

VELCRO GENERATION BACKUP AND SUPPLEMENTAL SERVICE

DETERMINATION OF BILLING DETERMINANTS - TECHNICAL SUPPORT DOCUMENT

This technical statement and accompanying worksheets are intended to illustrate and verify the proper determination of billing determinants for electric service to Velcro under the Company's tariff, and to provide detail and support for a potential, prospectively applied new method for determination of billing demand for both backup generation service and supplemental service to Velcro.

Under the Company's tariff, determination of generation backup service kW and supplemental service kW is based on the Backup Contract Demand ("BCD") (measured in kW, per Rate B). Attachments 1 and 2 provide the results of parsing meter data for electricity delivered to the Velcro during each 30-minute interval into generation backup service and supplemental service, utilizing the BCD, for the period June 11, 2020 through July 14, 2020. Both kW and kWh amounts are determined by applying the BCD as specified in Rate B for the type of generation backup service provided to Velcro. These amounts would continue to be determined in the same way, whether under the current tariff, or under the method that invokes the special provision of Rate B that would employ a new, alternative approach for treatment of reactive power provided to Velcro.

Under this potential new approach, in any 30-minute interval a level of contracted, reactive demand (kVAR) and associated total power (kVA) for backup service would be determined by dividing the contractual backup kW (BCD) for that interval by an agreed upon power factor ("pf"). Such pf would be based on an agreed, annual average pf level, recognizing that actual pf in an interval, as measured at the Velcro point of interconnection with Eversource is typically different. In application, the calculated kVAR may be higher than the actual kVAR at the tie point, and the lower of the two values would be used to reconcile with actual service provided.

Accordingly, the billing kVA for generation backup service would be applied on a kVA basis, for the entire billing period. The kVA billing demand would be calculated by dividing the BCD by the agreed upon pf, and demand charges would be determined by applying Rate B pricing to this calculated, contractual level of kVA demand.

In any interval the amount of reactive power measured at the Company's point of interconnection with Velcro not designated as part of backup generation service outlined above would be provided as part of supplemental service. For each interval the amount of reactive power provided as supplemental service would equal the total metered kVAR less the amount of kVAR determined to be provided as part of backup generation service. The resulting supplemental service kVAR would be included in the determination of supplement service demand, calculated under Rate GV on a kVA basis.

It is important to note that under Rate GV in the Company tariff, the kVA for determining the supplemental service billing demand is the higher of (a) the maximum peak supplemental service kVA for the month or (b) 50% of the highest off-peak supplemental service kVA for that month. The resulting kVA demand would be multiplied by 0.8 and the primary metering loss adjustment to determine the billing demand to which Rate GV pricing is applied in calculating demand charges.

Detailed meter data and various demand calculations described above are illustrated for the period June 11, 2020 through July 14, 2020 in Attachment 3. An illustrative bill comparison under current and potential, new alternative approaches to determining demand, using current rates, is also provided. For

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reference and verification of billing determinants, a copy of the table provided by Velcro with sections labeled Imported, Generated, Rate B and Supplement Rate has been included in Attachment 3.

In addition to detailed data for each interval, maximum demands and total kWh are provided at the bottom of each column of Attachment 3. Color coding has been added to match data categories in the Velcro table. Attachment 3 provides a full analysis of interval data, demonstrating the correct and accurate application of the Company's tariff for the June 11-July 14 period reflected in the Velcro table, and presenting details of the potential new approach to determining demands discussed in this document.

At the bottom of Attachment 3, the table labeled "Current (& Alternate) Billing kWh" provides the sum of backup and supplement kWh from all intervals in the month, which tie precisely to the total monthly billed kWh for both Rate B generation backup service and Rate GV supplemental service. (see data in columns labeled "B/U kWh" and "Suppl kWh"). These amounts also tie out with the kWh quantities provided in Attachments 1 and 2. Note, these kWh amounts will be the same under current or alternative methodology, as they are determined as a function of the BCD.

Another table at the bottom of Attachment 3 labeled "CURRENT DEMAND BILLING DETERMINANTS" shows the backup generation service (Rate B) billing demand of 2,128 kW currently employed, and the determination of the supplemental service (Rate GV) billing demand, using the "greater of" peak vs. off-peak demand determination specified under Rate GV. The "Max kVA" values and calculations performed using 1,285 kVA to determine the billed demand of 1,010 kW are detailed in that table. Following links will show how the maximum peak and off-peak kVA values of 1,285 kVA and 929 kVA, respectively, were derived from the corresponding interval data throughout the month (see columns under "Basis of Rate GV Billing Demand (kVA)"). The process in the spreadsheet to determine these amounts demonstrates the correct application of the Company's tariff, and is important to note that this same tariff and process are applied to new kVA values that would be determined for each interval using the potential, new methodology discussed above. The current process looks at the maximum kVA values across all peak and off-peak periods, and the new process would do the same.

This leads to the final table, labeled "POTENTIAL ALTERNATIVE DEMAND BILLING DETERMINANTS". Here, a BCD of 2,128 kW is still used to determine kW and kWh for each interval, but a kVA of 2,537 kVA has been calculated to represent the level of generation backup generation service that encompasses both kW and kVAR contracted and billed demand. Based on this contractual level, the portion of metered reactive power taken as part of backup generation service is shown in the column labeled "B/U KVAR". The corresponding amount of total power is shown in the adjacent column labeled "B/U kVA". The amount of kVAR taken as backup generation service is subtracted from the total kVAR taken at the Eversource point of delivery to determine the amount of supplemental kVAR (see column labeled "Suppl kVAR").

This kVAR amount and the corresponding kW amount for supplemental service in each interval is utilized to determine a potential new supplemental service kVA. (see column labeled "Suppl kVA"). This value is assigned to be part of either the peak or off-peak period (see data in adjacent columns labeled "Peak" and "Off Peak"), and the maximum value from each period is used in the "POTENTIAL ALTERNATIVE DEMAND BILLING DETERMINANTS" table at the bottom of these columns. There, a

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maximum peak of 217 kVA and off-peak of 196 kVA have been identified. By applying Rate GV this results in a 170 kW billing demand. It should be noted that these new peaks do not occur at the same time as the previously billed peak determined under the current approach. The ultimate peak of 217 kVA leading to a billing demand of 170 kW for this period occurred on July 2, 2020 during the 30-minute period ending 7 PM.

An additional table has been added at the bottom of the worksheet, comparing demand charges under current billing and the proposed new alternative, using current rates and data for the period June 11, 2020 through July 14, 2020.

LY50000

Velcro 848-14

PUBLIC SERVICE OF NEW HAMPSHIRE
INTERVAL LISTING

REPORTING PERIOD START - 0100 ON 06/11/20 STOP - 0030 ON 07/14/20

OUTPUT CODE - 07645

CUSTOMER	- VELCRO 60	CHL	+1 TO 013236, +2 TO 013236, -3 TO 013236, -4 TO 013236		
RECORDER NO	- [REDACTED]	START	- 0030 ON 06/11/20	CONSTANT 1	- 1.7500000
ACCOUNT NO	- [REDACTED]	STOP	- 0030 ON 07/14/20	CONSTANT 2	- 1.7500000
DISTRICT NO	- 11			CONSTANT 3	- 1.7500000
				CONSTANT 4	- 1.7500000

 DESCRIPTION OF ERROR FLAGS:
 C = V2H QUANTITY IS ZERO
 I = INSERTED INTERVAL
 O = POWER OUTAGE
 S = START OF TAPE
 Z = ZERO REPLACEMENT
 E = ALL OTHER

OUTPUT RECIPIENTS

LARGE POWER BILLING

73 W.BROOK ST, 2ND FLOOR
MANCHESTER
NH 000000000 1 COPY

LY50000

PUBLIC SERVICE OF NEW HAMPSHIRE
 TEN MAXIMUM DEMAND LISTING

	OCCURRED ON	AT	KW	KX	KVA
1) MAXIMUM OFF PEAK KW:					
1)	SAT 06/20	1400	1263.5	0.0	1263.5
2)	SAT 06/20	1430	1260.0	0.0	1260.0
3)	SAT 06/20	1530	1244.3	0.0	1244.3
4)	SAT 06/20	1500	1212.8	0.0	1212.7
5)	SAT 06/27	1030	966.0	0.0	966.0
6)	SAT 06/27	1000	922.3	0.0	922.3
7)	SAT 06/27	1130	911.8	0.0	911.8
8)	SAT 06/27	1230	911.8	0.0	911.8
9)	SAT 06/27	1200	906.5	0.0	906.5
10)	SAT 06/27	1100	901.3	0.0	901.3
2) MAXIMUM ON PEAK KW:					
1)	TUE 06/16	1330	2007.3	0.0	2007.2
2)	TUE 06/16	1130	1975.8	0.0	1975.8
3)	TUE 06/16	1200	1965.3	0.0	1965.2
4)	TUE 06/16	1230	1939.0	0.0	1939.0
5)	TUE 06/16	1100	1928.5	0.0	1928.5
6)	TUE 06/16	1300	1928.5	0.0	1928.5
7)	TUE 06/16	1030	1863.8	0.0	1863.8
8)	TUE 06/16	1000	1814.8	0.0	1814.7
9)	TUE 06/16	0930	1723.8	0.0	1723.8
10)	TUE 06/16	0830	1715.0	0.0	1715.0
3) MAXIMUM OFF PEAK KVA:					
1)	SAT 06/20	1400	1263.5	0.0	1263.5
2)	SAT 06/20	1430	1260.0	0.0	1260.0
3)	SAT 06/20	1530	1244.3	0.0	1244.3
4)	SAT 06/20	1500	1212.8	0.0	1212.7
5)	SAT 06/27	1030	966.0	0.0	966.0
6)	SAT 06/27	1000	922.3	0.0	922.3
7)	SAT 06/27	1130	911.8	0.0	911.8
8)	SAT 06/27	1230	911.8	0.0	911.8
9)	SAT 06/27	1200	906.5	0.0	906.5
10)	SAT 06/27	1100	901.3	0.0	901.3
4) MAXIMUM ON PEAK KVA:					
1)	TUE 06/16	1330	2007.3	0.0	2007.2
2)	TUE 06/16	1130	1975.8	0.0	1975.8
3)	TUE 06/16	1200	1965.3	0.0	1965.2
4)	TUE 06/16	1230	1939.0	0.0	1939.0
5)	TUE 06/16	1300	1928.5	0.0	1928.5
6)	TUE 06/16	1100	1928.5	0.0	1928.5
7)	TUE 06/16	1030	1863.8	0.0	1863.8
8)	TUE 06/16	1000	1814.8	0.0	1814.7
9)	TUE 06/16	0930	1723.8	0.0	1723.8
10)	TUE 06/16	0830	1715.0	0.0	1715.0

LY50000

Velcro 848-13

PUBLIC SERVICE OF NEW HAMPSHIRE
INTERVAL LISTING

REPORTING PERIOD START - 0100 ON 06/11/20 STOP - 0030 ON 07/14/20 OUTPUT CODE - 07644

CUSTOMER	- VELCRO 00	CHL	+1 TO 013235, +2 TO 013235, -3 TO 013235, -4 TO 013235			
RECORDER NO	- [REDACTED]	START	- 0030 ON 06/11/20	CONSTANT 1	-	1.7500000
ACCOUNT NO	- [REDACTED]	STOP	- 0030 ON 07/14/20	CONSTANT 2	-	1.7500000
DISTRICT NO	- 11			CONSTANT 3	-	1.7500000
				CONSTANT 4	-	1.7500000

 DESCRIPTION OF ERROR FLAGS:
 C = V2H QUANTITY IS ZERO
 I = INSERTED INTERVAL
 O = POWER OUTAGE
 S = START OF TAPE
 Z = ZERO REPLACEMENT
 E = ALL OTHER

OUTPUT RECIPIENTS

LARGE POWER BILLING

73 W.BROOK ST, 2ND FLOOR
MANCHESTER
NH 000000000 1 COPY

LY50000

PUBLIC SERVICE OF NEW HAMPSHIRE
 TEN MAXIMUM DEMAND LISTING

	OCCURRED ON	AT	KW	KX	KVA
1) MAXIMUM OFF PEAK KW:					
1)	MON 06/29	2030	12.3	61.3	62.5
2)	WED 07/01	2130	12.3	57.8	59.0
3)	FRI 07/10	0530	10.5	54.3	55.3
4)	THR 07/09	2030	10.5	57.8	58.7
5)	WED 07/08	2300	10.5	66.5	67.3
6)	TUE 07/07	2400	10.5	57.8	58.7
7)	TUE 07/07	2300	10.5	54.3	55.3
8)	TUE 07/07	2230	10.5	57.8	58.7
9)	TUE 07/07	2200	10.5	57.8	58.7
10)	TUE 07/07	2130	10.5	57.8	58.7
2) MAXIMUM ON PEAK KW:					
1)	THR 07/02	1330	162.8	140.0	214.7
2)	THR 07/09	1200	162.8	80.5	181.6
3)	THR 07/02	1700	161.0	113.8	197.1
4)	THR 07/09	1600	161.0	71.8	176.3
5)	THR 07/09	1500	161.0	80.5	180.0
6)	THR 07/09	1430	161.0	64.8	173.5
7)	THR 07/09	1400	161.0	110.3	195.1
8)	THR 07/09	1300	161.0	94.5	186.7
9)	THR 07/02	1430	159.3	133.0	207.5
10)	THR 07/02	1500	159.3	113.8	195.7
3) MAXIMUM OFF PEAK KVA:					
1)	SAT 06/20	1430	0.0	929.3	929.3
2)	SAT 06/20	1530	0.0	927.5	927.5
3)	SAT 06/20	1400	0.0	924.0	924.0
4)	SAT 06/20	1500	0.0	906.5	906.5
5)	SAT 06/27	1030	0.0	766.5	766.5
6)	SAT 06/27	1230	0.0	750.8	750.8
7)	SAT 06/27	1200	0.0	745.5	745.5
8)	SAT 06/27	1130	0.0	745.5	745.5
9)	SAT 06/27	1100	0.0	742.0	742.0
10)	SAT 06/27	1300	0.0	726.3	726.3
4) MAXIMUM ON PEAK KVA:					
1)	TUE 06/16	1330	0.0	1284.5	1284.5
2)	TUE 06/16	1200	0.0	1247.8	1247.8
3)	TUE 06/16	1130	0.0	1246.0	1246.0
4)	TUE 06/16	1230	0.0	1244.3	1244.3
5)	TUE 06/16	1300	0.0	1233.8	1233.8
6)	TUE 06/16	1100	0.0	1228.5	1228.5
7)	TUE 06/16	1030	0.0	1195.3	1195.2
8)	TUE 06/16	1000	0.0	1170.8	1170.7
9)	TUE 06/16	0900	0.0	1135.8	1135.8
10)	TUE 06/16	0930	0.0	1130.5	1130.5

LY50000

PUBLIC SERVICE OF NEW HAMPSHIRE
TEN MAXIMUM DEMAND LISTING

1) TOTAL KWH FOR COLUMN #1 IN PERIOD, OFF PEAK	133.8
2) TOTAL KWH FOR COLUMN #1 IN PERIOD, ON PEAK	3674.2
TOTAL KWH FOR COLUMN #1 IN PERIOD	3808.0

COSTING PERIODS

SECTIONS - TARIFF 33

OFF PEAK
 0030-2400 HOLIDAY
 0030-2400 WEEKEND
 2030-2400 WEEKDAY
 0030-0700 WEEKDAY

ON PEAK
 0730-2000 WEEKDAY

TOTALS - TARIFF 33

OFF PEAK
 0030-2400 HOLIDAY
 0030-2400 WEEKEND
 2030-2400 WEEKDAY
 0030-0700 WEEKDAY

ON PEAK
 0730-2000 WEEKDAY

Trigger 7/14/20 cycle reads
 DMDadd for A & B use only
 P = Primary Metering
 ENGupd RC00 A
 3808 * .9825 = 3741

Application of current billing compared with application of proposed alternative billing methodology using the special conditions provision under Rate B for backup generation service and supplemental service to Velcro

Velcro receives backup service for their generation backup service and supplemental service under the provisions of Rate B and Rate GV of the Company's tariff. Under Rate B, Velcro's Backup Contract Demand ("BCD") is a kilowatt (kW) value determined by the Company using normal output of the facilities that defines the level and type of backup service provided—whether generation backup or supplemental. For generation backup service for a given billing period, Velcro's BCD is the basis for determining the amount of actual backup demand (measured in kW) and backup energy (measured in kilowatt-hours, or kWh) provided in any thirty-minute interval. Rates under Rate B are applied per kW of monthly BCD to determine demand charges, and per kWh of monthly backup energy to determine energy (i.e., kWh based) charges.

Billing determinants and charges for providing supplemental service are also calculated using the BCD. Under the provisions of Rate B, generation backup service is charged for the amount of kW demand and kWh energy provided, but supplemental service is provided according to the terms of Rate GV, where kVA (both kVAR and kW) demand and kWh energy are the basis for charges.

Invoking the special conditions provision for Rate B in the Eversource tariff allows the Company to apply a calculation and allocation method for backup generation service and supplemental service that addresses an apparent disconnect between Velcro's actual usage and its bill. While the billing determinants from Velcro's usage profile used to calculate its bills to this point have been consistent with the application of the tariff under Rate B, Eversource agrees with Velcro that the unique circumstances and characteristics of energy usage on the premises warrant invoking the special conditions provision of Rate B so that its bill may better reflect the type and quantity of energy used by Velcro, including addressing Velcro's concerns about billing reactive power. A summary of key billing determinants under the current vs. alternate method are provided below.

The following describes the development of backup generation service and supplemental service billing determinants for service provided to Velcro during the period June 11, 2020 through July 14, 2020, both as it is calculated now, and as it would be if Velcro chooses to move forward with the alternative billing methodology.

Attachments 1 and 2 Current Rate B Billing Process: this attachment provides the kWh usage, and highest kW and kVA values for both backup generation service under Rate B (see Attachment 1) and supplemental service under Rate GV (see Attachment 2) for this period. These amounts result from a process performed by the Company at the time of billing that allocates the kWh and kVAR delivered to Velcro at the Company's point of interconnection during each 30-minute interval of this period, based on a BCD of 2,128 kW. The amounts highlighted in the attachment provide the highest level of kW or kVA demand occurring throughout the month, and were used to calculate the billing determinants applied to monthly

billing under Rate B and Rate GV. As discussed above, the BCD is a kW value for Velcro, and for billing purposes that is amount to which Rate B demand rates apply (Rate B specifies billing to be on either a kW or kVA basis, as appropriate¹).

Attachment 3 Backup Data Supporting Current Billing and Alternate Billing Method Using Special Condition Provision Under Rate B:

This attachment provides a detailed spreadsheet of interval meter data, and analysis and derivations of this data to demonstrate the basis of billing determinants for backup and supplemental service for the billing period, June 11, 2020 through July 14, 2020. Checks against the total kWh and maximum kW and kVA values shown in Attachments 1 and 2 are included.

This attachment also illustrates the development of an alternative method under consideration to prospectively invoke the special conditions term in the Rate B tariff that would allocate reactive power to backup generation service for any kWh drawn from Eversource for supplying backup power during a given interval, and allocate the remaining power to supplemental service. These quantities modify the current allocation of backup generation service and supplemental service by moving the amount of reactive power for each interval from supplemental service to backup generation service, up to the level of backup generation service taken at each interval.² This new allocation will be used to apply the tariff provisions for Rate B and Rate GV.

Attachment 4 Technical Statement: This attachment accompanies Attachments 1, 2 and 3, and describes in detail the methodologies applied in developing billing determinants under the current and potential alternative method.

¹ The label in attachment 1 shows kVA and kW being the same value of 2,128. In practice and consistent with the either/or application of the demand charge rates under Rate B, the unit of measure for the values shown is “kW”. Consistent with Rate B as applicable to Velcro, there is no kVAR of demand included in this billing determinant, and accordingly no charge for kVAR demand under Rate B.

² The amount of backup generation service taken is calculated using the following parameters: to calculate kVA for a given interval, Eversource will divide the actual amount of kW taken by an agreed-upon power factor. This calculation will determine how much reactive power is reallocated to backup generation service from supplemental service. Reallocation will occur on a per-interval basis, and the corresponding rates will be applied to the reallocated totals for backup generation service and supplemental service (B and GV respectively) across all billing intervals.