Memo

MA ENERGY EFFICIENCY ADVISORY COUNCIL

→ CONSULTANT TEAM

To: **DOER and Energy Efficiency Advisory Council**

From: **EEAC Consultant Team**

Date: **July 12, 2023**

Subject: **National Grid Refrigeration MTM (DPU 23-54)**

History & Narrative

On May 26, 2023, National Grid (the Company) concurrently filed a Mid-Term Modification with the EEAC and the Department of Public Utilities (DPU 23-54), pursuant to §3.8.2 of the Department's Energy Efficiency Guidelines. D.P.U. 20-150-A (2021).

In this filing, National Grid has proposed a Demonstration Project designed to reduce Green House Gas (GHG) emissions from refrigerant leakage at grocery stores in Massachusetts. Although the initial focus is on the grocery segment of the Commercial & Industrial (C&I) sector, National Grid states that it has relevance across all C&I HVAC markets within the program portfolio.[1]

Pursuant to §3.9 of the Energy Efficiency Guidelines, the Department's review of a Demonstration Project must consider:

(a) reasonableness of the size, scope, and scale of the proposed project in relation to the likely benefits to be achieved;
(b) adequacy of the evaluation plan;
(c) extent to which there is appropriate coordination among Program Administrators; and
(d) bill impacts to customers.

The Company states that the proposed Demonstration Project would consist of two measures, one focused on refrigerant leak detection and reduction (Refrigerant Mitigation) and one based on retrofitting existing systems near the end of their life to use lower Global Warming Potential (GWP) refrigerants (Refrigerant Retrofit).[2] Although these measures are primarily described as Green House Gas (GHG) reduction measures, National Grid claims they have the potential to provide energy savings.

[1] https://ma-eeac.org/wp-content/uploads/Exhibit-NG-4-Narrative-MTM-Proposal-5.26.23.pdf
[2] Ibid, page 2-4.

National Grid presented the EEAC with the table below of the expected cost, energy and GHG savings and BCR per site.[3] National Grid expects the refrigerant projects to be cost-effective when the Social Cost of Carbon is applied to the modest energy savings and non-energy GHG emissions reductions.

Per Site

	Cost to Implement	Energy Savings (kWh and MT CO2e)	Refrigerant Emission Reduction (MT CO2e)	Total Emission Reduction (MT CO2e)	BCR without Refrigerant Emissions	BCR with Refrigerant Emissions
Refrigerant Mitigation	$12,000	15,000	62	65	0.83	4.39
Refrigerant Retrofit	$70,000	30,000	424	427	0.56	9.15

National Grid is seeking approval of $950,000 from their existing C&I sector budget to fund this Demonstration Project. They indicate that the proposal may require shifts from other C&I programs to the C&I R&D hard-to-measure core initiative. The table below summarizes the proposed budget for this proposal.[4]

Demonstration Budget

	Number of Sites	Total Incentive per site*	Evaluation and Recruitment per site	Other Evaluation	Total
Refrigerant Mitigation	5	$20,000	$31,000	$150,000	$330,000
Refrigerant Retrofit	5	$78,000	$31,000		$620,000
Total (all sites)	10	$490,000	$310,000	$150,000	$950,000

Analysis and Recommendation

The Consultant Team recommends that the EEAC approve the National Grid's Demonstration Project because it meets the criteria set forth in §3.9 of the Energy Efficiency Guidelines for a Demonstration Project. Its size, scope, scale will provide useful information about the value of lower environmental impact refrigerant replacement and leak repair as possible additions to the Massachusetts energy efficiency programs. It offers the potential to contribute modest, yet significant, energy savings as well as greenhouse gas (GHG) reductions to the Commercial & Industrial sector (C&I) portfolio.[5]

[3] https://ma-eeac.org/wp-content/uploads/Refrigerants-NG-Presentation-1.pdf
[4] Ibid
[5] https://ma-eeac.org/wp-content/uploads/Exhibit-NG-4-Narrative-MTM-Proposal-5.26.23.pdf

The Consultant Team has identified precedent in Vermont for both a grocery pilot[6] and refrigeration leak measures implemented at small refrigeration sites that are included in the Efficiency Vermont C&I portfolio (total refrigeration compressor capacity ≤ 100 HP total refrigeration compressor capacity and no individual compressor exceeding 15 HP).[7] The National Grid per site savings estimates for the MTM are conservative and in alignment relative to those reported for Vermont to date.

The Demonstration Project includes funding for implementation as well as critical Evaluation, Measurement and Verification (EM&V) activities appropriate for a feasibility and demonstration effort. This filing comes early enough in the planning cycle for consideration of preliminary data and partial results before the first draft of 2025-2027 Plan is due.

Per the Company's proposal, they provided other Program Administrators the opportunity to review the Demonstration and determine if they would like to jointly participate.[8]

Because National Grid expects to use existing C&I budget to fund the Demonstration Program, there will not be any additional bill impacts for ratepayers.

The Consultants recommend that the Council support approval of this MTM as a Demonstration Project to better understand the value of these types of refrigeration measures for potential inclusion in a future Massachusetts Three-Year Plan. Through this project, National Grid should demonstrate whether:

- There are significant and persistent net benefits, including from energy savings as well as GHG reductions for either or both of the leak remediation and refrigerant retrofit measures,
- The shift of funds from other C&I offerings provides potential long-term additional savings and GHG benefits, rather than hinders current progress toward existing Plan goals,
- The net savings and GHG reduction impacts of projects in this demonstration may also apply to other and future HVAC and refrigeration measures.

[6] https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={0950F2C9-D50B-4AEA-B934-2CDEEA48D159}
[7] https://publicservice.vermont.gov/document/efficiency-vermont-2022-savings-verification-trm, doc pp. 128-130.
[8] https://ma-eeac.org/wp-content/uploads/Exhibit-NG-4-Narrative-MTM-Proposal-5.26.23.pdf