



1414 West Hamilton Avenue
 P.O. Box 8
 Eau Claire, WI 54702-0008
 Telephone (800) 895-4999

November 20, 2019

Via Electronic Filing

Steffany Powell Coker
 Secretary to the Commission
 Public Service Commission of Wisconsin
 P.O. Box 7854
 Madison, WI 53707-7854

**RE: Application of Northern States Power Company,
 a Wisconsin Corporation, for Approval of
 Electric Vehicle Service Programs**

Docket 4220-TE-104

Attention: Mr. Martin Day

Dear Ms. Powell Coker:

Northern States Power Company, a Wisconsin Corporation (“NSPW” or “the Company”), submits to the Public Service Commission of Wisconsin (“Commission”) this application for approval of electric vehicle service programs (“Application”).

As described in this Application, the Company proposes two residential electric vehicle (“EV”) charging programs—the Residential EV Home Service Program and Voluntary EV Charger Service Program (together the “Residential EV Service Programs” or “Residential Programs”). The Home Service Program is for customers on the Company’s standard Residential Service (Rg-1) or Farm Service (Fg-1) and the Voluntary Charger Service Program is for customers on the Company’s Residential Time-of-Day Service (Rg-2). The Residential Programs provide customers with EV Charging Equipment (“charging equipment” or “charger”), allowing customers to charge their EVs at home and utilize Time of Day (“TOD”) rates to incentivize EV customers to charge during off-peak times. By providing customers with the choice to either prepay for the charger or pay a bundled monthly customer charge for the charger, the Company believes the Residential Programs address the upfront cost barrier to EV adoption. The Company also believes the Residential Programs deliver upfront and ongoing cost savings, and a positive customer experience, through a combination of charging equipment and TOD rate design. Because program costs are recovered through dedicated customer charges, the Residential Programs do not rely on cross subsidization from non-participating non-EV owning customers.

The Application also proposes a pilot Commercial EV Service Program (“Commercial Program”), which allows the Company to study an alternative to Wisconsin’s current extension rules for medium and large EV customers. Through this Commercial Program, the Company wishes to study a modification to the electric extension rules formula to provide eligible customers with a revenue-based allowance. The revenue-based allowance formula calculates an extension allowance whereby the levelized annual revenue requirement of the investments necessary to serve the new customer load equals the incremental distribution demand revenues that will materialize to the Company due

to the load growth. In this regard, the revenue-based formula provides an allowance customized to each customer-specific extension cost and incremental revenues. It should be noted that the Company is also proposing to apply these revenue-based extension rules for non-EV customers in an Economic Development pilot filed in Docket 4220-TE-105. Under the Company's proposal, the revenue-based extension rules allow the Company to install, own and maintain service panels, conduit, wiring, and equipment located on a Customer's premises and that the cost of these assets be offset by the customer's allowance. Finally, the Application proposes to provide customers with the option of Company installed, owned, and maintained charging equipment, the costs of which are recovered by a dedicated monthly service charge per port. Because the allowance under the revenue-based extension rules is based on the anticipated incremental revenue, and charger costs are recovered through dedicated customer charges, the Commercial Program does not rely on cross subsidization from other customers.

Specifically, the Company requests that the Commission:

- approve the proposed Residential EV Service Programs and the related request for waiver from certain meter-related rule subparts that are inconsistent with the Company's proposal, including some subparts outlined in Wis. Admin. Code PSC §§ 113.0406, 113.0407, 113.08, and 113.09 and in the rules found in the Company's Tariffs; and
- approve the proposed Commercial EV Service Program and the related request for a waiver from extension-related rule subparts that are inconsistent with the Company's proposal, including some subparts outlined in Wis. Admin. Code PSC § 113.1005(1), PSC § 113.1008(3) and in the rules found in the Company's Tariffs.

The balance of this filing describes key program features for the EV offerings. The Company also includes the following Attachments in support of this Application:

- Attachment A Residential EV Service Programs Tariff Sheets
- Attachment B Residential EV Service Program Monthly Charge Calculations
- Attachment C Residential EV Service Program Net Metering Diagram
- Attachment D Commercial EV Service Program Tariff Sheet
- Attachment E Commercial EV Service Program Monthly Charge Calculations
- Attachment F Commercial EV Service Program Revenue-Based Extension Rules

Because customer participation in the Residential EV Service Programs and Commercial EV Service Program are voluntary, and this application does not request an increase in rates or a reduction in service for non-participating customers, the Company does not believe a contested case proceeding or hearing is required. The Company respectfully requests that the Commission issue an Order approving the programs by March 1, 2020 so that the programs can be made available to customers in mid-2020.

Please call Deborah Erwin at (608) 280-7311 if you have any questions regarding this filing. All correspondence concerning this filing should be sent to each of the following:

Deborah Erwin
Xcel Energy
10 East Doty St., Suite 511
Madison, WI 53707

Mara K. Ascheman
Xcel Energy
414 Nicollet Mall, 401-08
Minneapolis, MN, 55401

Sincerely,

A handwritten signature in black ink, appearing to read "Karl J. Hoesly". The signature is written in a cursive style with a large, sweeping underline that extends across the width of the signature.

Karl J. Hoesly
Regional Vice President, Rates and Regulatory Affairs

Encl.

CC: Deborah E. Erwin
Julie A. McRea
Tyrel J. Zich
Mara K. Ascheman

**BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN**

Application of Northern States Power Company, a Wisconsin Corporation, for Approval of Electric Vehicle Service Programs } } **4220-TE-104**

Pursuant to Wis. Stat. §§ 196.19 and 196.20, Northern States Power Company, a Wisconsin Corporation (“NSPW” or “the Company”), a wholly owned subsidiary of Xcel Energy Inc. (“Xcel Energy”), submits this request for approval of electric vehicle service programs (the “Application”). In support of the Application, NSPW respectfully states the following:

A. Residential EV Service Programs

Background:

The Commission’s Investigation of Electric Vehicle Policy and Regulation¹ identified several barriers to electric vehicle (“EV”) adoption cited by commenters. The two barriers referenced by commenters the most were charging infrastructure/range anxiety and high upfront costs. As stated in the Company’s comments in the Commission’s investigation, utilities can play a critical role in mitigating many barriers to adoption. Xcel Energy has focused on programs that address several important barriers, including: a) lack of awareness and information on EVs and EV infrastructure, b) upfront costs and access to EV infrastructure, and c) insufficient signals on when and how to charge. In the Residential EV Home Service Program and Voluntary EV Charger Service Program (together the “EV Service Programs” or “Residential Programs”), the Company seeks to address all three barriers in an unsubsidized manner.

The Company currently serves residential EV charging needs through whole-house Time of Day (“TOD”) rates, which enables savings by charging during off-peak periods at night. The proposal in this Application arises from the Company’s desire to refine its suite of customer choices and to increase customer satisfaction through a tailored EV service option to facilitate EV adoption and provide residential, single-family homes access to simple, affordable EV charging solutions. To that end, the Company wishes to establish two residential EV charging services in order to provide cost savings to EV customers and improve customer service and experience while maintaining safety, reliability, and billing accuracy.

- **Residential EV Home Service Program:** a program for qualifying residential customers with an electric vehicle who are not on the Company’s Time of Day Service Rate
- **Voluntary EV Charger Service Program:** a program for qualifying residential customers with an electric vehicle who are on the Company’s Time of Day Service Rate

The proposed Residential EV Home Service Program and Voluntary EV Charging Service Program deliver upfront cost savings and a positive customer experience through a combination of new EV Charging Equipment (“charging equipment” or “charger”) and TOD rate design. The proposed Residential Programs do not rely on cross subsidization from non-participating customers.

¹ Docket No. 5-EI-156 Commission Staff Summary Memorandum PSC Ref. #375500

The Residential Programs have been developed based on experience Xcel Energy has had with EV options in Minnesota. On May 9, 2018 the Minnesota Public Utilities Commission approved a pilot version of the EV Home Service Program proposed by the Company's sister utility, Northern States Power Company, a Minnesota corporation ("NSPM"), in Docket No. E002/M-17-817. Prior to developing its pilot, NSPM had offered a Residential EV Service which required a second meter. NSPM proposed its Residential EV Service Pilot after customer participation in its initial EV rate was low, and stakeholders requested an option with lower upfront costs to the customer. The cost of the second meter was identified by stakeholders as a major barrier to customer participation in NSPM's initial EV rate.

NSPM launched the Residential EV Service Pilot in August 2018 to study the effectiveness of offering residential customers a home charging product without the need to install a second TOD meter. The pilot lowered potential barriers to EV ownership and participation in time-varying rates by reducing customers' upfront costs related to charger installation and the installation of a second meter. Through the pilot, NSPM coordinated the installation of Level 2 charging equipment at a customer's home to facilitate faster, convenient EV charging on a time-varying rate. The chargers used in the pilot provide billing quality energy usage data through the customer's wireless internet ("Wi-Fi"). This allows participating customers to take service under a TOD energy rate that incentivizes participants to schedule their charging during off-peak periods without the need for a second meter and without the need to move all of their energy usage to a whole-house TOD energy rate. Customers were able to choose between two qualifying charging equipment vendors that met the Company's functional requirements. To deploy the equipment, NSPM contracted with two local electricians.

NSPM participants were provided choices on payment options for the equipment and installation. Customers could either prepay for the equipment at the time of installation, or pay for the equipment over time through a higher monthly customer charge. Of the participating customers, 73 percent preferred to pay monthly through the customer charge rather than prepaying for the equipment.

Based on the 100 installations included in the pilot, NSPM estimated that the pilot saved the average customer \$2,196 in upfront costs for installation, primarily in costs associated with the need for a second service and meter, compared to NSPM's separately metered Residential EV Service. NSPM's pilot has also been successful at encouraging off-peak charging with over 90 percent of charging occurring during the off-peak window used for the pilot (9 p.m.-9 a.m.). These results are a positive indication that utility involvement can help lower upfront costs with a personalized approach and also ensure the benefits of EV charging accrue to drivers and all other customers as well.

One challenge NSPM anticipated before pilot launch was issues with customer Wi-Fi connectivity. However, this has proven to not be a significant issue to date. Two customers were initially unable to configure their home network for NSPM's pilot. Through additional system configurations, NSPM was able to troubleshoot and resolve the issue and allow for accurate billing data to be passed onto its system.

NSPM's latest Minnesota Residential EV Charging Compliance Filing, which contains detailed information regarding the first year of the pilot, can be found in Docket No. E002/M-15-111². On August 30, 2019, NSPM filed for an expansion of its Minnesota EV Home Service Pilot in Docket No. E002/M-19-559 proposing to expand its pilot into a full-time, permanent offering, and incorporating lessons learned during the pilot. The expanded filing also proposes to expand the offering to customers already on whole-house residential TOD rate through its newly proposed Voluntary EV Charger Service.

Program Design:

NSPW proposes to build on the success of NSPM's Residential Electric Vehicle Service Pilot in Minnesota and plans to open two programs as standing offers to all eligible Wisconsin residential customers. The Residential Programs will be open to residential customers who own and live in single family homes, townhomes, duplexes, and other multi-family dwellings with separately metered service. The Company recognizes that the Residential Programs do not address the majority of multi-family charging scenarios; however, the Company is exploring future pilot programs to address multi-family charging needs.

1. Payment Options

Under the offerings, consistent with the Minnesota pilot, customers will have two payment options. First, customers can elect to receive charging equipment and have that equipment installed at their home without making any upfront payment for the equipment or installation. These customers will pay the "bundled" service customer charge, which includes cost recovery of Company-provided charging equipment and installation costs. Alternatively, customers can elect to pay the full cost of their charger and installation up front. These customers will then pay a reduced "prepay option" customer charge that excludes the installed charger cost. In both cases, customers will be responsible for the costs of premises wiring and necessary permits for installation.

2. Terms of Participation

The Residential EV Service Programs Tariff Sheets (Attachment A) address the specific terms and conditions for participation in the program. In order to participate in either program, participants must

- receive residential electric service or farm service from Xcel Energy in Wisconsin with no past due bills;
- must own and live in a single-family home, defined as a detached single family home, townhome/row house, or duplex;
- have possession of an electric vehicle, through ownership or lease;
- have Wi-Fi service at site;
- site location shall have sufficient space for locating and maintaining the charging equipment.

² E002/M-15-111 NSPM Residential EV Charging Compliance Filing:
<https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPopup&documentId={B0BF0F6B-0000-CF2D-9F65-F327035855DC}&documentTitle=20195-153306-02>

To be eligible to participate in the EV Home Service Program, participants must not participate in the Residential Time of Day Service Rate (Rg-2) or the Company's net metering tariffs (see Attachment C for more details). If the customer is a participant in the Company's Residential Time of Day Service Rate (Rg-2), then they are eligible to participate in the Company's Voluntary EV Charger Service Program. By offering both the EV Home Service and Voluntary EV Charger Service Programs, the Company can offer charging services to more residential customers. Due to billing implications, EV Home Service is only available to Rg-1 and Fg-1 customers who do not participate in the Company's net metering tariff. The Voluntary EV Charger Service Program extends the Program to whole-home Time-of-Day customers and customers who participate in the Company's net metering tariff.

Customer Obligations: all customers agree to:

- participate in customer surveys and provide feedback about the Programs;
- provide access and assistance to facilitate random equipment testing;
- provide information allowing the Company to analyze energy use, vehicle charging patterns, and reactions to vehicle charging load management activities. Customer vehicle charging sessions will be subject to interruption and power reduction;
- be responsible for routine inspection, maintenance, and troubleshooting not requiring technicians (e.g. resetting the circuit breaker);
- operations and maintenance of the charging equipment requiring technician support will be accomplished by qualified contractors; and
- receive communications from the Company related to the Programs.

All charging equipment installed through the Residential Programs will be owned and maintained by the Company. Following the term of the agreement, the Company will continue to own all charging equipment subject to the bundled service customer charge (i.e., that which has not been paid for by the customer on an upfront basis). Customers have the option to pre-pay for the charger or pay for the charger over time through a monthly charge. For customers paying the pre-pay option service customer charge (i.e., those who paid for equipment and installation on an upfront basis), the Company will transfer ownership of the charging equipment to each customer following any termination of the customer's participation in the program for any reason. For pre-pay customers, the term of the agreement shall continue as long as the customer wishes to use the equipment. For the bundled option, the term of the agreement is set for 10 years, with pricing based on fully recovering the costs of the equipment over that term. Customers who select the bundled option and choose to leave the program prior to fully covering the cost of the equipment will pay a \$200 removal fee and the Company will retain ownership of the equipment. In this offering, the Company does not plan to offer the option for customers to purchase equipment at the end of the bundled option agreement term. Chargers returned to the Company before the end of their useful life may be redeployed to other customers without affecting the Company's obligations to customers receiving the redeployed chargers. The Company will continue to evaluate the service lives of the charging equipment and will adjust the programs if the charging equipment lives are significantly less or greater than the 10 year life included in the Residential Programs.

3. Customer Costs

In this offering, customers will pay a monthly bundled or prepay customer charge that reflects actual costs of operating the program. This monthly customer charge is designed to ensure that Residential

Program costs are not charged to non-participating customers. On the rate design side, the Company proposes a new three-period EV TOD as part of the EV Home Service Program described below (see Attachment A for more details). When all of the customer costs are considered, the Residential Programs offer EV customers savings as compared to the Company's Standard Residential Service.

a. Monthly Customer Charges

The Company proposes a bundled monthly customer charge of \$17.00 and a prepay monthly customer charge of \$7.00 for EV Home Service. For Voluntary EV Charger Service, the Company proposes a \$13.00 bundled monthly customer charge and an \$3.00 prepay monthly customer charge.

Future changes in the proposed monthly customer charges may be driven by costs of equipment installation being different than initially anticipated. In addition, data service charges from the equipment vendors may change in the future. The pricing in this Application is based on known equipment and program implementation costs. The costs included in this filing are based on NSPM's experience with the Minnesota pilot; however, the more rural and dispersed nature of the Company's Wisconsin service territory may result in different installation costs.³ The Company plans to utilize a Request for Proposal ("RFP") process prior to the launch of the Residential Programs in order to contract with installers in the Company's Wisconsin service territory. The Company may update the Residential Program pricing to incorporate the RFP results in a Compliance Filing prior to the launch of the programs if the results of the RFP are substantially different than the initial filing assumptions. The method for calculation of the monthly customer charges can be found in Attachment B.

In the future, as time passes and the program continues to grow, it may be necessary for the Company to reassess the monthly customer charges. More charging options and upgrades to charging technology may also bring new functionalities, such as demand management services or wireless charging. Such changes could lead to changes in costs but make the charging equipment even more useful or improve the experience for customers. In order to ensure that the Company is keeping up with these changes, the Company intends to address any changes to the monthly customer charges during each rate case or in dedicated filings if necessary.

With the addition of EV Service Programs, residential customers will have a variety of options to charge their electric vehicles. Table 1 below compares the monthly cost for EV charging under the Company's current rate options and proposed options. The table shows, for each potential rate option, the estimated costs that customers will incur to participate in EV charging.

³ For example, most pilot installations took place in the Twin Cities metropolitan area. NSPW anticipates customer participation in a variety of locations in its Wisconsin territory, and hopes to contract with local installers in a manner that minimizes drive time to these diverse locations.

**Table 1
NSPW Level 2 Smart Charging Equipment Options**

Rate Options	Monthly EV Customer Charge	Monthly EV Energy Costs⁴	Monthly EV Total Costs
Customer-Provided Charger Options			
Standard Residential/Farm Service (Rg-1/Fg-1)	\$0	\$41	\$41
Time of Day Residential Service (Rg-2)	\$0	\$31	\$31
Company-Provided Charger Options			
EV Home Service (EVR-1) Prepay	\$7	\$24	\$31
EV Home Service (EVR-1) Bundled	\$17*	\$24	\$41*
Voluntary EV Charger Service (EVR-2) Prepay	\$3	\$31	\$34
Voluntary EV Charger Service (EVR-2) Bundled	\$13*	\$31	\$44*

* Includes the cost of charging equipment.

The calculation of monthly customer charges in Attachment B indicates an estimated charger and installation cost of \$780. As previously stated, these costs are based on NSPM’s experience with the Minnesota pilot. The costs represent the average cost between the two charging equipment options and average installation costs between the two installers. It is important to note that under the pre-pay option, customers will pay the actual costs incurred for installation and the specific charging equipment they select. Actual costs for customer’s choosing to provide their own charging equipment will be reflective of the type of charging equipment installed and electrician costs. Both charging equipment options in the Company’s Residential Programs are smart level 2 charging equipment capable of network connectivity and load management, capabilities that are necessary for the program design. Customers choosing to self-provide have the option of purchasing less expensive level 2 chargers with less functionality.

Table 1 does not show costs associated with premises wiring or ongoing charger maintenance costs. Customers will be responsible for paying the full cost of premises wiring for both customer-provided and company-provided options. However, the Company’s Residential Programs simplify the installation of premises wiring by allowing customers to utilize the Company’s charger installation contractor to install, and be directly invoiced for, premises wiring. The Company’s Residential Programs also simplify and provide cost certainty for charger maintenance by supporting maintenance for the 10 year program life. Customer-provided charging equipment maintenance costs will be borne entirely by the customer.

b. Rate Design

For the Residential EV Home Service Program, the EV load served by the Company-provided charging equipment is subject to the proposed three-period rate structure included in the EV Home Service Program. Only the separately metered EV load as part of the EV Home Service Program would be subject to the TOD rate design. The remainder of the house load would remain on the

⁴ Monthly EV Energy Costs assumes 350 kWh monthly. See Table 5 for details.

standard rate offering Rg-1 or Farm Service Fg-1. Customers taking service on Rg-2 are not eligible to participate in the EV Home Service Program because the TOD rate for EV charging is an integral part of the program, and EV charging for customers already on Rg-2 is already subject to a TOD rate. Voluntary EV Charger Service Program customers will have both their EV load and house load subject to the existing two-part TOD rate design, Residential Time-of-Day Service (Rg-2).

Customers taking service on Rg-1 or Fg-1 are not eligible to participate in the Voluntary EV Charger Service Program because the whole-home TOD rate for EV charging is necessary to incentivize off-peak charging under the Voluntary EV Charger Service Program. Tables 2 and 3 below compare the new three-period TOD rate design to the Company’s existing TOD rate (Rg-2).

**Table 2
Rate Design**

¢ / kWh	Time-of-Day (Rg-2)	EV Time-of-Day (EVR-1)
On-Peak Summer	20.20	20.22
Intermediate Summer	N/A	12.71
Off-Peak Summer	7.775	5.97
On-Peak Winter	17.70	12.71
Intermediate Winter	N/A	12.71
Off-Peak Winter	7.775	5.97

**Table 3
TOD Time Periods**

	Time-of-Day (Rg-2)	EV Time-of-Day (EVR-1)
On-Peak	9AM – 9PM Excluding Weekends & Holidays	12PM (Noon) – 8PM Excluding Weekends & Holidays Only June through September
Intermediate	N/A	8AM – 12PM (Noon) and 8PM – 12AM (Midnight) Including October – May On-Peak Times
Off-Peak	9PM – 9AM	12AM (Midnight) – 8AM

The Company is proposing a new EV TOD rate design because it is more cost causal than the Company’s currently available TOD rate and better addresses customer needs for EV charging. The capability of the charger to measure usage in 15 minute intervals makes it possible to implement this more granular rate design without incurring additional cost (e.g. as would be associated with installing interval meters or reprogramming existing TOD meters).

The proposed three-period EV TOD rate structure reflects the cost of generating and supplying electricity during different periods of time and incentivizes off-peak charging. The three-period EV TOD pricing was designed to reflect the time-varying cost to serve all residential customers, not just EV customers. The three time periods are based on estimated hourly system loads and marginal energy cost, with on-peak periods reflecting the highest system cost hours and off-peak periods reflecting the lowest system cost hours. Customer convenience and simplicity were also considered.

The EV TOD rate structure includes three components; energy, production, and distribution. Energy costs include fuel and variable production costs which are allocated to each hour of the year

by the marginal energy 8760 allocator. Production costs include fixed production and one-half of transmission costs⁵ which are allocated to each hour of the year by the average and excess method. Distribution costs include distribution, the remaining transmission costs, and remaining costs necessary to meet the class revenue requirement, all of which is allocated by the average and excess method. The average and excess method allocates the average load proportion of costs to all hours, and excess load proportion of costs to the intermediate- and on-peak hours. Table 4 shows rates by the three components. Allocations are based on the Company's Class Cost of Service Study from Docket No. 4220-UR-123.

Table 4
EV TOD Rate Development

¢ / kWh	Energy	Production	Distribution	Total
On-Peak	4.00	10.22	6.00	20.22
Intermediate-Peak	3.10	6.07	3.54	12.71
Off-Peak	1.98	2.53	1.46	5.97
Costs Included	Fuel and Variable Production	Fixed Production and ½ Transmission	Distribution, ½ Transmission, and Revenue Adjustment	
Allocation Method	Allocated by hourly marginal energy from 8760 allocator	Allocated by Average-Excess method	Allocated by Average-Excess method	

While the new EV TOD on-peak period rates are slightly higher than the Company's current TOD (Rg-2) on-peak period rates, the off-peak period rates are correspondingly lower and the new intermediate-peak period helps lower costs to customers charging in both non-summer months and during non-peak times. With properly scheduled charging using this rate structure, customers should have a significant opportunity to lower their monthly EV charging bills. Table 5 below summarizes the monthly energy-only bill for customers enrolled in the EV Service Programs compared to standard residential rates. Based on the assumption of 350 kWh as typical monthly charging usage (0.3 kWh per mile and 14,000 miles driven per year), 90 percent off-peak charging, 6 percent intermediate-peak charging, and 4 percent on-peak charging, customers enrolled in Electric Vehicle Home Service (EVR-1) would save over \$200 per year on energy costs, over standard or farm service (Rg-1/Fg-1). The values outlined in Table 5 only include energy costs associated with EV charging and exclude the monthly charger costs from Table 1.

⁵ One-half transmission costs included in Production reflects the commission decision on the Community Solar Transmission credit in 4220-UR-124.

Table 5
Monthly Energy-Only Bill By Monthly kWh

	150	275	350	425	500
Rg-1/Fg-1 (Standard/Farm)	\$18	\$32	\$41	\$50	\$59
Rg-2 (TOD)	\$13	\$24	\$31	\$38	\$44
EVR-1 (Home Service)	\$10	\$19	\$24	\$29	\$34
EVR-2 (Voluntary Service)	\$13	\$24	\$31	\$38	\$44

4. Customer Experience Obtaining Charging Equipment

After conducting a RFP process, NSPM partnered with two nation-leading equipment vendors as a part of its pilot. Pilot customers reported high levels of satisfaction with the equipment, and NSPM’s operational experience has also been positive. As the Residential Programs grow both NSPM and now NSPW will continue to use these two proven equipment vendors and will explore adding additional equipment vendors that meet the Company’s functional requirements to increase customer choice opportunities over time and promote vendor competitiveness. NSPW plans to work with NSPM on future vendor selection processes and requirements, and customers of both companies will benefit from the economies of scale and shared learnings associated with offering parallel residential programs.

In conjunction with the pilot, NSPM performed an assessment of market-available EV charging products that meet minimum functional requirements. These requirements were vetted throughout the vendor selection process, including the RFP response assessment and on-site product demonstrations. Some of those requirements include the following:

- Metering and billing accuracy of plus or minus 2 percent;
- Ability to retrieve 15-minute interval energy usage data;
- Secure data transfer between the customer and Xcel Energy;
- Secure onboard data storage for 15 minute interval data for minimum of 90 days;
- 10 watt standby power consumption maximum;
- Charging device must be UL Listed;
- Compatible metering data format (XML, MV90, OCPP and CNMP);
- Certain administrative privileges that enable the Company to access charging data and to receive information from the charger; and
- Editing controls that prevent data tampering.

Electricians were extremely important in providing a successful turn-key installation service for the Minnesota pilot, helping customers connect the chargers to a Wi-Fi network and scheduling the charging for the time-varying rate. As the Company launches the permanent offering in Wisconsin, NSPW will work to identify electricians across the Company’s Wisconsin service territory and select program partners through a RFP process. As participation grows, the Company will identify additional electricians through a similar identification and selection process to facilitate the installation process throughout the Company’s service territory as needed.

As with the Minnesota pilot, customers will enroll in the EV Service Programs online. After completing the online enrollment form, the Company’s contracted electricians will contact the customer to coordinate installation of charging equipment. Installation will be completed by the

electricians. Having the Company contract with vetted electricians and providing fully-planned installations for customers worked well during the Minnesota pilot and reduced the “hassle factor” of customers having to research how to have charging equipment installed at their homes. This process also ensures that quality installations are completed and required permitting and safety measures are performed.

Consistent with the Minnesota pilot, customers will be responsible for the cost of premises wiring to connect the charging equipment to their meter. Customers can select their own electrician to install this wiring or the Company’s contracted electricians can also provide that service to customers at the time of charger install. The installation contractor will provide the customer detailed cost estimates before commencing work. Once the work is complete, the contractor will invoice the Company for installation costs, and it will be the customer’s obligation to pay for the premises wiring and associated permits. The contractor will also be sending the Company premises wiring costs for each installation when additional wiring is needed so the Company can continue to track the actual costs of installations that require premises wiring.

The Company will purchase the charging equipment from the vendors. The Company will own all units during the term of the Residential Program. Under the EV Service Programs, the vendors will be responsible for collecting customer energy usage through the customer’s home Wi-Fi network, and providing the data to the Company on a daily basis and in a standard format through a secure and encrypted process. The installation contractor will also program the chargers to take advantage of the applicable TOD rates.

5. Load Management

For the NSPM pilot, chargers were programmed to begin charging at the start of the off-peak period at 9p.m. In NSPM’s Minnesota pilot, this scheduled charging approach resulted in rates of off-peak charging exceeding 90 percent. Although the majority of charging load occurred during the off-peak period, the pilot participants created a secondary peak due to participants all charging at the same time at the start of the off-peak period. For both NSPM’s expansion of the program and NSPW’s Residential Programs, charging equipment installed will be programmed by the Company’s contractor to charge off-peak beginning at 12am (midnight) with customer ability to override the default charging schedule. By starting all charging by default at midnight, the Company expects to reduce the potential for a secondary peak from EV loads in the Residential Programs. The installed charging equipment also has direct load management and load control capabilities. The EV Service Programs contain provisions allowing the company to test load management of EV charging to assist the Company in designing future EV managed charging programs.

6. Marketing Considerations

Costs associated with marketing and administering the Residential EV Service Programs will be incorporated into program pricing, including staff time, marketing, and communications. Like for other regulated programs, the Company may pursue subscribers through a targeted outreach campaign to potential participants. As a part of the campaign, the Company will develop print materials and an informational website to communicate to customers about the Residential Programs and available subscription opportunities. The Company will rely on support from its call center agents to communicate with customers about opportunities to participate in the Residential Programs. NSPW will also reach out to customers through channels that customers expect to use

when receiving or seeking information regarding any of the products and services offered by the Company such as email, social media, and traditional media.

7. Annual Reporting

The Company will prepare and file an annual operational report that will provide the number of customers who have arranged to purchase electricity under each of the Residential EV Service Programs and options (bundled and prepay) and the total amount of electricity sold by the Residential Programs by time of day.

8. Waiver Request

Pursuant to Wis. Admin. Code PSC § 113.01(2), the Company hereby requests that the Commission grant a waiver from certain meter-related rule subparts that are inconsistent with the Company's proposal, including some subparts outlined in Wis. Admin. Code PSC §§ 113.0406, 113.0407, 113.08 and 113.09 and in the Company's Tariff for the implementation of the Residential EV Home Service Program. In effect, the Company proposes not to define charging equipment as "metering equipment" for purposes of the EV Home Service Program and the above-cited rules and tariff, and instead that the equipment be governed by the specific provisions in the Company's proposed tariff and customer agreement. The Company believes this request is reasonable given the interest in using new technologies to enhance customer experience and lower customer participation costs.

9. Accounting and Regulatory Treatment

The purchase and installation of the EV charging and metering equipment that will be used for the EV Home Service Program will be capitalized as an electric distribution asset to FERC Account 101, Plant in Service in plant account 370 Meters. Charging equipment that will be used for the Voluntary EV Charger Service Program will be capitalized as an electric distribution asset to FERC Account 101, Plant in Service in plant account 371 Installations on customers' premises. The Company will request in its next rate filing that the capitalized costs be allowed in rate base and receive a return on investment.

The bundled service monthly customer charge is designed to recover the revenue requirement for the installed charger unit cost along with charger maintenance and administrative costs. The prepay service monthly customer charge is designed to recover the same costs with the exception of the installed charger unit cost, which is paid for upfront by the customer and is recorded with a value of \$0 in the Company's property records.

The Company is not requesting a deferral in this Application for revenue requirement impacts of the EV Service Programs. The Company does not anticipate the revenue requirement impact in 2020 and 2021 to be substantial. Also, as described above, there should be no revenue requirement impacts for other customers over the life of the assets as these Residential Programs will be implemented in an unsubsidized manner. The Company will fully address issues of cost recovery in its next rate proceeding and envisions that any revenue requirement impact associated with the Residential Programs would be recovered from participants.

B. Commercial Electric Vehicle Service Program

Background:

In this pilot Commercial EV Service Program (“Commercial Program”), the Company seeks to address upfront costs and access to EV infrastructure in an unsubsidized manner. The Commercial EV Service Program allows the Company to study an alternative to Wisconsin’s extension rules for medium and large EV customers. Through this pilot Commercial Program, the Company wishes to study a modification (based on principles found in the gas extension rules) to the electric extension rules formula to provide eligible customers with a revenue-based allowance. The revenue-based allowance formula calculates an extension allowance whereby the levelized annual revenue requirement of the investments necessary to serve the new customer load equals the incremental distribution demand revenues that will materialize to the Company due to the load growth. In this regard, the revenue-based formula provides an allowance customized to each customer specific extension cost and incremental revenues.⁶ Under the Company’s proposal, the revenue-based extension rules allow the Company to install, own and maintain service panels, conduit, wiring, and equipment located on a Customer’s premises and that the cost of these assets be offset by the customers allowance. Finally, the Application proposes to provide customers with the option of Company installed, owned, and maintained charging equipment, the costs of which are recovered by a dedicated monthly service charge per port. Because the allowance under the revenue-based extension rules are based on the anticipated incremental distribution revenue, and charger costs are recovered through dedicated customer charges, the Commercial EV Service Program does not rely on cross subsidization from other customers.

Program Design:

1. Availability

This Commercial Program is available to medium and large customers adding incremental load served on rate schedules Cg-7, Cp-3, Cg-9, and Cp-1. Customers must be served through a dedicated service with the primary purpose of charging electric vehicles and must maintain a minimum of four ports per site, or, in cases with less than four ports, a minimum of 50 kW of estimated incremental load above their historical Demand Baseline for one out of the 12 months of each of the contract service years. Because it is a pilot, the Commercial EV Service Program has a maximum subscribed limit of 30 MW of estimated incremental load above Demand Baseline Levels. The Commercial Program is attached to the application as Attachment D.

2. Baseline Demand

A customer’s Baseline Demand Level will be based on a Baseline Period. The customer’s Baseline Period represents a recent, historical 12-month time period. Historical Distribution Demand levels derived from the Baseline Period make up the Demand Baseline Level and are used for billing the corresponding months of the contract period. The Demand Baseline Level will be contracted prior

⁶ It should be noted that the Company is also proposing to apply these revenue-based extension rules for non-EV customers in an Economic Development pilot filed in Docket 4220-TE-105.

to beginning service under this Commercial Program and will be applicable for the duration of the contract period. The Baseline Customer Demand for new customers will be zero.

Adjustments to the strict historical consumption patterns may be made by the Company to eliminate data anomalies in the Baseline Period that are not expected to reoccur, or to accommodate unique production patterns as demonstrated in historical data from the last 24 months (e.g., if production is commonly reduced during a specific day of the week or for infrequent maintenance shutdown).

At the Company's discretion, adjustments to a customer's set Baseline Demand Level may be made at the customer's request to account for demand management activities.

3. Allowance Refund and Terms and Conditions

If after two years of beginning service and receiving a construction allowance under the Revenue-Based Extension Rules a customer's actual incremental load is lower than the estimated incremental load by greater than 25 percent, the customer is required to refund a portion of the allowance to the Company equaling the total allowance given less the allowance that would have been provided to the customer based on the customer's actual incremental load. The Company is proposing this refund provision as a protection mechanism for non-participating customers; however, the provision adds significant administrative burden to the Commercial Program. The Company believes that the provision is appropriate on a pilot-basis and plans to produce reporting to show that the distribution revenues are adequate to recover the revenue-based distribution allowance. Reporting is discussed in more detail in the annual reporting section. The Company plans to evaluate the necessity of the refund provision in the future after reporting is available.

The Commercial EV Service Program shall be served through wiring connected to the customer's dedicated-meter. The Company may require the customer to provide access for Company-owned equipment for the recording and wireless communication of energy usage. The rate contemplates that this service will require the installation of new facilities to provide electric service to the charging equipment. The customer must execute a Commercial EV Service Agreement with the Company. Customer must retain a minimum of four ports per site, or, in cases with less than four ports, a minimum of 50 kW of charging capacity.

4. Revenue-Based Extension Rules

Each customer will have unique Baseline Levels for demand usage as outlined in the Baseline Determination section above. A customer will be charged according to the applicable standard tariff rates for their usage up to and including their Baseline Levels. Customer Demand above Baseline Levels will also be subject to the applicable standard tariff rates. The customer will receive a construction allowance per the Company's standard Extension Rules schedules or the Revenue-Based Extension Rules in this Commercial Program, whichever is greater.

a. Current Average Embedded Cost Extension Rules

Current extension rules reduce the cost of extending distribution facilities by a construction allowance equal to the average embedded distribution cost. For Cg-7 and Cp-3 customers this allowance is currently equal to \$117 per kW and for Cg-9 and Cp-1 customers the allowance is equal to \$73 per kW and \$94 per kW for secondary and primary voltage customers respectively. By basing

the allowance on embedded cost, customers receive credit for the average cost of the distribution rate base included in the rates they will pay once the service connection is completed. The allowance amount remains in utility rate base with any remaining extension costs paid by the customer in the form of a customer contribution in aid of construction (“CIAC”).

b. Revenue-Based Extension Rules

The revenue-based extension rules formula provides customers with revenue-based allowance as opposed to the current embedded cost allowance. The revenue-based allowance formula calculates an extension allowance whereby the levelized annual revenue requirement of the investments necessary to serve the new customer load equals the annual incremental distribution demand revenues that will materialize to the Company due to the load growth. A detailed description of the revenue-based extension rules can be found in Attachment F.

Table 6 below compares the approaches for a hypothetical 200 kW Cg-9 Primary customer. When the Levelized Annual Revenue Requirement of the Allowance and the Annual Distribution Revenues are compared, the revenue-based model results in distribution revenues equating to the allowance cost.

Table 6
Embedded Cost vs. Revenue-Based Extension Example

	Embedded Cost	Revenue-Based
Maximum Allowance/kW ⁷	\$94	\$180
Allowance (\$/kW x 200 kW)	\$18,800	\$36,000
Distribution Demand Charge \$/kW	\$1.50	\$1.50
Annual Distribution Revenues (\$/kW x 12 * 200 kW)	\$3,600	\$3,600
Annual Revenue Requirement (Allowance x LARR)	\$1,800	\$3,600
Annual Distribution Revenues	\$3,600	\$3,600

The concept of revenue-based extension rules is not novel. This extension methodology is currently utilized by natural gas utilities in Wisconsin to extend natural gas service. The advantage of a revenue-based approach is that it provides an allowance customized to each specific extension based on incremental revenues, which encompasses incremental demand, and the actual cost and specific assets included in a customer’s specific extension. This is opposed to the average embedded cost approach which only differentiates extensions based on incremental demand.

Revenue-based extensions generally, but do not exclusively, produce larger allowances. This pilot Commercial Program proposes to hold participating customers harmless by providing customers with the larger allowance between existing and revenue-based extension rules. While larger allowances are generally a result of revenue-based extensions, it is important to note that providing larger allowances does not harm non-participating future or existing customers. This is true for three reasons. First, the extension allowance revenue requirement is based on the incremental distribution revenues as shown in Table 6 meaning the incremental revenues from the customer recover the

⁷ Embedded cost amount from current extension rule tariff sheets. Revenue-Based \$180 amount = \$1.50 x 12 / assumed LARR of 10.00%.

revenue requirement of the allowance. Second, the distribution demand charge used in the revenue-based extension formula does not encapsulate all of the Company's distribution costs. Some distribution costs remain embedded in non-demand charges as described by Company Witness Don Dahl in 4220-UR-123⁸. Lastly, participating customers will bring incremental load to the system and will provide incremental non-distribution-demand revenues. This incremental load and revenue allow for greater system utilization and potentially lower administrative & general, customer accounting, customer service and information, and other expenses that are borne by all customers.

The Company recognizes that estimated incremental load and, therefore incremental distribution revenues, are not guaranteed. Both the existing extension rules and the Company's proposed revenue-based extension rules proposal rely to some extent on cost recovery through rates paid for predicted incremental load in order to justify providing customers with a construction allowance. The Company's proposal seeks to limit the risk of other customers through the inclusion of a two-year allowance refund provision in the Commercial Program.

5. Make-Ready Infrastructure

The Commercial EV Service Program enables the Company to install, own, and maintain make-ready infrastructure for EV charging operators and offset the make-ready costs with the allowance calculation within this Commercial Program in order to reduce these customers' upfront costs for EV adoption. EV make-ready infrastructure may include service panels, conduit, wiring, and equipment located on a Customer's premises necessary to provide service from the customer's meter to the charger. The costs associated with the chargers themselves would not be included in the calculation of the customer's extension allowance.

Customers who operate fleets are a prime market segment for experimenting with new services for transportation electrification. Several large fleet operators in our Wisconsin service territory already have begun taking steps to convert their fleets to EVs. This pilot Commercial Program offering enables the Company to work with these early adopters, who are motivated by both economic and environmental considerations, to convert their fleets. Public charging infrastructure is also eligible to participate in this pilot Commercial Program.⁹

Together, the revenue-based extension rules and utility ownership of assets on customer's premise will allow the Company to study investments in installing and maintaining EV infrastructure for EV charging operators and how reducing upfront costs impacts EV adoption. The pilot Commercial Program will also study the costs and impacts of charging behavior and utilization under time-of-use rates.

⁸ Docket No. 4220-UR-123 Ex.-NSPW-Dahl-1 Schedule 7 Page 1

⁹ The Company notes that while public charging infrastructure is eligible for the Revenue-Based Extension Rules, it may be more difficult to ensure the distribution demand revenue unless the charging infrastructure is planned to be utilized regularly by some "anchor" vehicle or vehicles. Public charging customers will be made aware of the terms and conditions of participating in this Commercial Program including the allowance refund provisions.

6. Optional Charger Service

Charging equipment may be supplied and installed either by the customer or by the Company through an optional charger service. Under the Company's proposal, Optional Fleet Charger Service provides Level 2 charging equipment as a Bundled Option that includes a monthly customer charge for the installed cost of the charger, or as a Pre-Pay Option to customers electing to pay the Company for the installed cost of the charger prior to beginning service with this Commercial Program. Customers electing the Pre-Pay Option are separately invoiced at the time of installation and are subject to the Pre-Pay Option customer charge in place of the Bundled Option customer charge. Fleet charging equipment is priced in three Groups (A, B, and C). Groups A, B, and C separate charging equipment and vendors by cost, with lower cost equipment in Group A and higher cost equipment in Group C. This approach allows the Company to offer customers chargers to customers from a variety of vendors and enable competition in the marketplace without the need to provide specific pricing for each charger model. As charging vendors update their offerings over time, the precise list of equipment in each Group will also be updated and realigned. In addition, pricing is broken down by Single Port and Dual Port chargers. Monthly charges are outlined in Attachments D and E.

Additional charging infrastructure, other than Level 2 equipment, is included in the Commercial EV Service Program for Transit Buses on a per project basis. Transit Bus charger pricing will be based on a mutual agreement between the customer and the Company taking into account the specific and highly-customized aspects of electric transit bus charging. This approach is consistent with how the Company regularly provides large customers with customized infrastructure solutions that meet their needs through customized service contracts.

Future changes in the proposed monthly customer charges may be driven by costs of equipment installation being different than initially anticipated. The pricing in this Application is based on known equipment and program implementation costs. The costs included in this filing are based on NSPM's experience with the Minnesota pilot; however, the more rural and dispersed nature of the Company's Wisconsin service territory may result in different installation costs. The Company plans to utilize a Request for Proposal ("RFP") process prior to the launch of the Commercial Program in order to contract with installers in the Company's Wisconsin service territory. The Company may update the Commercial Program pricing to incorporate the RFP results in a Compliance Filing prior to the launch of the program if the results of the RFP are substantially different than the initial filing assumptions. The method for calculation of the monthly customer charges can be found in Attachment E.

In the future, as time passes and the Commercial Program continues to grow, it may be necessary for the Company to reassess the monthly customer charges. More charging options and upgrades to charging technology may also bring new functionalities which could lead to changes in costs but make the charging equipment even more useful or improve the experience for customers. In order to ensure that the Company is keeping up with these changes, the Company intends to address any changes to the monthly customer charges during each rate case or in dedicated filings if necessary. The Company may consider adding additional charging options for EV charging in the future, subject to approval by the Commission.

7. Marketing Considerations

The Company will rely on support from its call center agents, Community Service Managers, and Account Managers to communicate with customers about opportunities to participate in the Commercial Program. NSPW will also reach out to customers through channels that customers expect to use when receiving or seeking information regarding any of the products and services offered by the Company such as email, social media, and traditional media. The Company will also encourage service providers, electricians, and other relevant trade groups to share information about the program.

Additionally, the Company's Account Managers and Community Service Managers will inform customers about the potential benefits of utility ownership of EV make-ready infrastructure and chargers. As with any new or expanding customer, engineering and design work with Account Managers and Community Service Managers to provide cost estimates to the customers taking into account the customer's eligibility for a distribution extension allowance.

8. Annual Reporting

The Company will prepare and file an annual operational report that will provide the number of customers participating in the revenue-based extension rules. The report will include each customer's estimated load, total allowance, customer contribution, and total extension costs for both distribution extension and make-ready infrastructure compared to the current extension rules. Future reports will include a comparison of actual and estimated load showing that the distribution revenues are adequate to recover the revenue-based distribution allowance. The report will also report the number of customers under each of the Optional Charger Services options.

9. Load Management

The charging equipment installed as part of the Optional Fleet Charger Service have load management capabilities. The Commercial EV Service Program also contains provisions allowing the company to test load management of EV charging to assist the Company in designing future EV charging programs. Charging equipment installed as part of the Optional Fleet Charger Service will be able to charge off-peak under the Cg-7, Cp-3, Cg-9, or Cp-1 rate schedules.

10. Waiver Request

Pursuant to Wis. Admin. Code PSC § 113.01(2), the Company hereby requests that the Commission grant a waiver from extension rule subparts that are inconsistent with the Company's proposal, including some subparts outlined in Wis. Admin. Code PSC §§ 113.1005(1) and 113.1008(3) and in the Company's Tariff for the implementation of the Commercial EV Service Program. Specifically, the Company requests a waiver from the requirement that the customer pay the estimated cost of distribution facilities to be installed which is greater than the appropriate average embedded cost allowance for existing distribution facilities.

11. Accounting and Regulatory Treatment

From an accounting perspective, distribution extension costs, including make-ready infrastructure costs, under this Commercial Program will be treated identically to current extension policy.

Extension costs will be added to rate base in the appropriate FERC Account and offset by customer contribution in aid of construction. If the customer does not meet the availability criteria in the first two years, the Commercial Program's allowance refund provision will be exercised, and the customer will be required to pay an additional customer contribution in aid of construction which will offset rate base.

The purchase and installation of the charging equipment and metering equipment that will be used for Optional Charger Service will be capitalized as an electric distribution asset to FERC Account 101, Plant in Service in plant account 371 Installations on customers' premises. The Company will request that in its next rate filing the capitalized costs be allowed in rate base and receive a return on investment.

The bundled service customer charge is designed to recover the revenue requirement for the installed charger unit cost along with charger maintenance and administrative costs. The prepay service customer charge is designed to recover the same costs with the exception of the installed charger unit cost, which is paid for upfront by the customer and is recorded with a value of \$0 in the Company's property records.

The Company is not requesting a deferral in this Application for revenue requirement impacts of this Commercial Program. The Company does not anticipate the revenue requirement impact in 2020 and 2021 to be substantial given the pilot Commercial Program's 30 MW cap. Also, as described above, there should be no revenue requirement impacts for other customers over the life of the assets as the distribution extension costs and distribution demand incentives will be offset with incremental load and associated revenues. The Company will fully address issues of cost recovery in its next rate proceeding.

C. Conclusion

The Company looks forward to the Commission's review of its proposal. Because customer participation in the Residential EV Home Service Program, Voluntary EV Charger Service Program and Commercial EV Service Program are voluntary, and this Application does not request an increase in rates or a reduction in service for non-participating customers, the Company does not believe a contested case proceeding or hearing is required.

The Company respectfully requests that the Commission issue an Order approving the programs by March 1, 2020 so that the programs can be made available to customers beginning in mid-2020.

Respectfully submitted this 20th day of November, 2019.

NORTHERN STATES POWER COMPANY
a Wisconsin corporation, and wholly owned subsidiary of
Xcel Energy Inc.

A handwritten signature in black ink, appearing to read "Karl J. Hoesly". The signature is written in a cursive style with a large, sweeping underline that extends across the width of the name.

By: Karl J. Hoesly
Regional Vice President, Rates and Regulatory Affairs

RESIDENTIAL ELECTRIC VEHICLE HOME SERVICE PROGRAM

Availability: Available to residential customers taking service under the Residential Service (Rg-1) or Farm Service (Fg-1) to provide electric vehicle charging equipment to service electric vehicle loads including battery charging and accessory usage. Electric vehicle charging that occurs under this service will be charged according to this tariff. Customer's home energy usage will be billed based on Residential Service (Rg-1) or Farm Service (Fg-1). Customers taking service under Residential Time-of-Day Service (Rg-2) or Parallel Generation – Net Energy Billing Service (Pg-1) are not eligible for service under this tariff.

Bundled Service includes Company installed and provided charging equipment. Pre-Pay Service is available to customers electing to pay the Company for the installed cost of charging equipment prior to beginning service. Customer electing Pre-Pay Service are separately invoiced at the time of installation. The customer must complete Company-approved documentation verifying possession, through ownership or lease, of an electric vehicle.

Any customer choosing to be served on this rate schedule waives all rights to any billing adjustments arising from a claim that the bill for the customer's service would be cheaper on any alternative rate schedule for any period of time, including any rights under Wis. Adm. Code section PSC 113.0406(4).

Contract: Customers must contract for this service through an Electric Vehicle Service Customer Service Agreement with the Company. The contract period will be as long as the customer wishes to use the equipment. Customers choosing the bundled option and who have taken service for less than ten (10) years will be subject to a \$200 removal fee if they terminate the agreement. Customers choosing the bundled option and who have taken service for more than ten (10) years will not be subject to a removal fee.

Character of Service: Single-phase 60-Hertz service at approximately 120 or 120/240 volts will be provided hereunder. Three-phase service or other service upgrade requests will be provided in accordance with Company service regulations.

Monthly Minimum Charge: The customer charge.

Definition of Peak Periods: On-peak hours shall be those listed below. On-peak hours shall begin at the same time for each of the on-peak days, which are Monday through Friday, inclusive (excluding holidays). Intermediate-Peak hours shall be those listed below. Intermediate-peak hours shall begin at the same time each day of the year including weekends and holidays and include 12:00 noon – 8:00 p.m on Saturdays, Sundays, and Holidays. The holidays designated shall be New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving and Christmas, on the day nationally designated to be celebrated as such. When a designated holiday occurs on Saturday, the preceding Friday shall not be considered an on-peak day. When a designated holiday occurs on Sunday, the following Monday shall not be considered an on-peak day.

ISSUED:

EFFECTIVE:

PSCW AUTHORIZATION:

RESIDENTIAL ELECTRIC VEHICLE HOME SERVICE PROGRAM (continued)

Peak Periods: All customers served on this rate schedule will have the following on-, intermediate-, and off-peak periods:

	<u>Starting Time</u>	<u>Ending Time</u>	<u>Days</u>
On-Peak	12:00 noon	8:00 p.m.	Mon.-Fri. Excluding Holidays
Intermediate-Peak	8:00 a.m.	12:00 noon	All Days
Intermediate-Peak	8:00 p.m.	12:00 midnight	All Days
Intermediate-Peak	12:00 noon	8:00 p.m.	Sat.-Sun. and Holidays
Off-Peak	12:00 midnight	8:00 a.m.	All Days

Rate:

Customer Charge per Month

Bundled Service	\$17.00
Pre-Pay Service	\$7.00

Delivery Charges per kWh

<u>On-Peak</u>	
June—September	6.000¢
October—May	3.540¢
<u>Intermediate-Peak</u>	3.540¢
<u>Off-Peak</u>	1.460¢

Energy Charges per kWh

<u>On-Peak</u>	
June—September	14.220¢
October—May	9.170¢
<u>Intermediate-Peak</u>	9.170¢
<u>Off-Peak</u>	4.510¢

Energy Cost Adjustment: Bills subject to the adjustment provided for in Energy Cost Adjustment. See Schedule X-1, Sheet No. E 63.

Late Payment Charge: A one percent (1%) per month late payment charge will be applied to outstanding charges unpaid 20 days after the date of billing.

ISSUED:

EFFECTIVE:

PSCW AUTHORIZATION:

RESIDENTIAL ELECTRIC VEHICLE HOME SERVICE PROGRAM (continued)

Pre-Pay Service: The Pre-Pay Service option Customer Charge per Month applies in place of the Bundled Customer Charge per Month to customers that have paid the installed cost of charging equipment to the Company.

Terms and Conditions of Service:

1. Electric Vehicle Home Service shall be served through wiring connected to customer's single meter provided for Residential Service. Consumption under this rate schedule will be subtracted from the main meter for purposes of billing customer's non-Electric Vehicle electricity usage.
2. Customer must own and live in single-family home, defined as a detached single family home, townhome/row house, or duplex.
3. Customer must have wireless internet ("Wi-Fi") service at Site.
4. The customer shall supply, at no expense to the Company, premises wiring and a suitable location for connection of charging and associated equipment.
5. Company may require customer to provide access for Company-owned equipment for the recording and wireless communication of energy usage.
6. The customer agrees to provide information allowing the Company to analyze their energy use, vehicle charging patterns, and reactions to vehicle charging load management activities. Customer vehicle charging sessions will be subject to interruption and power reduction.
7. The rate contemplates that this service will utilize existing facilities with no additional major expenditures. Customer shall reimburse Company for any expenditure for facilities necessary to serve this load which would not otherwise be required to serve customer's load.
8. Customer must execute an Electric Vehicle Customer Service Agreement with the Company.

Rate Code:

XXX Electric Vehicle Home Service

ISSUED:

EFFECTIVE:

PSCW AUTHORIZATION:

VOLUNTARY ELECTRIC VEHICLE CHARGER SERVICE PROGRAM

Availability: Available to residential customers taking service under the Residential Time-of-Day Service (Rg-2) to provide electric vehicle charging equipment to service electric vehicle loads including battery charging and accessory usage. Electric vehicle charging that occurs under this service will be charged with the Customer's home energy usage which will both be billed based on Residential Time-of-Day Service (Rg-2). Customers taking service under Residential Service (Rg-1) or Farm Service (Fg-1) are not eligible for service under this tariff.

Bundled Service includes Company installed and provided charging equipment. Pre-Pay Service is available to customers electing to pay Company for the installed cost of charging equipment prior to beginning service. Customer electing Pre-Pay Service are separately invoiced at the time of installation. The customer must complete Company-approved documentation verifying possession, through ownership or lease, of an electric vehicle.

Any customer choosing to be served on this rate schedule waives all rights to any billing adjustments arising from a claim that the bill for the customer's service would be cheaper on any alternative rate schedule for any period of time, including any rights under Wis. Adm. Code section PSC 113.0406(4).

Contract: Customers must contract for this service through an Electric Vehicle Service Customer Service Agreement with the Company. The contract period will be as long as the customer wishes to use the equipment. Customers choosing the bundled option and who have taken service for less than ten (10) years will be subject to a \$200 removal fee if they terminate the agreement. Customers choosing the bundled option and who have taken service for more than ten (10) years will not be subject to a removal fee.

Character of Service: Single-phase 60-Hertz service at approximately 120 or 120/240 volts will be provided hereunder. Three-phase service or other service upgrade requests will be provided in accordance with Company service regulations.

Rate:

Customer Charge per Month

Bundled Service	\$13.00
Pre-Pay Service	\$3.00

Pre-Pay Service: The Pre-Pay Service option Customer Charge per Month applies in place of the Bundled Customer Charge per Month to customers that have paid the installed cost of charging equipment to the Company.

ISSUED:

EFFECTIVE:

PSCW AUTHORIZATION:

VOLUNTARY ELECTRIC VEHICLE CHARGER SERVICE PROGRAM (continued)

Terms and Conditions of Service:

1. Voluntary Electric Vehicle Charger Service shall be served through wiring connected to customer's single meter provided for Residential Time-of-Day Service.
2. Customer must own and live in single-family home, defined as a detached single family home, townhome/row house, or duplex.
3. Customer must have wireless internet ("Wi-Fi") service at Site.
4. The customer shall supply, at no expense to the Company, premises wiring and a suitable location for connection of charging and associated equipment.
5. Company may require customer to provide access for Company-owned equipment for the recording and wireless communication of energy usage.
6. The customer agrees to provide information allowing the Company to analyze their energy use, vehicle charging patterns, and reactions to vehicle charging load management activities. Customer vehicle charging sessions will be subject to interruption and power reduction.
7. The rate contemplates that this service will utilize existing facilities with no additional major expenditures. Customer shall reimburse Company for any expenditure for facilities necessary to serve this load which would not otherwise be required to serve customer's load.
8. Customer must execute an Electric Vehicle Customer Service Agreement with the Company.

Rate Codes:

XXX Voluntary Electric Vehicle Charger Service

ISSUED:

EFFECTIVE:

PSCW AUTHORIZATION:

Residential Electric Vehicle Home Service (EVR-1) - Charger Pricing

Pricing per Charger

Bundled Pricing Option

Total Installed Cost	(A)	\$780.00
Shipping	(B)	\$0.00
Total Installed Cost with Tax	(C = A + B)	\$780.00
LARR Percentage	(D)	15.82%
Annual Revenue Requirement of the Charger Investment	(E = C * D)	\$123.41
Operations & Maintenance	(F)	\$30.00
Program Administrative	(G)	\$52.88
Revenue Requirement per Charger	(H = E + F + G)	\$206.29
Months per Year	(I)	12
Price per Month	(J = H / I)	\$17.19
Price per Month Rounded		\$17.00

Pre-Pay Pricing Option

Total Installed Cost	(A)	Upfront Payment
Shipping	(B)	
Total Installed Cost with Tax	(C = A + B)	
LARR Percentage	(D)	
Annual Revenue Requirement of the Charger Investment	(E = C * D)	
Operations & Maintenance	(F)	\$30.00
Program Administrative	(G)	\$52.88
Revenue Requirement per Charger	(H = E + F + G)	\$82.88
Months per Year	(I)	12
Price per Month	(J = H / I)	\$6.91
Price per Month Rounded		\$7.00

Voluntary Electric Vehicle Charger Service (EVR-2) - Charger Pricing

Pricing per Charger

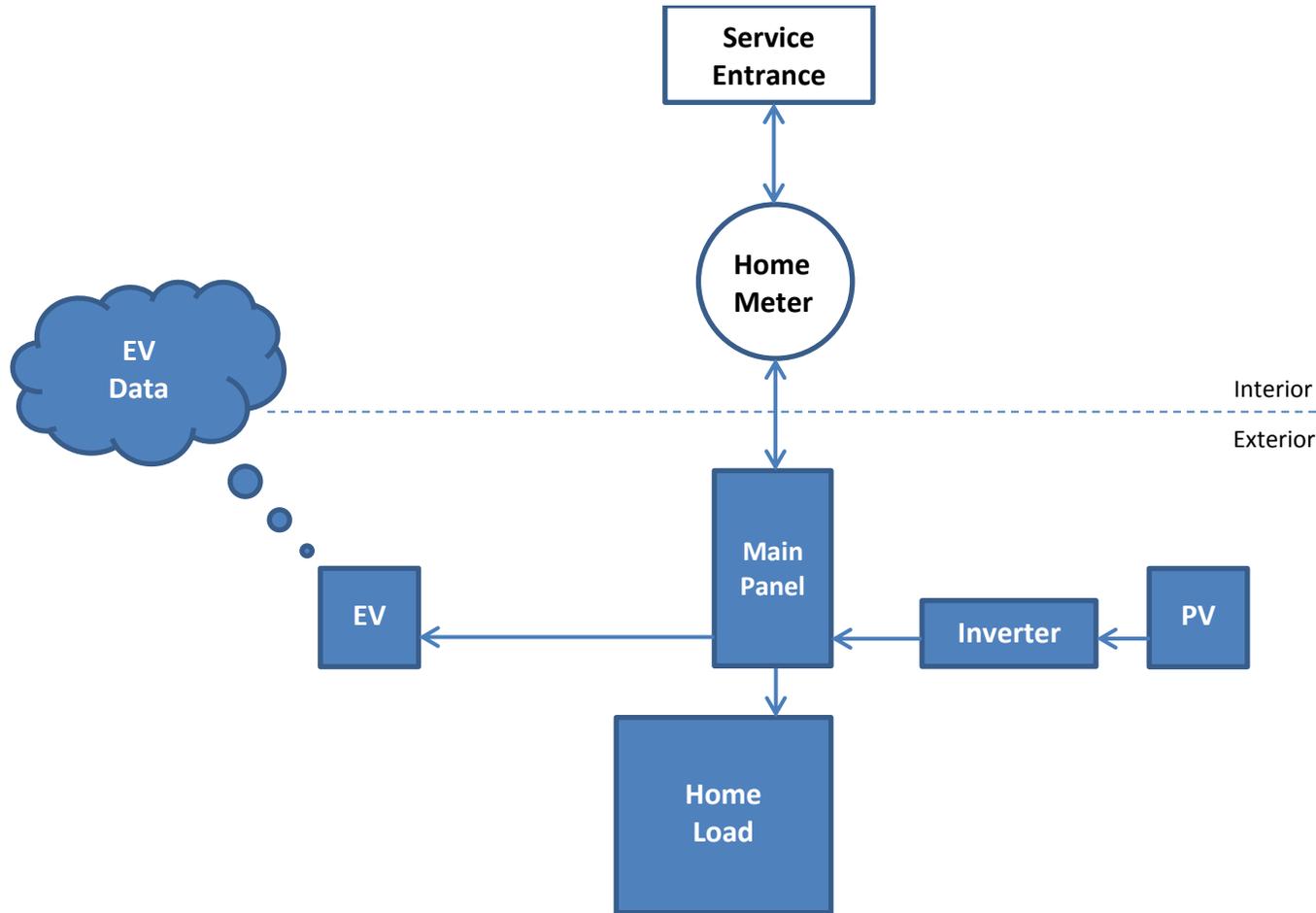
Bundled Pricing Option

Total Installed Cost	(A)	\$780.00
Shipping	(B)	\$0.00
Total Installed Cost with Tax	(C = A + B)	\$780.00
LARR Percentage	(D)	15.82%
Annual Revenue Requirement of the Charger Investment	(E = C * D)	\$123.41
Operations & Maintenance	(F)	\$30.00
Program Administrative	(G)	\$0.00
Revenue Requirement per Charger	(H = E + F + G)	\$153.41
Months per Year	(I)	12
Price per Month	(J = H / I)	\$12.78
Price per Month Rounded		\$13.00

Pre-Pay Pricing Option

Total Installed Cost	(A)	Upfront Payment
Shipping	(B)	
Total Installed Cost with Tax	(C = A + B)	
LARR Percentage	(D)	
Annual Revenue Requirement of the Charger Investment	(E = C * D)	
Operations & Maintenance	(F)	\$30.00
Program Administrative	(G)	\$0.00
Revenue Requirement per Charger	(H = E + F + G)	\$30.00
Months per Year	(I)	12
Price per Month	(J = H / I)	\$2.50
Price per Month Rounded		\$3.00

Diagram of Net Metering Installation with EV Charging on Separate Rate



*The EV charger will not differentiate the power supplied by the grid versus the power supplied by the customer's PV generation. When the EV energy per time period data is aggregated, the EV charger will bill all EV on-, shoulder-, and off-peak consumption based on the EV rate (EVR-1) and the Home Meter will bill the total home consumption less the total EV consumption at the standard retail rate (Rg-1). For customers with their home load on Rg-1, it is not possible to ensure that the customer's PV (or other net-metered generation) will be credited at the Rg-1 rate as contemplated in the Pg-1 tariff. When EV charging and PV generation occur simultaneously, some share of the PV generation will be consumed by the EV charger and billed at the EV rate applicable to the time-period rather than being credited against the customer's Home Load at the standard rate. Therefore, customers with generation on the PG-2 rate will not be eligible to participate in EVR-1.

Customers with PV generation may still participate in the Company's Voluntary EV Service Program but must also participate in the Company's whole-home Residential TOD Service (Rg-2).

COMMERCIAL ELECTRIC VEHICLE SERVICE PROGRAM

Availability: The program is available to customers served under Rate schedules Cg-7, Cp-3, Cg-9, or Cp-1 who meet the following availability criteria. Cg-7, Cp-3, Cg-9, and Cp-1 customers served through a dedicated service for the primary purpose of charging electric vehicles may take service under this program and shall have a minimum of four ports per site, or, in cases with less than four ports, a minimum of 50 kW of estimated incremental load above Demand Baseline Levels from a single delivery point. A customer’s estimated incremental load must meet this criterion in order to be eligible for service under this program.

This program is an experimental pilot program. This experimental pilot program has a maximum subscription limit of 30 MW of estimated incremental load above Demand Baseline Levels.

Rate: Each customer will have unique Baseline Levels for demand usage as outlined in the Baseline Determination section of this program. A customer will be charged according to the applicable standard tariff rates for their usage up to and including their Baseline Levels. Distribution demand above Baseline Levels will be subject to the applicable standard tariff rates. The customer will receive a construction allowance per the Company’s Extension Rules schedules or the Revenue-Based Extension Rules in this program, whichever is greater.

Optional Charger Service: Charging equipment may be supplied and installed either by customer or by the Company through an optional charger service. Optional charger service by the Company is available as a Bundled Option that includes a monthly charge for the installed cost of charging equipment or as a Pre-Pay Option to customers electing to pay the Company for the installed cost of charging equipment prior to beginning service with this tariff. Customers electing the Pre-Pay Option are separately invoiced at the time of installation and are subject to the Pre-Pay Option service charge in place of the Bundled Option service charge.

Service Charger per Month per Port	Group A	Group B	Group C
Bundled Option – Single Port	\$39.00	\$54.00	\$69.00
Bundled Option – Dual Port	\$34.00	\$47.00	\$56.00
Pre-Pay Option – Single Port	\$12.00	\$25.00	\$33.00
Pre-Pay Option – Dual Port	\$11.00	\$21.00	\$30.00

Pricing for charging infrastructure for transit buses is determined on a per project basis.

COMMERCIAL ELECTRIC VEHICLE SERVICE PROGRAM (continued)

Revenue-Based Extension Rules: Customers eligible to receive a construction allowance under this program will receive the greater allowance between the Company’s Extension Rules schedules and the Revenue-Based Extension Rules not to exceed the total cost of the extension. The Revenue-Based Extension Rules reduce the estimated cost of the extension by the following formula:

$$\text{Allowance} = D \times 12 \times L / I$$

D = Customer Demand Charge outlined in the applicable standard tariff rates

L = Incremental customer demand above Baseline Levels

I = Annual average carrying charges for the Applicable Construction Allowance

At the Company’s discretion, both the existing Extension Rules and Revenue-Based Extension Rules may apply to costs associated with Company installed, owned, and maintained service panels, conduit, wiring, and equipment located on a Customer’s premise which may be included as additional Items Included in Costing the Extension, as otherwise defined in the Company’s Extension Rules schedules. The specific panels, conduit, wiring, and equipment on a Customer’s premise are defined in the Annual Average Carrying Charges section below.

Annual Average Carrying Charges: Annual average carrying charges for the Applicable Construction Allowance vary by asset type and are derived from the Company’s most recently approved Wisconsin Depreciation Filing. A weighted carrying charge will be used in the Revenue-Based Extension Rules based on the sum of each carrying charge for each asset type multiplied by the total cost of the related asset divided by the total cost of all assets considered in the extension. Carrying charges by asset type are listed as follows:

FERC	Description	Carrying Charge
361	Structures and Improvements	9.09%
362	Station Equipment	9.11%
364	Poles, Towers, and Fixtures	10.20%
365	Overhead Conductors and Devices	10.23%
366	Underground Conduit	8.94%
367	Underground Conductors and Devices	9.52%
368	Line Transformers	9.28%
368	Capacitors	9.72%
369	Overhead Services	9.51%
369	Underground Services	9.32%
370	Meters	10.43%
370	Meters – AMR	13.44%
371	Installations on Customers’ Premises	11.88%
369	EV Make-Ready Supply Infrastructure	9.51%

Additional asset type carrying charges may be added or removed from this tariff at the Company’s discretion and with prior approval by the Public Service Commission of Wisconsin.

ISSUED:

EFFECTIVE:

PSCW AUTHORIZATION:

COMMERCIAL ELECTRIC VEHICLE SERVICE PROGRAM (continued)

Determination of Baseline Levels: A customer's Baseline Demand Level shall be based on a Baseline Period. The customer's Baseline Period represents a recent, historical 12-month time period. Historical Distribution Demand levels derived from the Baseline Period make up the Demand Baseline Level and are used for billing the corresponding months of the five year Contract Period. The Demand Baseline Level will be contracted prior to beginning service under this program and will be applicable for the duration of the Contract Period. The Baseline Customer Demand for new customers will be zero.

Adjustments to the strict historical consumption patterns may be made by the Company to eliminate data anomalies in the Baseline Period that are not expected to reoccur, or to accommodate unique production patterns as demonstrated in historical data from the last 24 months (e.g., if production is commonly reduced during a specific day of the week or for infrequent maintenance shutdown).

At the Company's discretion, adjustments to a customer's set Baseline Demand Level may be made at the customer's request to account for demand management initiatives.

Allowance Refund: If after two years of beginning service and receiving a construction allowance under the Revenue-Based Extension Rules a customer's actual incremental load is lower than the estimated incremental load by greater than 25 percent, the customer is required to refund a portion of the allowance to the Company equaling the total allowance given less the allowance that would have been provided to the customer based on the customer's actual incremental load.

Non-Firm Load Requirements: Customers subscribing to interruptible program schedules Cp-3 or Cp-1 for Baseline Levels usage are subject to the non-firm conditions of this program. Customers subscribing to the non-firm load option under this program will be subject to the curtailment or interruption terms, provisions and penalties outlined in the underlying Baseline interruptible program. Baseline Levels and program pricing, terms and conditions do not apply to any energy consumed during the curtailment or interruption event. Once a curtailment or interruption event is over, pricing, terms and conditions of delivery revert to those of this program.

ISSUED:

EFFECTIVE:

PSCW AUTHORIZATION:

COMMERCIAL ELECTRIC VEHICLE SERVICE PROGRAM (continued)Terms and Conditions of Service:

1. Experimental EV Extension Program shall be served through wiring connected to customer's dedicated-meter.
2. Company may require customer to provide access for Company-owned equipment for the recording and wireless communication of energy usage.
3. The rate contemplates that this service will require the installation of new facilities to provide electric service to the electric vehicle charger.
4. Customer must execute a Commercial EV Service Agreement with the Company.
5. Customer must retain a minimum of four ports per site, or, in cases with less than four ports, a minimum of 50 kW of charging capacity.
6. The customer agrees to provide information allowing the Company to analyze their energy use, vehicle charging patterns, and reactions to vehicle charging load management activities. Customer vehicle charging sessions will be subject to interruption and power reduction.

Rate Code:

XXX Commercial Electric Vehicle Charger Service

ISSUED:

EFFECTIVE:

PSCW AUTHORIZATION:

Optional Fleet Charger Service (EVC-1)

Pricing per Charging Port

Bundled Pricing Option

		Single Port			Dual Port		
		Group A	Group B	Group C	Group A	Group B	Group C
Total Installed Cost	(A)	\$2,052.02	\$2,167.67	\$2,715.27	\$3,451.58	\$3,924.46	\$3,939.13
Sales Tax	(B)	\$112.86	\$119.22	\$149.34	\$189.84	\$215.85	\$216.65
Total Installed Cost with Tax	(C = A + B)	\$2,164.88	\$2,286.89	\$2,864.61	\$3,641.42	\$4,140.31	\$4,155.78
LARR Percentage	(D)	15.82%	15.82%	15.82%	15.82%	15.82%	15.82%
Annual Revenue Requirement of the Charger Station Investment	(E = C * D)	\$324.67	\$342.97	\$429.61	\$546.11	\$620.93	\$623.25
Operations & Maintenance	(F)	\$64.95	\$68.61	\$85.94	\$109.24	\$124.21	\$124.67
Program Administrative	(G)	\$75.00	\$234.17	\$313.33	\$150.00	\$373.33	\$590.00
Revenue Requirement per Charging Station	(H = E + F + G)	\$464.62	\$645.74	\$828.89	\$805.36	\$1,118.48	\$1,337.93
No. of Ports	(I)	1	1	1	2	2	2
Revenue Requirement per Charging Port	(J = H / I)	\$464.62	\$645.74	\$828.89	\$402.68	\$559.24	\$668.96
Months per Year	(K)	12	12	12	12	12	12
Price per Month per Charging Port	(L = J / K)	\$38.72	\$53.81	\$69.07	\$33.56	\$46.60	\$55.75
Rounded Price per Month per Charging Port		\$39.00	\$54.00	\$69.00	\$34.00	\$47.00	\$56.00

Pre-Pay Pricing Option

		Single Port			Dual Port		
		Group A	Group B	Group C	Group A	Group B	Group C
Total Installed Cost	(A)						
Sales Tax	(B)						
Total Installed Cost with Tax	(C = A + B)	Upfront Payment					
LARR Percentage	(D)						
Annual Revenue Requirement of the Charger Station Investment	(E = C * D)						
Operations & Maintenance	(F)	\$64.95	\$68.61	\$85.94	\$109.24	\$124.21	\$124.67
Program Administrative	(G)	\$75.00	\$234.17	\$313.33	\$150.00	\$373.33	\$590.00
Revenue Requirement per Charging Station	(H = E + F + G)	\$139.95	\$302.77	\$399.27	\$259.24	\$497.54	\$714.67
No. of Ports	(I)	1	1	1	2	2	2
Revenue Requirement per Charging Port	(J = H / I)	\$139.95	\$302.77	\$399.27	\$129.62	\$248.77	\$357.34
Months per Year	(K)	12	12	12	12	12	12
Price per Month per Charging Port	(L = J / K)	\$11.66	\$25.23	\$33.27	\$10.80	\$20.73	\$29.78
Rounded Price per Month per Charging Port		\$12.00	\$25.00	\$33.00	\$11.00	\$21.00	\$30.00

Revenue-Based Extension Rules

The revenue-based extension rules formula provides customers with revenue-based allowance as opposed to the current embedded cost allowance. The revenue-based allowance formula calculates an extension allowance whereby the levelized annual revenue requirement of the investments necessary to serve the new customer load equals the annual incremental distribution demand revenues that will materialize to the Company due to the load growth.

$$\textit{Levelized Annual Revenue Requirement} = \textit{Incremental Distribution Revenues}$$

Incremental distribution revenues are equal to the distribution demand charge applicable to the customer based on the tariff on which they will receive service multiplied times twelve months multiplied by the estimated incremental load above baseline demand. Only distribution demand revenues are considered as this component of a customer's bill is designed to recover the costs associated with providing customers with distribution service.

$$\textit{Incremental Distribution Revenues} = \$/kW \times 12 \times kW$$

The levelized annual revenue requirement of the allowance can be calculated as the total cost of the distribution extension levelized over the life of the asset. A Levelized Annual Revenue Requirement ("LARR") is used to calculate a levelized revenue requirement. The LARR is expressed as the percentage reflecting the specific book life, tax life, and salvage of a particular asset.

$$\textit{Levelized Annual Revenue Requirement} = \textit{Allowance} \times \textit{LARR}$$

The formulas above can be used to solve for the Allowance.

$$\textit{Levelized Annual Revenue Requirement} = \textit{Incremental Distribution Revenues}$$

$$\textit{Allowance} \times \textit{LARR} = \$/kW \times 12 \times kW$$

$$\textit{Allowance} = \frac{\$/kW \times 12 \times kW}{\textit{LARR}}$$

Similar to the current extension rules, the revenue-based extension allowance can be expressed on a per kW basis.

$$\textit{Allowance} / kW = \frac{\$/kW \times 12}{\textit{LARR}}$$