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BY ELECTRONIC MAIL ONLY (ma-gmac@mass.gov)

Members of the Grid Modernization Advisory Council
100 Cambridge Street, 9th Floor
Boston, MA 02114

Re: Grid Modernization Advisory Council – Comments from the Town of Nantucket

Members of the Grid Modernization Advisory Council:

This firm represents the Town of Nantucket, Massachusetts (Town). Please accept this letter as the Town's public comments on the Grid Modernization Advisory Council (GMAC)'s review and recommendation of the investor-owned electric distribution companies' (EDCs) plans regarding the electrification and updates to the grid.

At the outset, the Town of Nantucket notes its general support for the Commonwealth's mission to create a clean, affordable, resilient, and equitable energy future for all. This letter provides comments on and expresses the Town's ongoing concerns regarding the Commonwealth's grid modernization planning and its implications for the Town's energy future, as Nantucket faces unique challenges as the Commonwealth's most remote community with critical concerns related to the reliability and resiliency of our grid infrastructure, the growing demand for electricity, and the associated cost burden on local ratepayers as the Commonwealth plans its electrification and clean energy transition. The Town appreciates the opportunity to raise these issues and provide input on how Nantucket can best align with the Commonwealth's decarbonization goals while addressing the Town's specific needs.

I. LEGAL FRAMEWORK

Pursuant to "An Act Driving Clean Energy and Offshore Wind," added by St. 2022, § 53, each EDC is required to develop an electric sector modernization plan (ESMP). G.L. c. 164, § 92B. In so doing, each EDC must proactively upgrade the distribution and transmission systems to improve grid reliability and resiliency; enable increased use of renewable resources; promote energy storage and electrification; prepare for climate-drive impacts on the transmission and distribution systems; accommodate future demands; and mitigate impacts on ratepayers of the Commonwealth. Id. Grid updates also must comply with An Act Promoting a Clean Energy Grid, Advancing Equity, and Protecting Ratepayers, St. 2024, c. 239, § 134.

As you know, GMAC is required to review and provide recommendations and input on the ESMPs. Id. See also G.L. c. 164, § 92C. In its review, GMAC is charged with encouraging least-cost investments in the electric distribution systems, alternatives to the investments or alternative approaches to financing investments that will facilitate the achievement of the statewide greenhouse gas emission limits, and increasing the transparency and stakeholder engagement in the grid planning process. G.L. c. 164, § 92C.

Specifically, GMAC's recommendations must: "maximize net customer benefits and demonstrate cost-effective investments in the distribution grid," including for renewable energy resources; "minimize or mitigate impacts on ratepayers throughout the commonwealth"; and "reduce impacts on and provide benefits to low-income ratepayers throughout the commonwealth." Id. Once GMAC has reviewed and provided appropriate

recommendations, the EDCs will make appropriate revisions to their plan and file it with the Department of Public Utilities (DPU).

Please allow this comment letter to address the specific issues on which GMAC may make recommendations as it concerns the Town, such as its current infrastructure constraints, alternatives and least-cost investments, reducing the impact on Nantucket ratepayers, and improving transparency in the grid modernization and planning process.

II. FACTUAL BACKGROUND

To facilitate the clean energy transition in the Commonwealth, substantial electric distribution infrastructure investments are planned.[1] As it concerns Nantucket's current infrastructure and capacity, the Town's peak demand is growing at five times the Massachusetts statewide average, raising concerns about the island's grid infrastructure and capacity.[2] By way of background, electric service is currently delivered to Nantucket via two undersea cables from the mainland grid. These cables run approximately 30 miles from Cape Cod to the National Grid substation on Candle Street in Nantucket's historic downtown.[3] The first cable, installed in 1996, connects to Harwich, Massachusetts and has a capacity of 36 MW at a cost of $27 million. The second, installed in 2006, connects to Hyannis, Massachusetts and has a capacity of 38 MW at a cost of $41 million. Both cables are classified as distribution assets of Nantucket Electric Company, a subsidiary of National Grid, with all costs borne solely by island ratepayers.

The island's peak load of 55 MW has already exceeded the capacity of one undersea cable, a 6 MW Tesla Battery Energy Storage System (BESS), and a 10 MW turbine generator installed in 2019. As such, discussions are occurring with National Grid about a third undersea cable to maintain appropriate levels of reliability in future years. A third cable, if deemed necessary, would likely follow the same cost structure, placing a significant financial burden on island ratepayers.

Nantucket also faces a natural "reverse capacity limit" which restricts the amount of local renewable energy that can be developed on the island without risking back feeding events across the undersea cables to the mainland. This limit remains undefined, creating significant uncertainty and hindering the efficient advancement of local solar projects and key non-wire alternatives (NWAs).[4]

Of note, in 2024, two major electric service disruptions occurred: a cable failure in May and a widespread outage during the Christmas Stroll weekend. These incidents underscore the urgent need for

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[1] The Town has also submitted comments to DPU and DTC regarding these upgrades as pertinent to their joint inquiry exploring utility pole attachment, conduit access, and related considerations applicable to utility work conducted in the Town as the Commonwealth facilitates its clean energy transition and electrification and modernization of the grid, which it incorporates here by reference. See DPU and DTC, Notice of Inquiry and Request for Comments, dated January 17, 2025, available at https://www.mass.gov/doc/dpu-25-10dtc-25-1-notice-of-inquiry-and-request-for-comments/download.

[2] See Worcester Polytechnic Institute, Stimulating the Adoption of Solar PV on Nantucket, available online at https://wp.wpi.edu/nantucket/projects/2017-projects/neo/.

[3] Nantucket Current, One Of The Two Undersea Cables That Provide Electricity To Nantucket Is Broken Down (May 4, 2024), available online at https://nantucketcurrent.com/news/one-of-the-two-undersea-cables-that-provide-electricity-to-nantucket-is-broken-down?utm_source=chatgpt.com; see also National Grid, Nantucket Peak Load, available online at https://www.nationalgridus.com/media/pdfs/resi-ways-to-save/0416-natgrid-ma-hes-ngma-353598-nantucketfaqdocument-v6.pdf.

[4] Non-wires alternatives are electric utility system investments that can replace the need for specific transmission and distribution projects at lower total resource cost by reliably reducing transmission congestion or distribution system constraints at times of peak demand in specific grid areas. See NWA at National Grid, https://www.nationalgridus.com/Business-Partners/Non-Wires-Alternatives/.

enhanced resiliency and sustainability measures to prevent future events of this magnitude, particularly as the Commonwealth begins exploring additional upgrades and expansions to promote electrification and grid modernization.

The Town appreciates the opportunity to submit public comments on some of its unique grid and infrastructure needs as GMAC and the EDCs undertake their ESMP planning process.

III. GMAC AND THE EDCS MUST TAKE INTO ACCOUNT CURRENT INFRASTRUCTURE CONSTRAINTS, DEMAND AND RELIABILITY ISSUES, AND COST IMPLICATIONS FOR NANTUCKET RATEPAYERS IN GRID MODERNIZATION AND PLANNING EFFORTS

A. Peak Load Growth and Infrastructure Constraints

As noted, Nantucket's electricity demand continues to grow at an unprecedented rate and already exceeds the capacity of each undersea delivery cable from Cape Cod. As electrification accelerates under Massachusetts's decarbonization and electrification plans, there is a heightened risk that the current infrastructure will be unable to meet current and future demand. A failure of one of the two undersea cables during the peak season would leave the island without sufficient capacity to power essential services, posing a significant risk of prolonged outages and widespread disruption. To mitigate this potential catastrophe, the Town requests clarity and transparency on the State's and/or EDCs' plans for deploying additional roll-on generators and/or other contingency measures during this process.

Additionally, given that internal forecasts and communications with National Grid may suggest that a third undersea cable may be required by 2033, the Town urges National Grid to outline a detailed timeline for planning, permitting, and installation as part of these utility and infrastructure system upgrades. When the Tesla BESS was proposed in 2018, the forecast for needing a third cable was projected as far out as 2044. The accelerated timeline highlights the rapid growth in electricity demand and the urgency of addressing these challenges. Recent failures also underscore the vulnerability of current infrastructure, particularly during peak periods, making greater urgency and transparency essential.

Considering the aging infrastructure, the Town also asks what local distribution infrastructure upgrades are planned in the near- and long-term and whether replacing the first cable, which is nearing 30 years old, with a significantly higher-capacity cable, is being evaluated as part of this planning process.

B. Electrification and Renewable Energy Integration

The Town also notes that current substation limitations significantly restrict local renewable energy deployment due to concerns about power back feeding to the mainland during low-demand periods. The Town, therefore, urges the prioritization of essential upgrades, such as 3VO protection at the Candle Street substation, to unlock Nantucket's renewable energy potential and ensure grid reliability as electrification continues to accelerate.

Additionally, the island faces a significant challenge related to its solar capacity limit. Current infrastructure constraints, including the "reverse power limit," hinder Nantucket's ability to effectively plan for and expand distributed generation (DG) projects. As such, the Town requests consideration and a clear

assessment of this limit and the steps being taken to address it. Without such transparency, the Town is unable to adequately prepare for future DG capacity needs. Once this limit is reached, a comprehensive transmission study will be required to determine necessary upgrades, such as reverse power relays.

The Town commends the State's and EDC's efforts to pursue grid modernization and utility system upgrades but stresses the critical need for collaboration to address Nantucket's unique needs and challenges. Nantucket offers a valuable opportunity to pilot innovative solutions, such as NWAs, Virtual Power Plants (VPPs),[5] and advanced demand-side management strategies. Given the substantial costs associated with traditional infrastructure upgrades, including a potential third undersea cable, leveraging Nantucket as a testing ground could yield insights and scalable solutions with broader applications across Massachusetts.

C. Cost Implications for Ratepayers

Finally, the Town notes that current electricity prices on Nantucket are significantly higher than the national average. The anticipated cost of a third undersea cable, estimated at over $200 million, also presents a significant economic burden for Nantucket ratepayers, who already finance the existing cables through a roughly 15% cable facility surcharge. To minimize any further impact on Nantucket ratepayers through the grid modernization process, the Town urges the active exploration of funding opportunities through federal and state programs for grid resiliency, such as Section 40101(d) of the Bipartisan Infrastructure Investment and Jobs Act, to help alleviate this financial strain, throughout its electrification and upgrade and expansion projects.

IV. CONCLUSION

The Town thanks GMAC for this opportunity to provide comments regarding the electrification of the grid and cost implications for ratepayers. Nantucket's grid is a vital part of the community's resilience and sustainability, and its modernization must be addressed with urgency and equity. As the Town works to meet the Commonwealth's ambitious decarbonization goals, the Town urges the state agencies and EDCs to prioritize the island's unique challenges in planning and funding decisions to ensure a cleaner, more reliable energy future for Nantucket.

Thank you for your attention to these critical issues.

Very truly yours,

Devan C. Braun

cc: Town Manager
DPW Director
Energy Coordinator
Select Board

[5] Virtual power plants are a network of devices in homes and businesses that can be harnessed by utilities to add power, cut energy demand, or both. See WBUR, How Virtual Power Plants Help Reduce Peak Power Demand in New England, available at https://www.wbur.org/news/2024/08/28/virtual-power-plants-eversource-massachusetts-batteries-ev-chargers/.