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March 1, 2019

Ms. Judith C. Whitney, Clerk  
Vermont Public Utility Commission  
112 State Street  
Montpelier, VT 05620-2701

**Filed in ePUC**

Re: GMP – BYOD Innovative Pilot

Dear Ms. Whitney:

With this letter, I am transmitting a corrected filing with respect to Green Mountain Power's ("GMP") Bring Your Own Device ("BYOD") Pilot (the "Pilot") filing submitted on February 25th. We discovered a math error in the table on the second page, and have corrected it with this transmittal.

If you have any questions, please contact me at 802-747-6818.

Sincerely,

Craig Ferreira

cc: Dan Burke, Vermont Department of Public Service  
Barry Murphy, Program Specialist, Vermont Department of Public Service  
Rebecca Foster, Efficiency Vermont  
Olivia Campbell Anderson, Renewable Energy of Vermont



**CRAIG FERREIRA**  
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February 25, 2019

Ms. Judith C. Whitney, Clerk  
Vermont Public Utility Commission  
112 State Street  
Montpelier, VT 05620-2701

**Filed in ePUC**

Re: GMP – BYOD Innovative Pilot

Dear Ms. Whitney:

Please accept this as an amendment to Green Mountain Power’s (“GMP”) Bring Your Own Device (“BYOD”) Pilot (the “Pilot”).

The original BYOD Pilot, filed February 23, 2018, opened GMP’s distributed energy resource (“DER”) platform to customers who purchase and install compatible batteries in their home or business. Customers have the opportunity to earn a GMP bill credit by allowing GMP shared access to the battery to maximize its value for all GMP customers by reducing costs during “peak” energy consumption times. Green Mountain Power will now expand this Pilot to include additional types of equipment and devices that will facilitate greater customer participation and increase DERs on GMP’s grid. GMP will also update payments and incentives for batteries customers that enroll in the BYOD program, and expand the scope of the Pilot to make it easier for third-party installers to encourage their own customers to participate.

### **Amendment Details**

1. **New Equipment and Devices:** GMP is expanding the BYOD platform to customers who currently have or install a Rheem resistance water heater or add an approved water heater control to their existing resistive water heater. For the Rheem water heaters, GMP will require that the water heater has Rheem EcoNet intelligence built into the tank, or an EcoNet module installed. This allows the Rheem water heaters to be connected to WiFi and then connected to GMP through the BYOD Enrollment process. Customers enrolling their water heaters into the BYOD platform will be eligible to receive a monthly bill credit of \$5.00.

GMP will also expand the BYOD platform to customers who currently have or install a compatible Level 2 home car charger and are not otherwise enrolled in a GMP EV charging tariff plan<sup>1</sup>. Customers enrolling their own L2 charger will be eligible for a

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<sup>1</sup> A customer cannot participate in both a GMP offered EV charging tariff plan and take part in this BYOD program.

monthly bill credit of \$10.00. If a Customer chooses to enroll an L2 Charger where the manufacturer charges additional communication fees, the Customer will be responsible for those additional charges. A list of compatible chargers and manufacturer fees will be maintained on GMP’s website.

The monthly bill credits explained above for the L2 Chargers and the water heaters are based on the expected 10-year value of each. A portion of that value is shared with the participating customer, while the remainder is applied as downward rate pressure for all GMP customers.

The water heaters and L2 Chargers will also be subject to a monthly \$2.50 communication fee.

- Update to Battery Bill Credits:** The monthly bill credit values for customers with batteries in the BYOD program will be updated as follows:

Duration (Hours)	Power (kW) Available to GMP	Energy (kWh) Available to GMP	Total Monthly Credit	Total Monthly Credit (Constrained Area) <sup>2</sup>
3	2-2.9	6-8.7	\$19.30	\$22.00
	3-3.9	9-11.7	\$28.95	\$33.00
	4-4.9	12-14.7	\$38.60	\$44.00
	5-5.9	15-17.7	\$48.25	\$55.00
	6-6.9	18-20.7	\$57.90	\$66.00
	7-7.9	21-23.7	\$67.55	\$77.00
	8-8.9	24-26.7	\$77.20	\$88.00
	9-9.9	27-29.7	\$86.85	\$99.00
	10	30	\$96.50	\$110.00

Monthly bill credits will be allowed to accrue, and may be used to pay all charges on the customer’s GMP bill including those deemed as non-bypassable under net metering. No more frequently than once annually, and if a customer’s total BYOD Program credit<sup>3</sup> exceeds \$50.00, the customer will be able to request reimbursement of the BYOD Program credit in the form of a check.

- Alternative One-Time Incentive Payment:** As an alternative to the monthly bill credit, GMP will provide an up-front, one-time incentive for customers installing a compatible battery system. This will allow GMP full access to the battery for the purpose of peak

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<sup>2</sup> In order to earn the Monthly Credit for a Constrained Area, a storage system must be paired with a pre-existing solar array or installed as a stand-alone system

<sup>3</sup> Net metering credits are not included and are not available for reimbursement.

shaving, just the same as the monthly credit. The upfront incentive to be paid to the customer will be \$850 per kW of battery power available continuously for a minimum of 3 hours. GMP will still require that the system is sized to provide three hours of discharge at the same rate, which will dictate the total incentive amount. For example, a 3kW system will need to have at least 9kWh of usable energy, and in this instance the incentive would be \$2,550. The monthly communication fee of \$2.50, as well as any additional fees required by the selected battery manufacturer will still apply.

These updated incentives are based on the expected 10-year value of the energy storage systems. GMP will require any customer choosing these one-time incentives to agree that if the equipment enrolled in the BYOD program does not perform as required (such as meter data showing zero discharge during peak events), or is not communicating with GMP to allow for full access (such as through a WiFi connectivity failure), the customer will be subject to a monthly charge of \$9.65 per kW per month on the customer bill until the situation is remedied. Customers will be notified of any issue and will have 30 days to remedy the situation before the monthly charge is applied. Using the same example as above, a 3kW system that is not performing or communicating with GMP will have a \$28.95 per month charge applied to the customer bill.

4. **DG Circuit Constraint Adder:** In addition to the credits mentioned above, an additional credit will be provided to battery storage projects that are retrofitted to existing solar, or added as a stand-alone battery, in areas that are identified as constrained on the GMP solar map. These are areas that are shown as either red, orange or yellow on the map. The adder will be either be \$150 per kW for systems receiving the one-time payment, or \$1.35 per kW per month additional for customers choosing the monthly bill credit. The GMP solar map is provided at the following link.

<http://gmp.maps.arcgis.com/apps/webappviewer/index.html?id=4eaec2b58c4c4820b24c408a95ee8956>

5. **Ability of Enrolled Customers to Utilize Battery Paired With Solar Self-Consumption.** The original BYOD Pilot only allowed customers with batteries to utilize the units for backup purposes, while GMP accessed the systems for peak shaving. Through this amendment, GMP will now also allow customers with battery systems to utilize the solar self-consumption mode of the energy storage systems. This will enable participants to take advantage of the federal tax credit on the battery when it is paired with a solar array. However, use of this mode will change the pilot economics with respect to these customers, because it does not allow for direct GMP access and batteries may not be fully charged for use during a peak event. Therefore, for customers wishing to pair an enrolled battery with solar self-consumption, GMP will provide a one-time upfront battery incentive of \$850. Self-consumption customers may choose the monthly bill credit option instead of the upfront incentive. Customers choosing this option will be given a monthly bill credit of \$9.65. The same adder of \$150 upfront or \$1.35 per month, depending on the customer's selection, applies if the battery is retrofitted to existing solar

or installed in a home or small business as a stand-alone system on a constrained circuit per the GMP Solar Map.

Enabling self-consumption mode to participate in the BYOD program also means that the battery manufacturer is not required to be on the list of GMP compatible systems. GMP will not have any visibility, role, or responsibility in ensuring any amount of backup power is available in the battery system.

These one-time incentives are based upon the expected 10-year value of the energy storage systems. GMP will require any customer choosing these one-time battery/paired solar incentives to agree that if the equipment enrolled in the BYOD program does not perform as required (such as meter data showing high consumption during peak events), or is not communicating with GMP to allow for full access (such as through a WiFi connectivity failure), the customer will be subject to a flat monthly charge of \$9.65 which is based on an estimate of self-consumption systems providing a benefit of about 1kW per household during the peak times.

Each participating customer will execute an agreement that among other terms and conditions provides that if the customer moves out of the home prior to the end of the 10-year period, the customer will have two options:

- 1) Transfer the BYOD agreement and all obligations to new owner; or
- 2) Refund that portion of the up-front incentive applicable to the remainder of the 10 year period. A prorated refund will also apply where a BYOD program customer chooses to terminate program participation for any reason.

The method of calculating refunds of upfront incentive payments is illustrated below:

Number of months remaining in term / Total months in term \* per kW incentive given =  
Total amount per kW owed to GMP

Example:

If 48 of the 120 months remain in the agreement term, the customer will owe  $48/120 * \$850 = \$340$  per kW, or in the case of the higher incentive:  $48/120 * \$1000 = \$400$  per kW

6. **Updated Costs & Revenues:** The following table shows a projection for the Pilot should 2MW be installed. This includes assumptions about the number of units that will fall within a constrained area of the grid. This projection results in a positive NPV to non-participating customers of approximately \$330,000 over ten years.

Year	1	2	3	4	5	6	7	8	9	10	NPV
<b>Revenue</b>											
Communication & Integration Fees	\$15,150	\$15,150	\$15,150	\$15,150	\$15,150	\$15,150	\$15,150	\$15,150	\$15,150	\$15,150	\$110,456.32
EVSE Power Supply Benefit	\$5,704	\$7,218	\$7,946	\$8,043	\$8,334	\$8,686	\$8,967	\$9,274	\$9,629	\$10,015	\$59,659.60
Water Heater Power Supply Benefit	\$483	\$717	\$838	\$822	\$852	\$897	\$926	\$963	\$1,012	\$1,067	
Energy Storage Power Supply Benefit	\$151,667	\$252,028	\$306,745	\$294,472	\$305,138	\$323,538	\$333,890	\$348,655	\$369,530	\$393,412	\$2,170,504.28
<b>Total Revenue</b>	<b>\$172,521</b>	<b>\$274,396</b>	<b>\$329,841</b>	<b>\$317,665</b>	<b>\$328,622</b>	<b>\$347,374</b>	<b>\$358,007</b>	<b>\$373,080</b>	<b>\$394,309</b>	<b>\$418,577</b>	<b>\$2,340,620.20</b>
<b>Costs</b>											
GMP Grid Platform	(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$218,725.38)
WH Bill Credit	(\$600)	(\$600)	(\$600)	(\$600)	(\$600)	(\$600)	(\$600)	(\$600)	(\$600)	(\$600)	(\$4,374.51)
L2 Bill Credit	(\$6,000)	(\$6,000)	(\$6,000)	(\$6,000)	(\$6,000)	(\$6,000)	(\$6,000)	(\$6,000)	(\$6,000)	(\$6,000)	(\$43,745.08)
Battery Up Front Incentive	(\$1,665,000)										
Battery Bill Credit	(\$24,780)	(\$24,780)	(\$24,780)	(\$24,780)	(\$24,780)	(\$24,780)	(\$24,780)	(\$24,780)	(\$24,780)	(\$24,780)	(\$180,667.17)
<b>NET</b>	<b>(\$1,553,859)</b>	\$213,016	\$268,461	\$256,285	\$267,242	\$285,994	\$296,627	\$311,700	\$332,929	\$357,197	\$325,311.45
<b>Net Benefit to GMP Customers</b>	<b>(\$1,569,555)</b>	<b>\$215,168</b>	<b>\$271,172</b>	<b>\$258,874</b>	<b>\$269,941</b>	<b>\$288,883</b>	<b>\$299,623</b>	<b>\$314,848</b>	<b>\$336,292</b>	<b>\$360,805</b>	<b>\$328,597</b>

GMP certifies that we have collaborated with Efficiency Vermont regarding this amendment in advance of the filing. We look forward to expanding the BYOD program, and will continue to provide periodic reports consistent with the Data Collection and Reporting Plan until completion of the pilot, at which point we will evaluate whether to move forward with a tariff.

If you have any questions, please contact me at 802-747-6818.

Sincerely,



Craig Ferreira

cc: Dan Burke, Esq. Vermont Department of Public Service  
 Barry Murphy, Program Specialist, Vermont Department of Public Service  
 Rebecca Foster, Efficiency Vermont