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

Steps to Submit Project

1. Fill out this worksheet to reflect the proposed equipment to be installed
2. Fill out the Non-Lighting Application - Idaho
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	Incentive (PER TON)
AIR-COOLED AIR CONDITIONING UNITS			
Measure #: H1	Standard AC/HP unit	New AC unit that meets CEE Tier 1	$ 85.00
H23	Standard AC/HP unit	New AC unit that meets CEE Tier 2	110.00
H34	Unitary or split system AC >= 3 Tons	Air-conditioning tune-up AC >= 3 Tons	25.00
AIR-COOLED HEAT PUMP UNITS			
Measure #: H4	Standard AC/HP unit	New HP unit that meets CEE Tier 1	110.00
H24	Standard <=5 ton AC/HP unit	New <=5 ton HP unit that meets CEE Tier 2	130.00
PTAC/PTHP			
Measure # H41	Existing packaged terminal air conditioner (PTAC)	New PTAC >= 14.4 EER	75.00
H42	Existing packaged terminal air conditioner (PTAC)	New PTAC 13.2-14.3 EER	50.00
H43	Existing packaged terminal heat pump (PTHP)	New PTAC >= 14.4 EER	75.00
H44	Existing packaged terminal heat pump (PTHP)	New PTAC 13.2-14.3 EER	50.00
Water Cooled Units			
Measure# H35	Standard AC Unit	New water-cooled AC that meets CEE Tier 1	75.00
H36	Standard AC/AP Unit	New water-cooled HP that meets CEE Tier 1	75.00
H37	Standard AC/HP unit	New water-cooled VRF that meets CEE Tier 1	45.00
VARIABLE REFRIGERANT FLOW (VRF) UNITS			
Measure #: H5	Standard AC/HP unit	New AC unit that meets CEE Tier 1	75.00
H6	Standard AC/HP unit	New HP unit that meets CEE Tier 1	90.00
H25	Standard <= 5 ton AC/HP	New <= 5 ton AC unit that meets CEE Tier 2	100.00
H26	Standard <= 5 ton AC/HP	New <= 5 ton HP unit that meets CEE Tier 2	110.00

Measure Number	Incentive Amt. (PER TON)	Manufacturer	Model #	Unit Size (TON)	Quantity (UNITS)	AHRI Reference #	Total Incentive

Replacing		Installing	Quantity (Units)	Incentive (PER Unit)	Total Incentive
AIR-COOLED CHILLERS					
H7	Standard air-cooled chiller	<150 ton air-cooled chiller, IPLV 16.2 EER or higher	ton	110.00	$
H27	Standard air-cooled chiller	>=150 ton air-cooled chiller, IPLV 16.6 EER or higher	ton	110.00	$
WATER-COOLED CHILLERS—ELECTRONICALLY OPERATED, RECIPROCATING OR POSITIVE DISPLACEMENT					
H8	Standard water-cooled chiller	< 75 ton unit, IPLV 0.50 or less (kW/ton)	ton	60.00	$
H9	Standard water-cooled chiller	> =75 ton and <150 ton, IPLV 0.47 or less (kW/ton)	ton	60.00	$
H28	Standard water-cooled chiller	> =150 and <300 ton, IPLV 0.44 or less (kW/ton)	ton	60.00	$
H29	Standard water-cooled chiller	> =300 and <600 ton, IPLV 0.42 or less (kW/ton)	ton	60.00	$
H30	Standard water-cooled chiller	> =600 ton, IPLV 0.40 or less (kW/ton)	ton	60.00	$

Replacing	Installing	Quantity (Units)	Incentive (PER Unit)	Total Incentive
WATER-COOLED CHILLERS—ELECTRONICALLY OPERATED, CENTRIFUGAL				
H10 Standard water-cooled chiller	< 150 ton unit, IPLV 0.45 or less (kW/ton)	ton	60.00	$
H11 Standard water-cooled chiller	> =150 and < 300 ton, IPLV 0.43 or less (kW/ton)	ton	60.00	$
H31 Standard water-cooled chiller	> =300 and < 400 ton, IPLV 0.41 or less (kW/ton)	ton	60.00	$
H32 Standard water-cooled chiller	> =400 ton, IPLV 0.40 or less (kW/ton)	ton	60.00	$
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	$
H38 No existing economizer	New water-side economizer with control	ton	50.00	$
EVAPORATIVE COOLERS				
H14 Standard AC unit	Direct evaporative cooler	ton	200.00	$
H39 Standard AC unit	Indirect evaporative cooler	ton	130.00	$
EVAPORATIVE PRE-COOLER				
H40 No existing pre-cooler on HVAC system	Evaporative pre-cooler added to air-cooled condenser	ton	30.00	$
ELECTRONICALLY COMMUTATED MOTOR (ECM)				
H21 Shaded pole or permanent split capacitor motor	ECM motor in HVAC application	Motor	200.00	$
HOTEL/MOTEL CONTROL				
H15 Manual Controls	Lodging room occupancy control system	unit	75.00	$
CONNECTED THERMOSTAT				
H45 No existing connected (web-enabled) thermostat	Qualifying connected thermostat	unit	150.00	$
Provide the connected cooling tonnage for each requested thermostat _____				

Variable Speed Drives on HVAC Fan/ Pump Motors

Replacing	Installing	Drive hp	Motor hp	QTY (Units)	Incentive (Per HP)	Total Incentive
V1 Single speed HVAC 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 hp	_____ motor hp	____ units	125.00	$ _____
		____ drive hp	_____ motor hp	____ units	125.00	$ _____
		____ drive hp	_____ motor hp	____ units	125.00	$ _____
V3 No existing VSD	Variable speed/frequency drive installed on potato or onion storage shed ventilation	____ drive hp	_____ motor hp	____ units	250.00	$ _____
		____ drive hp	_____ motor hp	____ units	250.00	$ _____
		_____ drive hp	_____ motor hp	____ units	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
- ☐ Packaged Rooftop Heat Pump Units
- ☐ Packaged Variable Air Volume (VAV) Units
- ☐ VAV Units with Chilled Water Coils
- ☐ Water Source Heat Pump Units
- ☐ Ground Source Heat Pump Units
- ☐ Packaged Variable Volume and Temperature (VVT) Units
- ☐ Packaged Variable Volume and Temperature (VVT) Units – Heat Pump
- ☐ Chilled Water Coils without VAV Units

TABLE 2—HVAC CONTROL STRATEGY OPTIONS

(must select a minimum of one strategy to qualify for an incentive)

- ☐ Optimum Start and Optimum Stop
- ☐ Economizer Controls (not available for single control strategy)
- ☐ Demand Controlled Ventilation (DCV)
- ☐ Supply Air Temperature Reset
- ☐ Chilled Water Reset
- ☐ Condenser Water Reset

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	☐ 60.00	$
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: $ 0.00

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

CHECKLISTS FOR SUBMISSION

PRE-APPROVAL CHECKLIST

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

PAYMENT CHECKLIST

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

Clear Form PRINT

Specifications for HVAC/Controls

Efficient Air Conditioning, Heat Pump, or VRF Units
New air- or water-cooled air conditioning, heat pump and VRF package units and split systems qualify if they meet the listed minimum efficiencies. New unit coil and condenser must be a matching system. Used or reconditioned units are not eligible.
New unit must replace an existing central mechanical cooling unit. Spaces served by evaporative cooling or portable cooling units are not eligible for an incentive. The minimums are from the 2019 Consortium for Energy Efficiency (CEE) Unitary Air Conditioning Specification located at www.cee1.org. (link may not be compatible with all browsers, right click the link to copy the link location, then paste the URL into a different Internet browser)

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 AC Tune-Up Checklist 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.

PTAC/PTHP
Packaged terminal air conditioners and packaged terminal heat pumps replacing less efficient units and meeting the stated efficiencies qualify for an incentive.

Chillers
New commercial chiller units are eligible provided the units meet or exceed the efficiency rating listed on this worksheet. This incentive applies to like-for-like chiller replacements.
Only primary chillers needed to serve the building load qualify. Chillers intended for backup service are not eligible.
Air-cooled chiller efficiencies must include condenser-fan energy consumption. Efficiency ratings for IPLV must be based on ARI standard rating conditions per ARI-550/590-2015.

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 (purchased 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

Evaporative Coolers
The direct and indirect evaporative cooler system incentive applies to equipment that replaces direct expansion (DX) system of equivalent size (or greater).Evaporatively pre-cooled DX systems do not qualify.

Evaporative Pre-Coolers
A separate evaporative pre-cooler added to an air-cooled condenser coil in a properly working and maintained condition and utilizing R410A as the refrigerant type. The pre-cooler evaporatively cools the ambient air temperature before reaching the condenser coils. Eligible system types include saturated media, water nozzles (associated water piping) and rigid frame. Eligible systems must have a minimum performance efficiency of 75% and must have enthalpy controls to pre-cooler operation. Water supply must have chemical or mechanical water treatment. Magnetic water treatment does not qualify. Eligible systems must be purchased and installed by a qualified contractor. This measure is not a replacement of an air-cooled condenser with an evaporative condenser. Self-contained evaporative condensing coils are not eligible.

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 controlling 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.

Connected Thermostat
Connected thermostats connect to the internet and have additional features, such as programming, monitoring, and alerts.
Eligible connected thermostat controls a single HVAC system having its own supply fan serving a single zone with mechanical cooling. The connected thermostat must be listed on the Connected Thermostat Qualified Products List (QPL). Energy savings are associated with reduced cooling load through scheduling temperate setbacks during unoccupied hours. More than one connected thermostat incentive may be paid per building, so long as there is no overlap on zones served. Incentives are not available for 24/7 operations, semi-conditioned spaces or lodging facilities. Connected thermostat must replace an existing thermostat that is not web-enabled. Incentive not available for buildings with BMS/BAS. Heat pumps must have strip heat lockout enabled. The incentive cannot exceed the purchase price of the eligible thermostat.
Eligible connected thermostats must meet the following criteria.
• Must be connected to the web and remote programming must be operational
• Support multiple cooling stages
• Automatic restoration of program settings after power outage
• Capable of multiple temperature setback schedules
• Capable of limited duration overrides (reverts to programming after 24 hours)
• Capable of fan-mode scheduling (continuous-on versus auto mode)
• Capable of remote (web-based) monitoring and programming
• Over-ride duration set to <= 3 hours

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 time frame. 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
Not Available for single control strategy.
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.
Water-side economizer control. New water-side economizing capabilities added to an existing chilled water system may be eligible for an incentive. A water-cooled chilled water plant must be present and a separate cooling tower installed, dedicated to providing free cooling to the chilled water loop. The installed water-side economizer shall comply with IECC 2018 section C403.5.4 and have a design capacity to provide 100 percent of the system cooling load at temperatures of no greater than 50 °F dry bulb and 40 °F wet bulb.

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.