

Commercial & Industrial Retrofit 2021 VFD Incentive



Section A: CUSTOMER INFORMATION

Customer Name	Electric Account Number	Rate	Application Number
Facility Address	City	State	Zip Code
Service Location Identification	Email		
Mailing Address (if different from above)	City	State	Zip Code
Contact Person/Title	Telephone Number	Incorporated? (Check one.) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt	
Please Assign Payment to Contractor. Customer Signature:	Additional Information	Incentive Payment Preference (Check one.) <input type="checkbox"/> Pay Customer <input type="checkbox"/> Pay Contractor	

Section B: CONTRACTOR INFORMATION

Contractor Name	Contact Person/Title (Print)	Contact Person Signature	
Mailing Address	City	State	Zip Code
Email	Telephone Number	Additional Information	Incorporated? (Check one.) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt

Section C: DOCUMENT APPROVALS

PRE-INSTALLATION INSPECTION

Utility Signature	Date
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PRE-APPROVAL OFFER

Technical Review - Utility Signature	Date		
Utility Signature	Date	Amount of Incentive Offer (\$)	Offer Valid Through:

By signing and dating below, customer accepts this Incentive offer and agrees to the Utility Terms and Conditions available from your Utility. Pursuant to a Commission order, customers also agree that the utility alone may capture all kW and kWh savings and any ISO-NE capacity payments resulting from this energy efficiency project. This agreement is contingent upon continued approval and authorization by the Commission to recover said amounts from the System Benefits Charge. The Incentive, in conjunction with all other sources of funding, cannot exceed the total project cost.

Customer Signature: _____ Date: _____

POST-INSTALLATION INSPECTION

Utility Signature	Date	Total Project Cost (\$)	Amount of Incentive (\$)
Customer Signature	Date		

MANAGEMENT APPROVAL

Utility Signature	Date
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RETROFIT VFD INCENTIVE WORKSHEET

Item	Motor HP	Fan or Pump ID	Area Served	Application Code ¹	Control Parameters ²	Motor Efficiency	Annual Hours of Operation ³	Incentive (\$) ⁴
Ex.	25	AC-3	Lobby	RFA	DT	91%	4400	\$2,050
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
Vendor quote or proposal required for Incentive.								TOTAL

1 FAN OR PUMP APPLICATION CODE

Code	Application
SFA	Supply fan on supply air handler
SFP	Supply fan on VAV packaged HVAC unit
RFA	Return fan on return air handler
RFP	Return fan on VAV packaged HVAC unit
BEF	Building exhaust fan
PEF	Process exhaust fan
HEF	Fume hood exhaust fan & makeup air fan
HWP	Heating hot water pump
WWP	Circulation pump for water source heat pump loop
FWP	Boiler feed water pump
CWP	Chilled water pump
BDF	Boiler draft fan
HYP	Hydraulic pump
WTP	Water supply or wastewater treatment pump
RAS	RAS pump in wastewater treatment plant
CTF	Cooling Tower Fan
PCP	Process Cooling Pump

4 INCENTIVES

HP Controlled by Each VFD	Maximum Incentives (\$)
3	\$650
5	\$1,050
7.5	\$1,150
10	\$1,350
15	\$1,500
20	\$1,700
25	\$2,050
30	\$2,250
40	\$2,800
50	\$3,100
60	\$3,300
75	\$4,200
100	\$4,400

2 CONTROLLING PARAMETERS

DP	Pressure Differential
DT	Temperature Differential
DF	Flow Differential
OTH	Specify

FACILITY TYPE (check one)

<input type="checkbox"/>	College/University	<input type="checkbox"/>	Warehouse
<input type="checkbox"/>	School K-12	<input type="checkbox"/>	Restaurant
<input type="checkbox"/>	Multi-Family	<input type="checkbox"/>	Retail
<input type="checkbox"/>	Hotel/Motel	<input type="checkbox"/>	Grocery
<input type="checkbox"/>	Health Care	<input type="checkbox"/>	Offices

Forward curve fans with inlet guide vanes are not eligible for a VFD Incentive. Other VFD applications may be eligible for a Custom³ Incentive.

VFD's must operate a minimum of 2,000 hours per year to be eligible for an Incentive. VFD's on VAV boxes over 10HP are not eligible for Incentives

2020 Variable Frequency Drives Commercial & Industrial Retrofit

Instructions for completing the Retrofit VARIABLE FREQUENCY DRIVE (VFD) Incentive Worksheet

General Notes:

1. A vendor proposal is required for an Incentive. The VFD Installation Information, page 3 may also be required.
2. VFDs offer a method of significantly reducing the energy consumed by fans, centrifugal pumps, and other motor-driven machinery operated under varying loads. For VFD applications not covered here, use the Custom Application.
3. Existing systems to be retrofit must have varying load operations such as variable flow or pressure regulation. Existing fan and pump operations using on/off cycling controls are not eligible for VFD Incentives. Systems with constant speed and variable load operation (such as conveyors) are not eligible for VFD Incentives.
4. Check with your specific utility for any harmonics or power quality requirements.
5. If power factor correction capacitors are present, they could be adversely affected by the VFD. The customer's design engineer should address this issue.
6. The Incentive, in conjunction with all other sources of funding, cannot exceed the total project cost.

Eligibility Requirements

1. Eligibility requirements can be found in the "Application Code" box in the back side of the Incentive form.
2. Existing VAV fans with inlet guide vanes and forward curve fan blades are not eligible for Incentives.
3. Fans / pumps motors must operate a minimum of 2,000 hours per year.
4. Applicants must demonstrate significant load diversity that will result in savings through motor speed variation.
5. The VFD speed must be automatically controlled by differential pressure, flow, temperature or other method.

VFD Installation Information Form

Check with your utility representative to determine if the attached VFD Installation Information Form needs to be completed and submitted.

Pre-Installation:

1. Review the Incentive eligibility requirements.
2. Review the proposed equipment specifications to confirm it meets the minimum efficiency requirements.
3. Provide to the utility representative the manufacturer's equipment specifications and confirm that it meets the minimum efficiency requirements
 - a. Motor HP (size) horsepower
 - b. Fan or Pump ID identification (example: AC-2, Air handler #2, Chilled water pump #1)
 - c. Area Served - location (example: Lobby, Cafeteria, 2nd floor offices)
 - d. Fan or Pump Application Code (Table 1 on the VFD worksheet)
 - e. Verify the fan is not forward curve type.
 - f. Annual Hours of Operation

If controlled horsepower falls between two listed values, interpolate to determine the Incentive.

2020 Variable Frequency Drives Commercial & Industrial Retrofit

Explanation of how to fill out table:

RETROFIT VFD INCENTIVE WORKSHEET								
Item	Motor HP	Fan or Pump ID	Area Served	Application Code ¹	Control Parameters ²	Motor Efficiency	Annual Hours of Operation ³	Incentive (\$) ⁴
<i>Ex.</i>	25	AC-3	Lobby	RFA	DT	91%	4,400	\$2,050
	Motor name plate	Equipment identification or name	Location of pump or fan	Refer to the Application Table 1 on Incentive Form	Refer to the Controls Parameter on Table 2 on Incentive Form	Refer to Manufacture's specifications	Must Exceed 2000 hrs.	Refer to the Incentive Table on Incentive Form

Post-Installation:

Utility Representative must verify that:

1. The equipment including the VFD, motor and line reactors has been installed and is operable.
2. The VFD equipment matches the Incentive application information. If the equipment has changed from what was approved for the initial Incentive offer, the substituted equipment/material specifications must be submitted and reviewed by the utility to verify compliance with technical requirements and approved before an Incentive is considered.
3. Verify that the prior control is disabled
 - a. inlet or outlet dampers are fully open or removed
 - b. inlet or outlet valves are fully open or removed, bypass loop valved off or removed
4. Observe operation of drive, motor, and driven equipment.
5. If possible, observe variation in drive speed with changing operating conditions.
6. The invoice or proof of payment has been submitted.
7. The Utility Representative & Customer have signed / dated the post installation inspection block on the Incentive form.

2020 Variable Frequency Drives Commercial & Industrial Retrofit

VFD Installation Information Form

Equipment Information

Item ID reference number found in the Incentive worksheet table: _____
 Fan or Pump ID(s) _____ (Example: FW-1, Feedwater Pump #1; CW-1, Condenser Water Pump #1)
 VFD Application: _____ (Use list of applications from page one, or describe other)
 Building Type: _____ (Office, Hotel/Motel, Healthcare, Elementary/High School, College/University, Warehouse, Restaurant, Manufacturing, Other ?)
 Type of area(s) served by fan(s) or pump(s): _____
 Equipment served by the fan (s) or pump (s): _____
 If fan, note type: _____ (centrifugal, forward curve, backward curve, axial, etc)
 Fan or Pump Nominal HP _____ (if multiple motors, list individual HP's) Nameplate motor efficiency(s)
 Fan or Pump Manufacturer: _____ Model: _____
 Full Load Design Conditions: Flow _____ (CFM, GPM) Pressure _____ (inches static, feet of water, PSI, other?)
 Existing Controls: _____ (discharge damper, inlet guide vanes, outlet control valve, bypass valve, etc.)
 Existing setpoint: _____ (inches static, feet of water, PSI, other ?)

Operating Hours

The fan or pump operates the following hours: (Example: 0600 to 1800)

<u>Summer</u>		<u>Winter</u>	
Weekdays _____ to _____		Weekdays _____ to _____	
Saturdays _____ to _____		Saturdays _____ to _____	
Sundays _____ to _____		Sundays _____ to _____	

Number of shifts per weekday: _____ Number of shifts per weekend day: _____

Motor Load

Option 1: (retrofit): Measured input power under full load: _____ kW, (true RMS power) _____ Power Factor
Option 2: (retrofit): Measured current and voltage under full load: _____ Amps _____ Volts
 Load calculation = _____ volts X _____ amps X _____ PF = _____ kW
Option 3: (retrofit or new): Estimated Fan or Pump Load: _____ %, Estimated Power _____ kW
 If estimating load, provide description, assumptions and formula used to calculate power: _____

Proposed Operations

The proposed VFD will be automatically controlled to maintain the following set points:
 Flow _____ (CFM, GPM, other?) Pressure _____ (inches static, feet of water, PSI, other?)
 Other? (describe): _____

Estimated VFD speed in future operations

% Load	Summer		Winter	
	Week-day	Week-end	Week-day	Week-end
90% to 100%				
80% to 90%				
60% to 80%				
20% to 60%				
Off				
Totals	100%	100%	100%	100%

NHSaves@work Rebate Program New Hampshire Electric Co-op Terms and Conditions

2020 Energy Solutions Commercial, Industrial, and Municipal Programs

New Hampshire Electric Cooperative (NHEC): TERMS & CONDITIONS

- 1. Member Eligibility** – Energy Saving rebates/incentives are available to all non-residential NHEC members.
- Small Commercial, Industrial, and Municipal: Monthly energy demand of less than 200 kilowatts (kW).
 - Large Commercial, Industrial, and Municipal: Monthly energy demand of 200 kW or greater 3 months in rolling 12 months.
 - New Construction and Renovation: Available to all non-residential NHEC accounts.

- 2. Energy Efficiency Measures (“measures”) Eligibility** –
- Only measures that are approved prior to purchase of equipment and its installation will be considered for rebate/incentive.
 - NHEC will only approve measures that pass the cost/benefit ratio for effective energy efficiency potential.
 - Any measure installed prior to the issuance of NHEC’s written authorization will be deemed an unauthorized installation, and NHEC will have no obligation to pay rebates/incentives for those measures.

- 3. Pre-Approval and Pre-Installation** – Pre-approval from NHEC is required for all projects. NHEC is not bound to pay any rebates/incentives without a pre-approval of the measures proposed by the member.
- The member needs to supply the following for a project to be reviewed for pre-approval:
 - Completed and signed program “Application” to include all worksheets and all supporting documentation
 - Completed and signed program “Terms & Conditions”
 - Detailed proposal of the scope of work to be performed to include cost, description of equipment being installed
 - Specification sheets on equipment to be installed
 - Specification on existing equipment for retrofit projects
 - Projected energy savings from project with savings calculations
 - Projects must pass a cost-benefit analysis to qualify (internal NHEC algorithm is used), and/or meet specific program requirements as specified on the program application (ie. Minimum watts saved, equipment certification, etc)
 - A pre-inspection of the member’s facilities may be required as part of the pre-approval process.

- 4. Cost of Equipment** – Prior to NHEC’s post inspection verification of member’s installation and at any other time upon NHEC’s request, the members shall supply copies of all invoices (including all materials, part numbers and descriptions, freight or shipping, labor, and equipment discounts) reflecting the costs of purchasing and installing the measures. The invoices shall include a breakdown of all measures purchased for

installation under this contract. In addition, NHEC may request any other reasonable documentation or verification of the cost to the member of purchasing and installing the measure. For custom measures NHEC reserves the right to use the member’s reasonable costs in order to determine the correct rebate/incentive amount.

- 5. Post-Installation Verification** – A post inspection of the project is required before any rebates/incentives will be paid to the member. If NHEC determines that the measures were not installed in a manner that is consistent with the pre-approval, the purpose of achieving energy savings as proposed, or if the installation was not consistent with generally accepted good engineering practices and construction industry standards, NHEC may require changes before making any payments. NHEC will not pay rebates/incentives until it has been verified that the member has received, as appropriate, final drawings, operation and maintenance manuals, and operator training, if applicable.

- 6. Rebates/Incentives** –NHEC will pay rebates/incentives to eligible members for the installation of qualifying measures and for site-specific measures that are pre-approved. NHEC is not obligated to pre-approve any application for a rebate/incentive that may result in exceeding the regulatory imposed budget for the program. NHEC reserves the right to stop pre-approving measures at any time without notice.

7. Rebate/Incentive Payments

- General
 - Before pre-approving any rebate/incentive amounts requested by the Member, NHEC reserves the right to adjust and/or negotiate the rebate/incentive amount.
 - Once a rebate amount is pre-approved, NHEC will pay no more than the lesser of the:
 - cost of purchasing and installing the measure,
 - recalculated rebate/incentive based on the actual installation,
 - pre-approved rebate/incentive amount.
 - NHEC reserves the right to lower the rebate/incentive amount if the quantity and/or cost of measures actually installed by the Member differs from the pre-approved amounts.
 - Notwithstanding any other provision of these Terms and Conditions, the NHEC reserves the right to seek a refund for rebates/incentives paid if, at any time, it learns that the agreed to measures were not actually and/or properly installed or have subsequently been disconnected.

- Maximum Amount
There may be a maximum dollar amount of the rebate/incentive. There is no guarantee that the Member will receive the maximum amount. Check with your utility representative. The following is the method used to calculate the maximum rebate/incentive:
 - Small Commercial, Industrial, and Municipal – The rebates/incentives for approved measures for Small accounts (< 200 kW) will be up to 50% of the installed cost.
 - Large Commercial, Industrial, and Municipal –The rebates/incentives for approved measures for Large accounts (200 kW or greater) will be prescriptive rebates/incentives or custom rebates/incentives designed to cover up to 35% of equipment and installation costs or a buy-down of the project to a one-year payback, whichever is less.



2020 COMMERCIAL & INDUSTRIAL INCENTIVE TERMS & CONDITIONS

(iii) New Construction and Renovation - The rebates/incentives apply to all non-residential accounts. Rebates/incentives may be prescriptive or custom designed to cover 75% of the incremental difference in the cost of purchasing standard equipment vs. purchasing an energy efficient equivalent or a buy-down of the project to a one-year payback, whichever is less.

8. Date of Rebate/Incentive Payments

- a. Existing Structures – NHEC expects to make rebate/incentive payments within sixty (60) days of completion of satisfactory post-installation verification and verification of installation costs in accordance with the specifications.
- b. New Construction – NHEC expects to pay the rebates/incentives within sixty (60) days after all of the following conditions are met:
 - (i) construction of the member's facility is completed;
 - (ii) member has received an occupancy permit;
 - (iii) NHEC has verified costs and satisfactory installation of the measures in accordance with the specifications.
- c. Payment to Contractor - NHEC reserves the right to withhold payment of rebate/incentive to member until full payment is made to the contractor to contractor's satisfaction.

9. Balance Due - In the event that the Member has any outstanding balances due and owing to NHEC, the rebate/incentive payment may be withheld at NHEC's option, and used to offset such outstanding debt(s).

10. Payments Not Assignable to Contractors – NHEC will not pay contractors unless NHEC approves in advance such arrangement.

11. Relationship of Contractor with Member and NHEC – Contractors have no obligation to NHEC and NHEC assumes no liability for Contractors work, workmanship, damages, injuries, or any other harm caused directly or indirectly by Contractor. NHEC has no legal relationship with contractors. The legal relationship is between the contractor and the Member. NHEC may waive this provision regarding this project or on a specific project(s) at any time.

12. Installation Schedule Requirements– Measures must be installed within 90 days from the date of pre-approval, by the pre-approval expiration date listed on the application, or by the end of the current program year, whichever comes first. If the member is unable to meet this requirement, NHEC reserves the right to cancel the pre-approval offer.

13. Monitoring – NHEC reserves the right to perform site visits during the installation and post-installation monitoring of the installed measures to determine the actual kW and kWh reduction and energy savings.

14. Limited Scope of Review – The scope of review by NHEC of the design and installation of the measures is limited to determining whether program conditions have been met. It does not include any kind of safety review.

15. Publicity of Member Participation – Unless the member objects in writing at the time of submitting an application, NHEC may publicize the fact of the member's participation in the program, the results, the amount of rebates/incentives paid to the member, and any other information which reasonably relates to the member's participation.

16. Limitation of Liability – NHEC's liability under this contract will be limited to paying the rebates/incentives specified in the Agreement. NHEC and any of its affiliates shall not be liable to the member, contractor, or any third party for any consequential or incidental damages or for any damages, in tort (including negligence), caused by any activities associated with this Agreement or the program.

17. Disclaimer of Warranties–NHEC does not guarantee, or warrant any particular manufacturer or product. NHEC does not warrant the performance of installed equipment either expressly or implicitly. Members who install energy-efficient lighting measures are expected to replace any of the energy-efficient lights with lights of similar or superior energy savings efficiency, at their own expense, after the manufacturer's warranty period has expired.

18. Member Must Pay All Taxes – The benefits conferred upon the member may be taxable by federal, state and local government. NHEC will not be responsible for any tax liability imposed on the member as a result of the payment of rebates/incentives.

19. Contract Entitlement to Participate – The program described in this application may be altered, suspended, or canceled by NHEC at any time and without prior notice. The member is not entitled to any program benefits or review of its application in such a circumstance. Entitlement to program participation can only occur after NHEC has signed a copy of the contract/Rebate Pre -Approval Agreement and granted pre-approval.

20. Vendor Selection – NHEC acknowledges that the member may select any non-participating vendor or contractor to perform the work specified by this contract. Notwithstanding the foregoing, the member acknowledges that NHEC has the right not to allow a vendor or contractor to participate in this program. If a member chooses a non-participating vendor or contractor it may affect the rebate/incentive level.

21. Disposal of Equipment – The member agrees, as a condition of participation in this program, at the members' cost, to the recycling of all fluorescent lamps, HID lamps, and PCB ballasts, in accordance with all laws, rules, and regulations of the state of NH, the local jurisdiction, and the government of the United States of America.

22. Removed Equipment - Member will not install any removed equipment in any facility owned or utilized by member or any other member within NHEC's service territory.



2020 COMMERCIAL & INDUSTRIAL INCENTIVE TERMS & CONDITIONS

23. Disposal Of Removed Equipment - Except for equipment listed in paragraph 21 and the disposal method described, member will remove and dispose of all other equipment at its own expense in accordance with all laws, rules, and regulations of the state of NH, the local jurisdiction, and the government of the United States of America.

24. Review of Specifications, Submittals and Drawings - The Member will provide NHEC with a copy of the specifications for the construction of the Facility that will be provided to the construction contractors. Such specifications must include the measures. NHEC may refuse to pay rebates/incentives if the specifications do not adequately provide for installation of the measures consistent with good engineering and energy-efficient design practices. Member will upon request by the NHEC provide a copy of the as-built drawings and equipment submittals for the facility. The NHEC may refuse to pay rebates/incentives if the final submittals and drawings do not adequately reflect the installation of the measures consistent with the original design intent as identified on the Member application and worksheets.

25. Savings Warranty - NHEC does not guarantee or warrant any energy savings. Factors that are impossible to predict, including but not limited to facility expansion, cutbacks, a change in hours of operation, an electric rate change or structure change, self-generation, weather changes, and/or other unanticipated causes all may impact the Member's future electrical energy use and cause actual savings to vary from estimated savings. Any and all guarantees and/or warranties are between the Member and the installer and/or the manufacturer of installed measures and/or equipment.

26. Miscellaneous - This contract is the entire agreement between the parties and supersedes all other communications and representations.

- a. The member acknowledges that the only individuals authorized to bind NHEC under this contract are the Energy Solutions Program Administrator, Manager or Vice-President of the Member Solutions Division, and the President/CEO of NHEC.
- b. Paragraph/Article headings are for the convenience of the parties only and are not to be construed as part of these Terms and Conditions.
- c. If either NHEC or the member desires to modify this contract, the modification must be in writing and signed by an authorized person of both parties in order for the modification to be enforceable.
- d. If any provision of the Terms and Conditions is deemed invalid by any court or administrative body having jurisdiction, such ruling shall not invalidate any other provision, and the remaining Terms and Conditions shall remain in full force and effect in accordance with their terms.
- e. The intent of NHEC in offering these programs is to help member business accounts save money on their electricity costs. The payback on your investment in energy saving measures has been calculated and estimated based on current electric rates and operating characteristics of the member's business.
- f. A waiver of any article or term in these Terms and Conditions by NHEC does not constitute a waiver of any other article or term and does not constitute a future waiver of the article or term that was originally waved.

By signing below, member agrees to the terms and conditions contained herein. Pursuant to a Commission order, member also agrees to forgo applying directly or indirectly for any ISO-NE capacity payments or environmental credits resulting from this energy efficiency project. This agreement is contingent upon continued approval and authorization by the Commission to recover said amounts from the System Benefits Charge.

Signature of Member

Date

Print Name

Print Organization Name

