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MASSACHUSETTS COMMERCIAL REFRIGERATION GRANT OPPORTUNITY APPLICATION GUIDANCE AND GRANT REQUIREMENTS

1. Background and Program Goals

Through this Opportunity, the Massachusetts Department of Environmental Protection (MassDEP) is offering a Commercial Refrigeration Grant Program (Program) to provide financial incentives to increase the voluntary adoption of more climate-friendly low global warming potential (GWP)[1] refrigerants in commercial refrigeration equipment[2] in Massachusetts. This Program is available to all Eligible Applicants as defined below.

Background: Many commercial refrigeration systems use hydrofluorocarbons (HFCs), which are potent greenhouse gases (GHGs), with GWPs hundreds to thousands of times that of carbon dioxide (CO_2). These refrigerants leak into the atmosphere over time, contributing to climate change. While technologies using more climate-friendly refrigerants with lower GWPs are available, adoption of these technologies in the commercial refrigeration sector has been relatively low.

Program Goals: The primary goal of this Program is to increase the voluntary adoption of more climate-friendly refrigerants with lower GWPs by providing financial incentives for adoption by the retail food industry, food banks, and nonprofit institutions with commercial refrigeration equipment. Additionally, to facilitate the development of the maturing market for low GWP refrigerants for commercial refrigeration in Massachusetts, all awarded projects will be encouraged to provide free workforce development activities to local technicians, such as making the equipment available for servicing demonstrations or partnering with trade associations.

1 GWP is a commonly used metric to express the impact of a given GHG on the Earth's climate because not all GHGs have the same heat-trapping capacity. For example, one ton of methane is equivalent to more than 20 tons of CO2 in terms of heat trapping potential. To account for these differences, GWP is used as a standard to relate the heat trapping potential of each GHG to an equivalent quantity of CO2 over a given time horizon. GWPs used in this document for specific gases are set out in Attachment A and are expressed in units of million metric tons of CO2 equivalents (MMTCO2E).

2 Equipment designed to store and display chilled or frozen goods including, but not limited to, stand-alone units, remote condensing units, and supermarket systems.

MassDEP Environmental Justice Commitment: MassDEP is committed to advancing equity, diversity, and environmental justice (EJ)[3] through its public investments. The agency seeks to prioritize the direction of these resources to benefit EJ communities and to address environmental inequities. To that end, this Program, and all MassDEP grant and funding programs, include criteria and evaluation parameters that emphasize equity, diversity, and environmental justice, in a manner consistent with the program's statutory authority and source of funding.

2. Eligible Projects

Program funding to support projects for *ultra-low-GWP systems* is available for new or existing retail food locations, food banks, and nonprofit institutions in Massachusetts that plan to install refrigeration systems that contain ultra-low-GWP (<10) refrigerants. Eligible costs for ultra-low-GWP systems include the cost of the refrigeration equipment and its installation.

The following table provides details of the financial incentives available for the different eligible Project types under this Program.

Table 1

Project Type	**Maximum Incentive Amount**
Type I – New Facility: Installation of ultra-low-GWP (<10) refrigerant systems at a new facility	Lower of $75,000 or incremental cost[4] of ultra-low-GWP system for projects located in Environmental Justice populations Lower of $50,000 or incremental cost of ultra-low-GWP system for all other projects
Type II – Existing Facility: Installation of ultra-low-GWP (<10) refrigerant systems at an existing facility • Full system conversion • Partial system conversion	Lower of $200,000 or incremental cost of ultra-low-GWP system for projects located in Environmental Justice populations Lower of $150,000 or incremental cost of ultra-low-GWP system for all other projects

NOTE – Ineligible Project Costs: the following costs are not eligible for funding under this Program: administrative costs; costs to develop and submit application materials, and costs to submit any reports or other documentation required under the Program; workforce development activities (including but

3 "Environmental justice is based on the principle that all people have a right to be protected from environmental hazards and to live in and enjoy a clean and healthful environment regardless of race, color, national origin, income, or English language proficiency. Environmental justice is the equal protection and meaningful involvement of all people and communities with respect to the development, implementation, and enforcement of energy, climate change, and environmental laws, regulations, and policies and the equitable distribution of energy and environmental benefits and burdens." See Environmental Justice Policy of the Executive Office of Energy and Environmental Affairs (updated June 24, 2021): https://www.mass.gov/doc/environmental-justice-policy6242021-update/download.

not limited any costs associated to partner with trade associations); and travel, food, and other costs unrelated to the goal and purpose of this Program as determined by MassDEP in its sole discretion.

3. Eligible Applicants, Additional Project Eligibility and Application Submission Requirements

All applicants and proposed projects must meet the following eligibility requirements:

a) *General Criteria*: Applicants must: (1) own or operate a retail food location, food bank, or nonprofit institution in Massachusetts and (2) utilize commercial refrigeration unit(s) at that location. Applicants may apply for multiple project types and multiple project locations. A unique application must be submitted for each project type and at each location. In the event of multiple applications from a single applicant MassDEP will prioritize the distribution of funding across multiple eligible applicants and projects before funding multiple projects from a single applicant.

Note – Other Programs: this Program is independent from the MassSave program, and facilities that meet the Program requirements are eligible regardless of which electric utility serves the site. Applicants may apply for other state incentive programs, such as MassSave, in addition to this MassDEP Program.

b) *Technician Certification and Licensing*: All proposed projects must use certified technicians for the replacement and/or retrofit of commercial refrigerant systems. Technicians must be certified under the United States Environmental Protection Agency (EPA) 608 program and hold a Refrigeration Technician License or work for a company with a Refrigeration Contractor License in the state of Massachusetts.[5]

c) *Refrigerant Handling and Disposal*: Any refrigerant from systems that are replaced or retrofitted at existing facilities must be removed, treated, and/or disposed of in accordance with existing federal, state and other applicable laws and regulations relative to refrigerant handling and disposal.[6] MassDEP reserves the right to request supporting documentation demonstrating proper refrigerant handling and disposal prior to disbursement of grant funds for the selected project.

d) *Project Completion Dates*: Projects must have planned completion dates that are no more than 3 years from the date of full execution of all contract documents required by this Program.

e) *Permits*: Projects must obtain all relevant state, local, regional, and federal permits. MassDEP reserves the right, in its sole discretion, to request copies of relevant permits in project-specific circumstances.

f) *Project Type Specific Requirements*: Additional application requirements for specific project types defined in Section 2, Project Type Table 1, include the following:

5 https://www.mass.gov/refrigeration-licensing
6 https://www.epa.gov/section608/stationary-refrigeration-safe-disposal-requirements

- Ultra-low-GWP System Projects (Types I and II): Projects must use ultra-low-GWP (<10) refrigerants. Examples of eligible ultra-low-GWP technologies include but are not limited to:
  - Transcritical CO_2 systems
  - Heating, ventilation, air-conditioning and refrigeration (HVACR) integrated systems that provide refrigeration for retail food products as well as space heating and cooling using ultra-low-GWP refrigerants
  - Ammonia (NH_3) or propane or hydrofluoroolefin (HFO) cascade systems with CO_2 or glycol as secondary heat transfer fluids
  - Propane, CO_2 or HFO microdistributed systems with or without a water loop

g) *Emissions Reductions Calculations*: MassDEP will calculate estimated avoided greenhouse gas (GHG) emissions based on information provided by the applicant, as set forth in more detail in Attachment A. In their application(s), Applicants will be required to provide the following information to inform MassDEP's emissions calculations:

- Refrigerant used in existing system
- Refrigerant charge, in pounds, of the old refrigerant
- Annual leak rate of existing system
- New refrigerant
- Refrigerant charge, in pounds, of the new refrigerant
- Estimated future annual leak rate

In its sole discretion, MassDEP may consider the applicant's participation in other grant and/or carbon reduction programs when evaluating applications.

4. Online Application and Additional Supporting Materials

To apply for an incentive under this Program, applicants must fill out an online application form confirming their eligibility and providing detailed project information. Applicants must disclose any additional external funding sources, such as other grant programs or carbon reduction programs, that they anticipate using to fund the project.

NOTE – Public Records: all application materials submitted will become public records upon completion of the grant award.

In addition, applicants shall provide the following documentation via the online application platform:

- Specification sheets (if available) for all equipment
- Documentation of existing system leak rate (if applicable)
- Scope of work, quotes and estimates for all equipment and installation (if quotes or scopes of work are not yet available, a detailed description of project components and planned characteristics is acceptable, but this description should be accompanied by an evaluation of project feasibility)
- Project implementation schedule/timeline (should include key milestones and identify potential bottlenecks)
- Quote or estimate for equivalent conventional HFC system – equipment and installation (new systems only)

- Supplier Diversity Office certification documentation (if applicable) for the applicant, contractor, and/or installer
- Description of leak management measures to be implemented (if applicable)

Applicants may also provide the following documents as optional attachments:

- Proposed workforce development and training plan
- Letters of support or memoranda of understanding with workforce development partners (e.g., original equipment manufacturers, trade associations, contractor organizations)
- Supplemental description of how information will be shared with Massachusetts retail food/grocery industry (in addition to applicant's project narrative statement)
- Additional project description documents

6. Funding Availability

The total funding that is currently available for the Program is $1,919,341. The maximum funding currently available for individual projects awarded through this Grant Program is up to $200,000 per project (for Type II projects), as indicated in Table 1 (above). In its discretion, MassDEP reserves the right to award funding of greater or lesser amounts than specified in this Program, depending upon the quantity and the quality of the applications received. Grant applications will be reviewed, and awards made, based on total estimated project costs within the specific funding category. Applicants should only propose projects whose scope and timelines can be completed within 3 years from the effective date of grant contract execution. In MassDEP's sole discretion, the grant contract period may be extended, up to 1 year, upon written request to MassDEP from a grant recipient, based upon demonstrated facts and project-specific circumstances, prior to the expiration of the 3-year contract term. Contingent upon the availability of future funding, MassDEP reserves the right to increase the Total Funding available for this Program.

7. Award Process

All applications will be reviewed for completeness and eligibility. All complete and eligible applications will be funded on a rolling basis until all funds are expended. Ineligible applicants will be notified via email after the conclusion of the grant process. See Grant Calendar (below).

The $1,919,341 allocated to this grant program from the Climate Mitigation Expendable Trust will be awarded on a rolling first-come first-served basis until the funds are expended, with a $500,000 cap per applicant across all project locations.

Selected grantees will be issued an award letter via email and required to sign (a) the Commonwealth Standard Contract Form, which incorporates by reference the Commonwealth Terms and Conditions, (b) a project-specific grant agreement (attached hereto as Attachment B), and (c) all other required Commonwealth contract forms for payment to the grantee (including the W-9 Tax Information Form, Completed Contractor Authorized Signatory Listing Form, and Electronic Funds Transfer Form).

Payment of grant funds for this Program will be on a reimbursement basis based upon supporting documentation submitted to MassDEP, indicating the purchase of the equipment and/or completion of

deliverables for the Project and available on the following schedule: 20% upon ordering of equipment,[7] 70% upon delivery of equipment, and the remaining 10% upon full operation of system and submission of a final report, as described below. To receive payment, grantees will need to provide invoices and documentation that include, at a minimum: the location of the project; the date of order; the anticipated date of delivery; payment for the equipment; and any other equipment information, as required by MassDEP in its sole discretion, to demonstrate that such equipment meets Program eligibility requirements. For projects at existing stores, payment requests must also be accompanied by photographs and documentation demonstrating the proper disposal of any refrigerants and associated equipment. Funding received under this Program shall not be used to meet any cost sharing obligation or any other cost obligations associated with any other MassDEP grant program.

Grantees shall provide quarterly status reports to MassDEP during Project implementation and a final report upon completion of the Project, all in a form and manner as provided by MassDEP. The quarterly reports shall identify any major challenges with system installation and/or operation, project delays, and workforce development and information sharing activities. The final report shall include a summary of project implementation, identification of any implementation challenges and lessons learned, pictures of equipment installation, pictures and documentation of handling of old systems, if applicable, and a summary of workforce development activities.

Estimated Grant Calendar:

Activity	Date
Notice of Commercial Refrigeration Grant opportunity (posted on COMMBUYS And MassDEP website)	December 16, 2024
Commercial Refrigeration Grant Program opportunity release date (Posting Date) on MassDEP website	December 16, 2024
Deadline for submission of questions to MassDEP (prior to deadline, via email, to: climate.strategies@mass.gov)	December 31, 2024 5:00pm
Official answers for Q&A published on MassDEP website (estimated)	January 17, 2025
Notification of grant awards (estimated)	Rolling
Contract start date (estimated)	One month after award

7 Because disbursement of grant funds is available only on a reimbursement basis, 20% available on ordering of equipment only applies to entities that can provide documentation of paid invoices and/or deposits at the time of request of disbursement of funds.

Attachment A: Greenhouse Gas Emissions Reductions Calculation Methodology and Applicable Global Warming Potentials

Table ***2*** below sets out the GWPs MassDEP will use in determining project eligibility and in calculating emissions reductions. Emissions reductions for new facilities will be based on a comparison to a new R-448A or R-449A system. MassDEP reserves the right to use default values based on the relevant technology for any of the variables below should the materials provided by the applicant be deemed unrealistic.

Emissions reductions for new and retrofit refrigeration projects will be calculated as follows:

Avoided $MTCO_2E$ = Remaining Years of Operation*[(GWP_B*$Charge_B$*$Leakage_B$) – (GWP_N*$Charge_N$*$Leakage_N$)]/2204.6

Where,

GWP_B is the GWP of the refrigerant in the existing system

$Charge_B$ is the pounds of refrigerant charge of the old refrigerant

$Leakage_B$ is the annual leak rate of the existing system (as documented in application materials)

GWP_N is the GWP of the new refrigerant

$Charge_N$ is the pounds of refrigerant charge of the new refrigerant

$Leakage_N$ is the estimated future annual leak rate (as documented in application materials)

2204.6 is a standard conversion factor from pounds to metric tons

Emissions from energy consumption will not be factored into the estimated emissions reductions when evaluating projects.

Table 2: Refrigerant GWPs (100 year) for Estimating Emissions Reductions

Refrigerant	GWP ($MTCO_2e$/metric ton)	Refrigerant	GWP ($MTCO_2e$/metric ton)
R-11	4,750	R-422B	2,526
R-12	10,900	R-422C	3,085
R-13	14,400	R-422D	2,729
R-13b1	7,140	R-423A	2,280
R-14	7,390	R-424A	2,440
R-22	1,810	R-426A	1,508
R-23	14,800	R-427A	2,138
R-32	675	R-428A	3,607
R-113	6,130	R-434A	2,070
R-114	10,000	R-437A	1,805
R-115	7,370	R-438A	2,238
R-116	12,200	R-442AF	1,888
R-123	77	R-448A	1,386
R-124	609	R-449A	1,396
R-125	3,500	R-449B	1,411
R-134a	1,430	R-450A	601
R-141b	725	R-452A	2,141
R-142b	2,310	R-452B	676
R-143a	4,470	R-453A	1,765
R-152a	124	R-454B	466

R-161 (Fluoroethane)	12	R-466A	733
R-170 (Ethane)	6	R-500	8,077
R-218	8,830	R-502	4,657
R-225ca	122	R-503	14,560
R-225cb	595	R-507	3,985
R-227ea	3,220	R-508B	13,396
R-236fa	9,810	R-513A	631
R-245fa	1,030	R-514A	2
R-290 (Propane)	3	R-600a (Isobutane)	3
R-365mfc	794	R-601 (Pentane)	5
R-401A	1,182	R-717 (Ammonia)	0
R-401B	1,288	R-718 (Water)	0
R-401C	933	R-729 (Air)	0
R-402A	2,788	R-744 (Carbon Dioxide)	1
R-402B	2,416	R-1132a	1
R-403B	4,458	R-1141	1
R-404A	3,922	R-1224yd(Z)	1
R-406A	1,943	R-1225ye(E)	1
R-407A	2,107	R-1225ye(Z)	1
R-407B	2,803	R-1234yf	1
R-407C	1,774	R-1234zd(E)	1
R-407D	1,627	R-1234ze(E)	1
R-407F	1,825	R-1234ze(Z)	1
R-407H	1,495	R-1336(Z)	2
R-408A	3,152	R-4310mee	1,640
R-409A	1,585	EP-88	6,427
R-410A	2,088	FOR12A	1,221
R-410B	2,229	FOR12B	1,101
R-411A	1,597	Free Zone	1,569
R-411B	1,705	Freeze 12	1,606
R-413A	2,053	G2018C	1,731
R-414A	1,478	GHG-HP	1,893
R-414B	1,362	GHG-X5	2,377
R-416A	1,084	Glycol	0
R-417A	2,346	HFC-1243zf	1
R-417C	1,809	HFC-1345zfc	1
R-420A	1,536	Hot Shot 2	1,809
R-421A	2,631	Isceon MO89	3,805
R-421B	3,190	NARM-502	2,375
R-422A	3,143		

Table adapted from California Air Resources Board (CARB) FRIP tool available at https://ww2.arb.ca.gov/sites/default/files/2020-11/Attachment%20D%20FRIP%20Tool%20FINAL.xlsx

Attachment B: Draft Agreement

[see attachment]