



## **Commercial Rebates**

### VARIABLE FREQUENCY DRIVES

#### **SPECIFIC QUALIFICATIONS/GUIDELINES**

- 1. A pre-inspection of the facility/existing equipment is required on all proposed VFD installations before the rebate application is submitted.**
2. On HVAC system projects or any outside air temperature-dependent retrofits, the kW savings will be calculated based on summer design conditions of 100°F Dry Bulb (DB) and 74°F Wet Bulb (WB).
- 3. Air-handling units with a 10hp motor or greater are not eligible for a rebate on new construction projects because they are required by the current IECC Energy Code.**
4. In order to maintain future demand savings, the facility must have established maintenance procedures and the control system parameters must be maintained for five years. The engineer of record (if any) should inspect the retrofit for compliance with the approved submittal.
5. VFD must include controls that modulate motor speed based on load. Eligible controls include static pressure, differential pressure, temperature, or a CO2 sensor to control outdoor makeup air. Manually adjusted VFDs for flow balancing are not eligible; this includes using VFD for flow matching. Exceptions may be made on a case-by-case basis.
6. For cooling tower applications where multiple cooling towers are controlled by VFDs all towers should be operated at the same speed to minimize total fan HP.
7. A sequence of operation may be required to document that VFDs operation and the associated rebate calculations match.

*The Austin Energy guidelines and rebate levels are subject to change at any time, without notice.*

#### **Austin Energy – Power Saver™ Program – Commercial Rebate**

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## Commercial Rebates

### VARIABLE FREQUENCY DRIVES

The following formulas are applied to all variable frequency drive retrofits when used with HVAC equipment. The formulas apply to variable air volume air handling units, cooling tower fans, and variable flow primary and secondary chilled water pumps. These formulas only apply to the installation of variable (not constant) torque VFDs. **The rebate is calculated at \$250 per Direct kW.**

#### Air Handling Units:

If you had Inlet Guide Vane Air Volume Controls: Direct kW = 0.08 kW/hp x Motor hp

If you had Outlet Damper Air Volume Controls: Direct kW = 0.19 kW/hp x Motor hp

If you had a Constant Volume System with no Air Volume Controls:

Direct kW = 0.13 kW/hp x Motor hp

#### Cooling Tower Fans:

DFex and OFex are the diversity and oversize factors of the existing cooling towers. The table below shows the default diversity factors and the formula below shows the oversize factor calculation.

##### Diversity Factor

Number of Cooling Tower Fan Motors	DFex
1 or 2	1.0
3 or 4	0.9
Over 4	0.8

Oversize Factor [at design conditions, (@97°F DB and 75°F WB)]

OFex = Cooling Tower Rated Capacity / [Building Peak Load Tons]

Direct kW =

0.62 kW/hp x No. of Fan Motors x Fan Motor hp x [(1/OFex) – (1/OFex)<sup>3</sup>] x DFex

#### HVAC Water Pumps:

DFex and OFex are the diversity and oversize factors of the existing secondary chilled water pumping system. The table below shows the default diversity factors and the formula below shows the oversize factor calculation.

##### Diversity Factor

Number of Secondary Chilled Water Pumps	DFex
1 or 2	1.0
3 or 4	0.9
Over 4	0.8

Oversize Factor [at design condition, (@97°F DB and 75°F WB)]

OFex = Design Water Flow Rate (GPM) / Required Water Flow Rate at Peak Conditions (GPM)

Direct kW = 0.62 kW/hp x Pump Motor hp x [1-(1/OFex)<sup>3</sup>] x DFex