

Attachment GMP.COMM1.Q2.1 – Estimated Net Effect of Increasing Net-Metered Generation on GMP’s 2019 Rate Period Power Costs

For the 2019 rate period, net-metered generation (the vast majority of which is solar) by GMP customers is projected to increase by about 82,000 MWh relative to the test period. As summarized in the prefiled testimony of Douglas Smith, net-metered generation affects GMP’s net power costs in several ways, including both expenses and savings. We estimate that the net impact of increased net-metered generation on rate period power costs will be about a \$7 million increase to our customers, based on the following components.

First, net-metered expense is estimated to increase from \$19.8 million in the test period to \$29.8 million in the rate period (see line 9 of Exhibits DCS-1 and DCS-2), an increase of about \$10 million. This item includes the large fraction of net-metered generation that is not consumed at the site of generation during the current billing cycle, and which is booked as a purchased power expense. This item also includes solar adders and adjustors associated with all net-metered generation.

Net-metered generation has the potential to provide several forms of power cost savings, and one additional expense, which we have estimated as follows.

- 1) **Energy value:** About 57,500 MWh of the increase in net-metered generation is estimated to be excess. This volume represents a power supply expense, and a source that reduces the volume of energy that GMP needs to purchase from the ISO-NE wholesale market (or increases the volume of energy that GMP sells to the market). The value of the 57,500 MWh of additional energy that GMP receives is estimated at an average value of \$40/MWh (approximately equal to “7x24” forward energy market prices for the next year), for a **value of about \$2.3 million.**
- 2) **Capacity value:** GMP’s capacity obligations in the ISO-NE Forward Capacity Market (FCM) in a given capacity period (June through May) are based primarily on GMP’s hourly retail load (i.e. customer consumption plus distribution losses less load reducer generation) during ISO-NE’s coincident hourly peak load in the previous year (summer). To the extent that net-metered generation in GMP’s territory is producing at the time of the annual ISO-NE peak load, it can reduce GMP’s capacity obligations for the following capacity year. On the margin, the costs of these obligations are driven primarily by the clearing price determined in ISO-NE’s annual forward capacity auction (“FCA”) for that period. We therefore estimated the capacity value of additional net-metered generation by estimating the growth in net-metered capacity in GMP territory each summer, along with an assumed fraction of output at the time of the ISO-NE annual peak load, and valued the estimated reduction in GMP capacity obligations using the cleared FCA price(s) affecting the rate period.

Specifically, the year-over-year growth in installed net-metered capacity was about 70 MW for the period (summer 2017) that determined GMP’s capacity obligations for January through May of 2019, and 72 MW for the period (summer 2018) that will determine GMP’s obligations for June through September 2019. We assumed that the new net-metered capacity projects would be operating at about 30 percent of maximum capacity at the time of the ISO annual peak load, and that each MW of reduction of GMP load at the time of the annual ISO-NE peak load would

reduce GMP's capacity obligation by about 1.3 MW¹. Finally, the annual FCA clearing prices affecting the rate period are \$9.55/kW-month and \$7.03/kW-month for the periods of January through May 2019 and June through September 2019, respectively. Based on these assumptions, the total capacity value for the 9-month rate period as a result of increasing net-metered generation volumes was estimated at **about \$2.1 million**.

- 3) **REC expense and value:** Almost all NM 2.0 projects have assigned their RECs to GMP; we assume that this trend will continue. This represents a REC expense to GMP of \$60/MWh, based on the difference in REC adjustors that net-metered projects receive if customers assign the RECs, versus retaining them. The associated RECs also have a value to GMP because they can be used for compliance with Vermont RES Tier 2. This effectively frees up RECs associated with other Vermont distributed renewable projects for sale to Class 1 RPS compliance markets in neighboring states; this estimate assumes a near-term market value of \$25/MWh for such RECs. The \$35/MWh difference (between REC expense and short-term market value), was multiplied by the projected increase in the volume of NM 2.0 generation of about 40,000 MWh², resulting in an estimated net REC cost **increase of about \$1.4 million** from increasing net-metered generation in the rate period. These expenses and value are not included in the net-metered expense cited above, so they represent an additional effect on GMP's net power costs (in addition to the benefits discussed in items 1 and 2 above).
- 4) **RNS transmission value:** GMP's share of Regional Network Service ("RNS") expenses are determined on a monthly basis based on its share of the VELCO transmission system coincident peak load. Because monthly peaks on the VELCO system have shifted to evening hours when solar PV output tends to be very small or zero, we do not expect that additional net-metered solar power will provide any meaningful reduction in RNS expenses.

Based on these components of expense and benefit, the net impact of increasing net-metered generation volumes on GMP's net power costs is about \$7 million to customers (\$10 million of expense, less about \$3 million of net benefits from energy, capacity, and RECs). Please see **Attachment GMP.COMM1.Q2.2** for the calculations.

¹ The 130% ratio is due primarily to the regional capacity reserve margin (i.e., ISO-NE's installed capacity requirement is significantly higher than peak load), and the fact that demand side resources are treated in the FCM as capacity supply (not reductions to peak load). In addition, under the FCA demand curve construct, ISO-NE may (depending on prevailing prices) procure noticeably more capacity than the installed capacity requirement.

² About 40,000 of the projected additional 57,500 MWh are expected to come from "Net-Metering 2.0" projects, which feature a REC adjustor. The other additional MWhs associated with "Net-Metering 1.0" projects do not feature a REC adjustor or convey RES-eligible RECs to GMP; their incremental expenses are fully reflected in the \$10 million increase in net-metered expense cited above.