Commercial & Industrial Energy Efficiency Retrofits - HVAC/Controls Worksheet (Oregon)



Steps to Submit Project

- 1. Fill out this worksheet to reflect the proposed equipment to be installed
- 2. Fill out the Non-Lighting Application Oregon
- 3. Obtain manufacturer specifications for the proposed new equipment
- 4. Submit the above to Retrofit@IdahoPower.com

Notes

- · Projects must meet the applicable specifications stated on the pages of this worksheet
- · Projects with estimated incentive \$2,000 or greater should receive pre-approval from Idaho Power prior to project start

PROJECT NAME:

What type of heating does this building use: Electric Other

NEW EQUIPMENT/AC TUNE-UP

Replacing		Installing	Quantity (Units)	Incentive (PER Unit)	Total Incentive
AIR-COOLED AIR CONDITIONING UNITS					
H34	No prior control	Air-conditioning tune-up AC >= 3 Tons	ton	25.00	\$
ECONOMIZERS					
H12	No existing economizer	New air-side economizer with control	ton	100.00	\$
H13	Non-functional economizer	Air-side economizer system repair	ton	50.00	\$
ELECTRONICALLY COMMUTATED MOTOR (ECM)					
H21	Shaded pole or permanent split capacit	or motor ECM motor in HVAC application	Motor	200.00	\$
HOTEL/MOTEL CONTROL					
H15	Manual Controls	Lodging room occupancy control system	unit	75.00	\$

Variable Speed Drives on HVAC Fan/Pump Motors

Re	eplacing	Installing	Drive hp	Motor hp	QTY I (Units)	ncentive (Per HP)	Total Incentive
<i>VI</i> Si F	ingle speed TVAC system	Variable speed/frequency drive installed on chilled water pumps, condenser water pumps and cooling tower fans, supply, return, outside air and make-up air fans, hot water pumps	drive drive	hp motor hp hp motor hp hp''' motor hp	unit:) unit: """" unit:	s \$125.00 s \$125.00 s \$125.00	\$ \$ \$
<i>V3</i> N	lo existing VSD	Variable speed/frequency drive installed on potato or onion storage shed ventilation	drive drive	hp motor hp hp motor hp hp motor hp	units units units	\$250.00 \$250.00 \$250.00	\$ \$ \$

Please provide the following:

Annual operating hours (per motor):

Idaho Power meter number or service agreement number serving the drive:

Location where the drive will be installed inside the facility:

HVAC CONTROL STRATEGIES

Please select the type of HVAC system you will install controls on and then select the strategies you will implement.

TABLE 1—HVAC SYSTEM TYPE Packaged Rooftop Units/Split Systems	TABLE 2—HVAC CONTROL STRATEGY OPTIONS (must select a minimum of one strategy to qualify for an incentive)			
Packaged Rooftop Heat Pump Units	Optimum Start and Optimum Stop			
Packaged Variable Air Volume (VAV) Units	Economizer Controls (not available for single control strategy)			
VAV Units with Chilled Water Coils	Demand Controlled Ventilation (DCV)			
Water Source Heat Pump Units	Supply Air Temperature Reset			
Ground Source Heat Pump Units	Chilled Water Reset			
Packaged Variable Volume and Temperature (VVT) Units	Condenser Water Reset			
Packaged Variable Volume and Temperature (VVT) Units – Heat Pump				
Chilled Water Coils without VAV Units				

Replacing		Installing	Quantity (TON)	Incentive* (PER TON)		Total Incentive	
		-		Retrofit System	New System		
H33	Proposed strategy not existing	Implement one (1) control strategy from Table 2**		100.00		\$	
H16	Proposed strategy not existing	Implement two (2) control strategies from Table 2		150.00	80.00	\$	
H17	Proposed strategy not existing	Implement three (3) control strategies from Table 2		175.00	100.00	\$	
H18	Proposed strategy not existing	Implement four (4) control strategies from Table 2		200.00	120.00	\$	
H19	Proposed strategy not existing	Implement five (5) control strategies from Table 2		225.00	140.00	\$	
*New System incentive applies to qualified HVAC equipment installed within the past 36 months. *Retrofit System incentive applies to qualified HVAC equipment installed > 36 months ago. **The incentive for one control strategy is available once every two years (per building). All other criteria applies.							
					TOTAL:	\$	

PROJECT DESCRIPTION Please provide a detailed description of this controls project.

CHECKLISTS FOR SUBMISSION

PRE-APPROVAL CHECKLIST

Signed/Dated Non-Lighting Application (Oregon) HVAC/Controls Worksheet (Oregon) Manufacturer Specification Sheets

PAYMENT CHECKLIST

Signed/Dated Non-Lighting Application (Oregon) HVAC/Controls Worksheet (Oregon) Invoices for Material & Labor

Specifications for HVAC/Controls

Air-Conditioner Tune-Up

Incentive available on AC systems that have not had a standing maintenance contract or a tune-up within in the past 36 months. A certified technician is required to perform the tune-up and must perform the following:

- Check refrigerant charge
- Identify and repair leaks if refrigerant charge is low
- Measure and record refrigerant pressures
- Measure and record temperature drop at indoor coil
- Clean condensate drain line
- Clean outdoor coil and straighten fins
- Clean indoor and outdoor fan blades
- Clean indoor coil with spray-on cleaner and straighten fins
- Repair damaged insulation-suction line
- Change air filter
- Measure and record blower amp draw

A copy of the <u>AC Tune-up Checklist</u> must be submitted, along with invoices for parts purchased to improve/repair the air-conditioner performance. In-house labor costs are not eligible for incentive consideration.

Economizer Repair

This incentive is for one-time unit repairs. Payments require an itemized invoice of corrections, setting adjustments or other repairs made. A description of how the unit failed and an itemized description of what steps were taken to repair the equipment must accompany the application. The incentive for repairs cannot exceed the stated cost on the invoice (ourchased materials and contracted labor).

In-house labor costs are not eligible for incentive consideration. This incentive cannot be combined with the HVAC Control Strategy – economizer control incentive.

Electronically Commutated Motor (ECM)

This incentive applies to any ECM motor when replacing a conventional shaded pole (SP) or permanent split capacitor (PSC) motor in HVAC applications.

VSD/VFD

Incentives apply to new equipment and new installations only and must meet the following criteria. Replacement VSDs/VFDs are not eligible.

- VSD/VFD must be installed in accordance with the Institute for Electrical and Electronics Engineers (IEEE) Standard 519 and Idaho Power's Rule K, Customer's Load and Operations Tariff.
- Throttling or bypass devices such as inlet vanes, dampers, three-way valves or throttling
 valves must be removed or permanently disabled to qualify for an incentive.
- Incentives are based on the drive horsepower or the motor horsepower that the drive controls, whichever is less. The motor must operate at minimum 2,000 hours per year and be variably loaded. The VSD/VFD installation must save energy on the equipment that it is installed on.
- Manufacturer specification sheets for the VSD/VFD must accompany the Non-Lighting Application.
- Manufacturer specification sheets for harmonic mitigation, when required, must accompany the application.

HVAC Controls

Hotel/Motel Guest Room HVAC Occupancy Control Incentives apply to any "smart" system that can sense when the room is unoccupied and turns the room HVAC unit off (or sets it back) to reduce unnecessary energy use.Eligible equipment includes thermostatic set-back controls controling an electrically heated system. Systems can be centralized or local controls. Systems must set-back room space temperatures by a minimum of 8 degrees F when the room is determined to be unoccupied. Temperature set-back must occur no longer than 30 minutes after the room is determined unoccupied. Eligible systems include thermostat-based controls, room key-card controls, and system check-in/check-out controls.

HVAC Control Strategies

An incentive is available for systems that incorporate energy saving strategies based on the tons of cooling controlled.

The following energy management HVAC control strategies must meet the criteria listed below to receive an incentive. For projects that will be done in phases, tonnage will be prorated for the area controlled.

- The control strategies must be installed on an HVAC system type listed on Table 1. At least one strategy from the options listed on Table 2 must be implemented per
- HVAC system type selected in Table 1.
- Only control strategies not currently installed are eligible.
- New System incentive applies to qualified HVAC equipment installed within the past 36 months. Retrofit System incentive applies to qualified HVAC equipment installed > 36 months ago.

Optimum Start and Optimum Stop

The optimum start strategy will restrict unit heating and cooling start times to startup as late as possible to still reach the desired temperature at the specified timeframe. The optimum stop strategy will shut off mechanical heating and cooling before the scheduled unoccupied periods based on internal thermal loads and outside air temperatures. Optimum stop strategy will allow the fan and outdoor air damper to remain open for building ventilation.

Economizer Controls

Air-side economizer control. New air-side economizer controls are enabled whenever the outside air temperature is below the maximum allowed temperature. Enthalpy control is also allowed.

Economizer must have differential control and must be configured to allow free-cooling and economizing at outdoor temperatures up to 65° F.

Economizers on new HVAC units are only eligible for an incentive where not already required by code. New HVAC systems 5 tons and greater are not eligible for an economizer incentive.

This measure applies to new equipment added to HVAC units with no existing economizer capability. It does not apply to unused or non-working economizers. Not available for single control strategy.

Demand Controlled Ventilation (DCV)

To qualify for this strategy, the minimum outside air fraction must be varied based on a DCV sensor.

Supply Air Temperature Reset

To qualify for this strategy, the air temperature leaving the system cooling coil must be reset based on outdoor air temperature.

Chilled Water Reset

To qualify for this strategy, the supply chilled water temperature must be allowed to rise during low loads.

Condenser Water Reset

To qualify for this strategy, the cooling tower temperature floats with the load and wet-bulb temperature. This strategy is not eligible for new HVAC systems.