

July 19, 2021

By E-Filing

Mark D. Marini, Secretary
Department of Public Utilities
One South Station, 5th Floor
Boston, MA 02110

Re: Distributed Energy Resource Planning and Assignment and Recovery of Costs for the Interconnection of Distributed Generation – D.P.U. 20-75

Dear Secretary Marini:

On behalf of Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid (“National Grid”), enclosed for filing in the above matter are National Grid’s Responses to the Department’s Third Set of Information Requests. Each individual Information Request Response is submitted in a separate PDF file. In addition, all of the Information Request Responses are submitted as a single PDF file.

Thank you for your attention to this matter. Please contact me if you have any questions regarding this filing.

Sincerely,



Nancy D. Israel, Esq.

Enclosures

cc: Sarah Spruce, Hearing Officer

Information Request EDC-3-2

Request:

Refer to National Grid's response to EDC-1.

- (a) Please explain how National Grid arrived at the 40-60 percent figure when determining the percentage of EPS upgrade costs that should be recovered fully from distribution customers and not offset by CIP fees paid by interconnecting customers.
- (b) Please describe what factors the Company considered when determining whether a specific EPS upgrade should be allocated exclusively to distribution customers versus offset by CIP fees paid by interconnecting customers.

Response:

- (a) In its Response to EDC-1 at 9, National Grid explained its belief that up to 40 percent of the DG interconnection costs for the Group Studies in Central/Western MA identified in the Response should be allocated as system benefits to all electric distribution customers because of the enumerated multi-value benefits to all customers that would flow from the types of distribution system modifications National Grid currently contemplates, including enabling achievement of the Commonwealth's climate and clean energy goals. National Grid continued to refine its analysis based on the currently available information and in its presentation at the June 3, 2021 technical conference in this docket, slide 5, National Grid presented a revised proposed allocation of 40 percent to 60 percent of "Substation Costs" to all electric distribution customers.¹ National Grid arrived at this revised proposed cost allocation after it completed a preliminary review of the potential multi-value benefits associated with asset condition, reliability, and system capacity and performance for the currently anticipated scope of work associated with the Central/Western MA Group Studies and estimated at a high level the relative benefits that DG interconnecting customers and all electric distribution customers would receive from such work. The percent allocated to all electric distribution customers would differ

¹ National Grid has proposed allocating Substation Costs to all electric distribution customers through the reconciling charge described in the Straw Proposal. Substation Costs include the cost of the substation transformer owned by New England Power Company ("NEP") and associated equipment installed on the low side of the substation transformer that are owned by Massachusetts Electric Company. The equipment installed on the high side of the substation transformer inside substations that are owned by NEP would be recovered through the Local System Plan as described in the Company's Response to EDC-3-4.

depending on the associated benefit of the system modification. Under the multi-value cost allocation framework proposed for the Group Studies, National Grid would perform a targeted asset condition review, identify potential issues, and exclude the replacement cost of such assets from the DG interconnecting customer costs. The replacement cost of such assets would be included in the 40 percent to 60 percent of costs to be charged to all electric distribution customers through the reconciling charge, reflecting the relative benefit all electric distribution customers would receive from the replacement of such assets.²

In refining its cost allocation analysis, National Grid also worked collaboratively with NECEC and representatives of the solar community to focus on enabling the interconnection of DG facilities in these Group Studies through multi-value infrastructure upgrades that will benefit DG developers and also provide significant system and climate benefits to all customers, including accelerating the achievement of the Commonwealth's enhanced clean energy and climate objectives through the enablement of transportation and building electrification load growth.³

The Group Studies are still in the early stages of engineering analysis. Following completion of the Group Studies and the associated transmission system impact study, National Grid will identify the distribution system modifications and transmission system upgrades required for each Group Study. National Grid will continue to focus on identifying multi-value infrastructure upgrades to the extent warranted by the engineering studies. If the Department approves a provisional planning process for the Group Studies, National Grid will submit formal cost allocation proposals for the Group Studies to the Department that will propose CIP fees to be allocated to DG projects and multi-value investments to be allocated to all electric distribution customers as determined by the outcome of the Group Studies.⁴

- (b) As noted in its response to (a), if the Department approves a provisional planning process for the Group Studies, National Grid will submit formal cost allocation proposals for the Group Studies to the Department that will propose CIP fees to be allocated to DG projects and multi-value investments to be allocated to all electric distribution customers as determined by the outcome of the Group Studies and based on who will benefit from such system upgrades. If a system upgrade would benefit specific interconnecting customers, National Grid would propose a CIP fee if a CIP fee were warranted.

² Asset replacement work that is in National Grid's current five-year plan would be excluded from these costs.

³ Joint Letter Provisional Plans Supplemental Comments, submitted to the Department on June 8, 2021.

⁴ As previously explained, National Grid anticipates that it would take three to four months following completion of the Group Studies to develop and submit its provisional planning process to the Department.

The factors National Grid anticipates considering when determining whether a specific EPS upgrade should be allocated exclusively to electric distribution customers versus offset by CIP fees paid by interconnecting customers include whether a specific EPS upgrade would address multiple system drivers, such as asset condition, reliability, and system capacity and performance, in addition to state climate goals and DER enablement, or whether it would benefit only specific interconnecting customers.

As noted in response to (a), although it is premature to identify all of the factors National Grid would consider in proposing to allocate specific EPS upgrade costs to all electric distribution customers, as discussed in National Grid's response to EDC-1 at 9, the following are examples of EPS upgrades that could have multiple system drivers in addition to DER enablement, which National Grid would consider in determining whether to propose allocating the costs of such upgrades to all electric distribution customers as a multi-value investment:

1. Substation rebuilds which propose asset condition equipment replacements or items that require attention for continued operation and safety, as identified during field inspections.
2. Substation expansions which increase the Commonwealth's future capability to host new, un-forecasted load growth (e.g., a large warehouse, data center, other C&I customer, electric vehicles, and beneficial heat electrification) in regions that historically have seen low demand and/or low load growth.
3. Substation redundancy which will be utilized for faster restoration, reducing duration for transformer contingency events.
4. Voltage control technology which will be used to prevent load-based under-voltage events.
5. Reclosers and protective devices remote to the point of interconnection ("POI") which will be used to protect, isolate, and restore a system event regardless of load and generation served.
6. Other ancillary benefits to the Company's EPS that accompany any new construction (e.g., refreshed tree-trimming clearances, newer poles) that might not otherwise occur until a later planning cycle or when a failure occurs during a storm.

Information Request EDC-3-3

Request:

Refer to National Grid’s Response to EDC-1. Please provide high-level planning estimates of expected costs of transmission related EPS upgrades. Provide data in dollar-amount-per-kilowatt (“\$/kW”) and by group, where possible.

Response:

Referring to National Grid’s Response to EDC-1 (“EDC-1 Response”), Table 1 below provides high-level estimated low and high range \$/kW costs for the transmission related EPS upgrades referenced in such Response.

Table 1 allocates the high-level estimated transmission related \$/kW costs per Group Study region consistent with the DG capacity in MW per region as shown in the table in EDC-1 Response at 2-3. The low range estimated \$/kW transmission costs in Table 1 for each Group Study region are included in the high-level estimated interconnection costs of \$760.7 million for the Group Study regions in the table in EDC-1 Response at 4. The high range estimated \$/kW transmission costs in Table 1 for each Group Study region reflect the estimated \$380 million incremental cost added to the transmission EPS anticipated project work referenced in EDC-1 Response at 8.

Table 1

Distribution Group Study Regions	Total MW	Estimated Transmission Cost Range	
		\$/kW (Low)	\$/kW (High)
Ayer-Clinton	23	\$658	\$1,169
Barre-Athol	41	\$724	\$1,235
Gardner-Winchendon	54	\$208	\$718
Millbury-Grafton	16	\$658	\$1,169
MPL-East	35	\$874	\$1,385
MPL-Northwest	5	\$61	\$571
Shutesbury	20	\$377	\$887
Spencer-Rutland	62	\$1,306	\$1,817
Webster-Southbridge-Charlton	75	\$390	\$900
Average \$/kW	331	\$583	\$1,545

Notes to Table 1:

1. The estimates in Table 1 are separate from the approximately \$1.2B of regulated asset condition transmission work planned in Central/Western MA over the coming years, which will be recovered through the relevant New England regional or local rates. These asset condition projects are going to appropriately consider the 69kV to 115kV conversion described in EDC-1 Response at 7-8 in their respective scope development.
2. The estimates are not currently supported by comprehensive asset condition reports per substation and are subject to change.
3. Full verification that all of the substation plots and configurations can accommodate the enhanced 115 kV clearances (assumed in high \$/kW) has not yet been completed and may become a challenge in some areas.
4. Consistent with the ISO-NE planning procedures, New England Power Company will need to study all outputs from the distribution Group Studies so the right transmission upgrades are driven in the right timeframes.
5. The high level transmission cost estimates in EDC-1 Response and in Table 1 assume all transmission line work can be recovered under transmission local network service ("LNS") rates, and that the existing 115kV system needs the 69kV system to be converted, as otherwise the 115kV system will not be able to accommodate the total DG capacity National Grid contemplated enabling in EDC-1 Response.
6. As approximately 300MW of proposed DG studied in Central/Western MA in 2020 as part of the transmission Cluster Study Part 2 did not require any transmission upgrades, depending on the final points of interconnection and other changes to the transmission system since 2020, it is also possible there may be little to no new transmission upgrades prompted by the DG that is in queue in the Group Studies.

Information Request EDC-3-4

Request:

Please explain in more detail how each Company proposes to recover through a provisional system planning program ("Provisional Program") costs of transmission related EPS upgrades from distribution customers and/or interconnecting customers.

Response:

As described during the Department's Technical Conference on June 3, 2021, for the Provisional Program National Grid proposes to recover 100 percent of costs associated with transmission line upgrades through the appropriate FERC-approved transmission rate. National Grid believes that the required transmission line upgrades would appropriately be included in the Local System Plan ("LSP") developed by its affiliate, New England Power Company, in accordance with Appendix 1 "Attachment K – Local, Local System Planning Process" to Attachment K of the ISO New England, Inc. ("ISO-NE") Open Access Transmission Tariff ("Attachment K – Local"). Attachment K – Local requires ISO-NE participating transmission owners¹ to develop needs analyses, including improvements needed to maintain system reliability, and to do so in a manner that ensures comparable treatment of similarly situated customers. The transmission line upgrades identified in the Western and Central MA area through National Grid's Provisional Program proposal seek to remedy transmission line asset conditions and improve system reliability by taking into consideration changes in area load. Cost recovery for projects in the LSP is achieved through the Local Network Service ("LNS") transmission rate charged by New England Power Company ("NEP") to all its wholesale transmission customers on a load share basis, of which Massachusetts Electric Company ("MECO") load constitutes the majority share.

As also described during the Department's Technical Conference on June 3, 2021, for the Provisional Planning process National Grid proposes to recover Substation Costs, as defined in the Company's Response to EDC-3-2, for equipment owned by NEP inside a substation proportionally between interconnecting DG customers and all electric distribution customers according to the benefits received. All costs, including operation and maintenance expenses and other on-going carrying charges associated with such Substation Costs for equipment owned by NEP, would be charged by NEP to MECO, as NEP's transmission customer, pursuant to Schedule 21-NEP of the ISO-NE Open Access Transmission Tariff. MECO proposes to then allocate these costs to DG interconnecting customers through their state jurisdictional

¹ New England Power Company is a participating transmission owner in the ISO-NE control area.

interconnection service agreements and to all electric distribution customers through the reconciling charge described in the Department's Straw Proposal. The Company currently estimates approximately 40 percent to 60 percent of Substation Costs for equipment owned by NEP will be recovered through such reconciling charge, with the remainder paid for by DG interconnecting customers over time as part of the Capital Investment Project ("CIP") fees they would pay to connect. Any unpaid CIP fee portion payable by future DG interconnecting customers in that area during the term set by the Department would also be paid for through the reconciling charge as a revenue requirement until such time as a future DG interconnecting customer paid the associated CIP fee to connect in that area.

Information Request EDC-3-5

Request:

Refer to the Massachusetts Office of the Attorney General's June 8, 2021 comments. Please explain how the expanded authority for utility-owned solar and energy storage under section 77 of "An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy," St. 2021, c. 8, intersects with each Company's proposed provisional plan.

Specifically:

- (a) Explain whether this type of utility development would affect planning estimates for EPS upgrades and associated costs and construction timelines for a Provisional Program.
- (b) How would utility-owned solar facilities effect access for interconnecting customers to the hosting capacity enabled by a CIP in a Provisional Program?
- (c) How would utility-owned solar facilities utilizing hosting capacity enabled by a CIP in a Provisional Program effect the benefits of that Provisional Program for distribution customers, including the share of EPS upgrade costs that are paid exclusively by distribution customers versus offset by CIP fees paid by interconnecting customers?

Response:

- (a) National Grid anticipates that this type of utility development will not affect planning estimates for EPS upgrades and associated costs and construction timelines for a Provisional Program because any such projects that may be planned for a particular Group Study region would be included in the forecast for that region. In other words, National Grid would account for any such planned project in proposing a CIP pursuant to a Provisional Program. National Grid has not made plans at this time within any of the Group Study regions regarding the development of a project authorized by St. 2021, s. 77.
- (b) National Grid expects that since any utility-owned development would be submitted in the DG interconnection queue, the same applicable \$/kW CIP fee that would apply to interconnecting customers would also apply to any such utility-owned solar facilities, paired with energy storage where feasible, that are seeking to interconnect to that same Group Study region where hosting capacity is enabled by a CIP in the Provisional Program. As mentioned in EDC-3-5 (a) above, National Grid expects that once any such

planned utility development is known, those planned projects in addition to forecasted growth of other DER would be included in the Company's forecast for that Group Study region and therefore would be taken into account in any Company proposal to enable additional DG capacity in that region. National Grid expects that system upgrades completed through the Provisional Program (if approved by the Department) will enable DG capacity that exceeds the total capacity of DG facilities currently in the interconnection queue in the Group Studies. As discussed in the Company's Response to EDC-1 at 6-7, the Company's high-level estimate is that about 900 MW of DG substation capacity could be enabled by the anticipated EPS upgrades for the Group Studies in addition to the approximately 300 MW of capacity to be enabled for the Group Studies. Accordingly, development of new municipal solar energy projects will not impact access of DG facilities in the Group Studies to the hosting capacity enabled by a CIP in a Provisional Program.

- (c) Utility-owned solar facilities, paired with energy storage where feasible, utilizing hosting capacity enabled by a CIP in a Provisional Program should not affect the benefits of a Provisional Program for electric distribution customers, including the share of EPS upgrade costs that would be paid exclusively by electric distribution customers versus offset by CIP fees paid by interconnecting customers, because National Grid contemplates that any such utility-owned facilities would be built by a DG developer as a turnkey project, progress through the DG interconnection queue, sign an interconnection service agreement and pay a CIAC (or CIP fee), on the same basis as any other DG project. For example, in its Solar Phase II and Solar Phase III programs, National Grid solicited bids for and acquired turnkey solar generating facilities from solar developers, who were "responsible for designing, engineering, permitting, locating, leasing, procuring, installing, interconnecting, and commissioning the solar generation facilities ..." Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid, D.P.U. 16-104, at 13 (2016). Ultimately, the purpose of the proposed Provisional Program is to enable the Group Study projects to progress to interconnection and to enable additional capacity and facilitate interconnection for future DG projects. If the Company were to own the maximum amount authorized by St. 2021, s. 77 of solar facilities, paired with storage where feasible, in the Group Study regions, the Company thinks that would be complementary to its Provisional Program planning proposal.

Information Request EDC-3-6

Request:

Refer to the Department of Energy Resources' ("DOER") May 21, 2021 comments at 1.

- (a) Explain whether each company's Provisional Program proposal aims to establish a fixed percentage for all CIPs, or if the benefits of each project would be individually evaluated to determine a percentage.
- (b) If the proposal is for a fixed percentage of rate base cost share, explain whether lifespan of the asset is a factor when determining allocation of costs for the asset.

Response:

- (a) National Grid's Provisional Program proposal does not aim to establish a fixed percentage of costs to be recovered from all electric distribution customers for all CIPS. In Group Study regions in which the Company determines it is appropriate to propose a CIP fee, the Company proposes to establish a percentage of costs to be recovered from all electric distribution customers based on the multi-value investments in that particular Group Study region that the Company determines will benefit load and future electrification. Please refer to the Company's June 3, 2021 PowerPoint presentation for additional details.
- (b) As explained in (a), National Grid's Provisional Program proposal does not propose a fixed percentage of rate base cost share for all CIPs.

Information Request EDC-3-7

Request:

Eversource and National Grid: Refer to the DOER's June 8, 2021 comment at 1-2. Explain what, if any, safeguards each company has considered in developing their Provisional Program proposals to ensure distribution customer benefits are maximized

Response:

DOER's June 8, 2021 comments at 2 encourage the Department to ensure that ratepayer benefits are maximized. As described in more detail in National Grid's Response to EDC-1 ("EDC-1 Response") at 8-9, in developing its Provisional Program proposal the Company considered how to maximize the benefits to electric distribution customers through multi-value investments. In determining how investments could benefit all electric distribution customers, National Grid considered the imperatives of the Commonwealth's clean energy and climate change policies, the concept of allocating costs to the beneficiaries of those multi-value investments and ideas such as shared capacity across load and generation customers and DG availability as a reliability requirement. As the Company explained, to date it has considered the potential benefits to all electric distribution customers from the contemplated system upgrades under a Provisional Program at a conceptual level and has identified the types of qualitative benefits that may result from the types of upgrades described in EDC-1 Response, subparagraphs a. through d. at 2 through 7. National Grid also has reached conceptual agreement with the signatories of the Joint Letter Supplemental Comments submitted on June 8, 2021 on the proposed multi-value infrastructure upgrades described therein that will benefit DG developers and also provide significant system and climate benefits to all electric distribution customers. The potential system upgrades National Grid identified in EDC-1 Response are consistent with DOER's objective. If the Department approves a Provisional Program, National Grid will focus on maximizing the multi-value benefits to all electric distribution customers from the specific system upgrades identified through the Provisional Program planning process, consistent with DOER's objective.

DOER's June 8, 2021 comments at 2 also encourage the Department to consider the cost impacts on customers. The Company provided illustrative bill impacts in its Response to EDC-2 and its Response to EDC-2-5 that assume the completion of the potential system upgrades under a Provisional Program described in EDC-1 Response that maintain bill impacts within the annual rate cap the Department proposed in its Straw Proposal, consistent with DOER's objective.

Information Request EDC-3-8

Request:

Based on current trends, please describe all external contractor resource constraints that may impact distributed generation ("DG") interconnection construction timelines. Include in your response constraints related to availability of construction workers and costs of construction materials.

Response:

At this time, National Grid is not aware of any external contractor resource constraints that will impact distributed generation interconnection construction timelines. This response is based on comparing the short-term work plan with available contractor resources. Available resources are determined via discussion with applicable unions and MSA contractors.

Costs of construction materials are a significant concern given the current market situation coming out of the pandemic. Key cost components such as steel and copper have been increasing at alarming rates. For example, the cost of network transformers has increased by 14 percent, voltage regulators by 7.5 percent, and cable by 18 percent since May of 2020. Shipping delays are an additional concern given supply chain issues experienced during the past year. As a result of these material-related concerns, National Grid expects system modification costs to be higher than estimated in past years for similar work.

As the market landscape for contracting resource availability and material pricing is constantly evolving, the above observations from National Grid can only reflect what is known today and what has been observed historically, without guarantee for the future.

Information Request EDC-3-9

Request:

Based on current trends, please describe all external contractor resource constraints that may impact distributed generation ("DG") interconnection construction timelines. Include in your response constraints related to availability of construction workers and costs of construction materials.

Response:

At this time, National Grid is not aware of any external contractor resource constraints that will impact distributed generation interconnection construction timelines. Refer also to the Company's Response to EDC-3-8 for further elaboration, including with respect to the costs of construction materials.

The Company recognizes the dynamic nature of the DG interconnection process. If several DG projects of different scope with overlapping construction schedules were to materialize, resource allocation to all such work could be challenging given the overall available resource pool.

Information Request EDC-3-10

Request:

Refer to EDC 3-8. Please describe any known or anticipated impacts to timelines and costs specific to a Provisional Program due to external contractor resource constraints.

Response:

At this time there are no known or anticipated impacts to timelines and costs specific to National Grid's proposed Provisional Program due to external contractor resource constraints. Refer to the Company's Responses to EDC-3-8 and EDC-3-9 for additional details.