



# NEW EQUIPMENT & RETROFIT 2022 VFD Incentive



## APPLICATION INSTRUCTIONS

Fill out Steps 1-3 and submit to your utility provider. **Do not sign Steps 5-6 until instructed by your utility provider.**

### STEP 1 CUSTOMER INFORMATION

Select your utility company:  Eversource  Liberty  NH Electric Co-op  Unitil Date: \_\_\_\_\_

Electric Account #: \_\_\_\_\_ Natural Gas Account #: \_\_\_\_\_

Company Name: \_\_\_\_\_ Contact Person: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Contact Email: \_\_\_\_\_

Installation Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Mailing Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

### STEP 2 CONTRACTOR INFORMATION *(if self-installed leave blank)*

Contractor Company (if applicable): \_\_\_\_\_ Contact Person: \_\_\_\_\_

Mailing Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Contact Phone: \_\_\_\_\_ Contact Email: \_\_\_\_\_

### STEP 3 PAYEE INFORMATION

Check Payable to:  Customer  Contractor  Other Payment To: \_\_\_\_\_

Mailing Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

LIBERTY CUSTOMERS ONLY – Signature (for payment to Contractor/Other): \_\_\_\_\_

### STEP 4 RETURN APPLICATION TO UTILITY REPRESENTATIVE

Send to your utility representative or email to your utility here:

Eversource: [efficiencynh@eversource.com](mailto:efficiencynh@eversource.com)

Liberty: [nhsaves@libertyutilities.com](mailto:nhsaves@libertyutilities.com)

New Hampshire Electric Co-op: [solutions@nhec.com](mailto:solutions@nhec.com)

Unitil: [efficiency@unitil.com](mailto:efficiency@unitil.com)

### STEP 5 PRE APPROVAL OFFER

**STOP** Once you have received Utility Pre-approval notification, sign below accepting incentive offer, payment arrangement, and Program Terms and Conditions.

Utility Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Amount Of Incentive: \_\_\_\_\_ Valid Through: \_\_\_\_\_

CUSTOMER SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_

### STEP 6 PROJECT COMPLETION

**STOP** Sign below to indicate that project is completed. Send final signed application to Utility.

Final Incentive calculated based on 'as-installed' conditions.

Utility Signature: \_\_\_\_\_ Date: \_\_\_\_\_

CUSTOMER SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_

Final Project Cost: \_\_\_\_\_ Final Incentive Amount: \_\_\_\_\_

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## NE&C VFD INCENTIVE WORKSHEET

ITEM	MOTOR HP	FAN OR PUMP ID	AREA SERVED	APPLICATION CODE <sup>1</sup>	CONTROL PARAMETERS <sup>2</sup>	MOTOR EFFICIENCY	ANNUAL HOURS OF OPERATION <sup>3</sup>	INCENTIVE (\$) <sup>4</sup>	
Ex.	10	AC-2	Atrium	SFA	DT	91%	5,400	\$1,000	
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
Vendor quote or proposal required for Incentive.								<b>TOTAL</b>	

1 FAN OR PUMP APPLICATION CODE		
CODE	APPLICATION	MAX HP
SFA	Supply fan on supply air handler	10
SFP	Supply fan on VAV packaged HVAC unit	10
RFA	Return fan on return air handler	10
RFP	Return fan on VAV packaged HVAC unit	10
BEF	Building exhaust fan	20
PEF	Process exhaust fan	20
HEF	Fume hood exhaust fan & makeup air fan	20
HWP	Heating hot water pump	20
WWP	Circulation pump for water source heat pump loop	20
FWP	Boiler feed water pump	20
CWP	Condensate water pump	20
CHWP	Chilled water pump	20
BDF	Boiler draft fan	20
HYP	Hydraulic pump	20
WTP	Water supply or wastewater treatment pump	20
RAS	RAS pump in wastewater treatment plant	20
CTF	Cooling Tower Fan	20
PCP	Process Cooling Pump	20

4 INCENTIVES	
HP CONTROLLED BY EACH VFD	MAXIMUM INCENTIVES (\$)
1 – 3	\$800
5 – 7.5	\$900
10	\$1,000
15	\$1,125
20	\$1,575

2 CONTROLLING PARAMETERS	
DP	Pressure Differential
DT	Temperature Differential
OTH	Specify

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

<sup>1</sup>Forward curve fans with inlet guide vanes are not eligible for a VFD Incentive. Other VFD applications may be eligible for a Custom Incentive.

<sup>2</sup>VFD's installed are modulated automatically based on downstream information.

<sup>3</sup>VFD's must operate a minimum of 2,000 hours per year to be eligible for an Incentive.

<sup>4</sup>VFD's on VAV boxes over 10HP are not eligible for Incentives. Motors and drives greater than 20 HP or for industrial purposes should use the custom application pathway.



# 2022 Variable Frequency Drive New Equipment & Retrofit



## *Instructions for completing the NE&C VARIABLE FREQUENCY DRIVE Incentive Worksheet*

### General Notes:

1. A vendor proposal is required for an Incentive. The Variable Frequency Drive (VFD) Installation Information, page 5 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 Incentive Application.
3. Systems must have varying load operations such as variable flow, temperature or pressure regulation. Fan and pump operations that would otherwise be regulated by on/off cycling are not eligible for VFD incentives. Systems with constant speed and variable load operations (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. Invoices are required for payment of Incentives.
7. 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 "Fan or Pump Application Code" box above.
2. Fans / pumps motors must operate a minimum of 2,000 hours a year.
3. Applicants must demonstrate significant load diversity that will result in savings through motor speed variation.
4. The VFD speed must be automatically controlled by differential pressure, flow, temperature or another method.
5. The Incentive offer is not valid unless signed and dated by the Utility Representative. The Customer accepts the Utilities Incentive offer and agrees to the Terms and Conditions of the Utility by signing in the pre-approval offer block in step 5 of the above form.

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# 2022 Variable Frequency Drive New Equipment & Retrofit

## 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: Atrium, Lobby, Cafeteria, 2nd floor offices)
  - d. Fan or Pump Application Code (Table 1 on the VFD worksheet)
  - e. Verify the fan is not a forward curve with inlet vanes type.
  - f. Annual Hours of Operation

If controlled HP falls between two listed HP values, interpolate to determine the maximum Incentive. Show your calculations.

### NE&C VFD INCENTIVE WORKSHEET

Item	Motor HP	Fan or Pump ID	Area Served	Application Code <sup>1</sup>	Control Parameters <sup>2</sup>	Motor Efficiency	Annual Hours of Operation	Incentive <sup>4</sup> (\$)
<i>Ex.</i>	<i>10</i>	<i>AC-2</i>	<i>Atrium</i>	<i>SFA</i>	<i>DT</i>	<i>91%</i>	<i>5,400</i>	<i>\$1,000</i>
	Motor name plate	Equipment identification or name	Location of pump or fan	Refer to table 1 on the Incentive Form	Refer to table 2 on the Incentive form	Refer to Motor Manufacture's specifications	State Annual Hours (> 2,000 hours / year)	Refer to table 4 on the 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.

# 2022 Variable Frequency Drive New Equipment & 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)

Summer:	Winter:
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 setpoints:

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				
<b>TOTALS</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>