Project teams. This depth of resources is required to educate and answer customer questions so that they understand their decision to choose this optional NCM service.

D. Customer refusal of any metering type

PSE has discovered a subsection of customers who wish to refuse both meter type choices and attempt to halt exchange to either NCM or AMI. In 2023, there were 131 incidents that customers refused any meter change. Of these 131 customer sites, 30 sites were not safe for the PSE installers to be at the site due to dogs or other animal or other unsafe condition. The meters at 17 of these meter upgrade sites were covered/blocked by the customers. For the rest of the 84 sites, PSE access to the sites was denied mostly because the customers didn't provide the key/code to the sites or the key/code did not work.

- First, some customers will repeatedly refuse any approved meter choice. Since the meter options consist of a non-communicating meter or an AMI communicating meter for eligible residential customers, PSE continues to engage and educate customers in

⁷ radio frequency

⁸ radiofrequency electromagnetic fields

⁹ 5th generation of mobile networks (5G)

conversation regarding the optional non-communicating meter service. The process for the optional NCM service allows customers 67 days to return their completed and signed paperwork for acceptance into the service.

PSE has found that some customers in this group will not return paperwork to participate in the optional NCM service, they then will refuse AMI meter installation again, and may also have barriers that prevent the safe installation of the new meter. This then begins another 67-day process in which PSE does not attempt AMI exchange. PSE does this to allow customers time to think over their meter choices and avoid Schedule 171 One-Time Charge associated with installing a non-communicating meter after a standard AMI meter installation.

These NCM cases can take at minimum 134 days, i.e., four and a half months, for PSE to no longer delay standard AMI meter installation. After the non-communication meter paperwork expires for the second time, PSE will move forward to install a standard AMI meter. The installation of the standard meter may also face barriers to installation, including lack of access, which may result in increased installation timeframes. . For these cases, PSE will move forward with installing AMI meters following our normal processes for customer access issues.

Customers who are eligible for the optional NCM service may decide to return their paperwork at any time to install a non-communicating meter instead. PSE has made every attempt to work directly with these customers who have repeatedly refused any new meter choice.

- Second, PSE has seen some customers refuse PSE personnel access to its metering equipment for either a NCM or AMI installation. PSE has seen customers place bars across the meter base, build structures around meters, or refuse access to enclosed spaces where meters reside among other things.
- Finally, PSE encountered several threats or acts of violence when attempting to complete exchanges for certain customers. On one occasion, a customer climbed on the hood of a vehicle after the AMI meter exchange was completed after they didn't return the paperwork to participate in the NCM service. On another occasion, a customer who had refused multiple times to return the required NCM service paperwork threatened to retrieve their gun when PSE's installer attempted to install a standard AMI meter. For the Meter Upgrade Project and the NCM service, PSE has had to contact police to attempt a meter installation or module exchange safely.

For all these cases, PSE will move forward with installing AMI meters following PSE's normal processes for customer access issues should there be a barrier to installation.