2009 Chiller Rebate

Instructions for completing the NE&C CHILLER Rebate Worksheet

General Notes:

1. The Chiller Application must be completed and the rebate approved prior to purchasing or installing the equipment
2. Chiller capacity (in tons) should be Air Conditioning and Refrigeration Institute (ARI) net capacity, not gross capacity.
3. Air-cooled chiller efficiencies shall include condenser fan energy consumption.
4. Rebates for water-cooled chillers over 150 tons may be calculated using either peak or (Integrated Part Load Values (IPLV) efficiency ratings.
5. Process Chillers or Chillers equipped with Variable Speed Drives may go through Custom.
6. The rebate for projects with efficiencies based on EER is calculated: [(A x D) + [(C x (E - B) x 10) x D] x quantity.
7. The rebate for projects with efficiencies based on KW / ton is calculated: [(A x D) + ((C x (B - E) x 100) x D] x quantity
8. The value of the Additional Rebate calculation in the above formulas (C x (E - B) x 10) for air cooled units or (C x (B - E) x 100) for water cooled units may not exceed $52/ton.
9. Invoices will be required for payment of rebates

Eligibility Requirements:

10. The proposed chiller(s) must meet the minimum efficiency requirements listed on the application
11. Chiller equipment efficiency criteria are based on applicable ARI standards at ARI standard conditions using a non-CFC refrigerant.
    a. ARI standard conditions are as follows:

    Chillers – ARI standard 550/590-98 (*Contact your Utility Representative for additional information on this Standard.)*

    44°F leaving chiller water; 2.4 GPM/ton;

    95°F entering condenser air temperature *(air cooled only)*

    85°F entering condenser water temperature *(water cooled only)*

    3.0 GPM/ton condenser water flow rate *(water cooled only)*
12. Chiller equipment using chlorofluorocarbons (CFC's) as a refrigerant is not eligible for a rebate. This includes the following refrigerant: CFC-11, CFC-12, and CFC-115 (R502).
13. Driveline replacements for water-cooled chillers may be eligible for rebates under the custom worksheet
14. Chiller equivalent full load hours (EFLH) must be estimated by a qualified engineer, technical representative, or technically qualified vendor
15. Chillers <300 tons must operate a minimum of 150 hours per year to qualify for the rebate. Chillers >300 tons must operate a minimum of 300 hours per year to qualify for the rebate.
16. The rebate offer is not valid unless signed and dated by the Utility Representative. The Customer accepts the Utilities rebate offer and agrees to the Terms and Conditions of the Utility by signing in the pre-approval offer block.

Pre-Installation:

1. Review the rebate eligibility requirements.
2. Review the proposed equipment specifications to confirm it meets the minimum efficiency requirements. Chillers must beet both full load and part load IPLV efficiency ratings.
3. Provide to the utility representative the manufacturer's equipment specifications and record the following information on the worksheet:
    - manufacturer/model number, unit size, unit efficiency, chiller tons and peak & part load efficiencies (kW/ton).
4. Calculate the appropriate rebate by multiplying the Unit Size (D) by the Base Unit Rebate ($/ton) (A) by the number of units (Quantity).

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Explanation of how to fill out table:

SCHOOL CHILLER REBATE WORKSHEET								
Measure (Notes 1,2,3,5)	**Base Unit Rebate (A)**	**Minimum Equipment Efficiency Criteria (B)**	**Additional Rebate ($) (C) (Note 2)**	**Qty.**	**Unit Size (Net ARI Tons) (D)**	**Estimated Full Load Hours (Note 6)**	**Unit Efficiency (E)**	**Total Rebate ($) (Note 4)**
***Example 1*: Air Cooled Chillers** < 150 tons	$40/ton	10.2 EER	$6/ton for each .1 EER point below min. criteria	**1**	**100**	**777**	**10.7**	**$7,000** (see example 1 calculation below)
***Example 2*: Water Cooled Chillers** 150 up to 299 tons	$33/ton	0.64 kW/ton peak and 0.53 kW/ton IPLV	$4/ton for each .01 kW/ton point below min. criteria	**1**	**200**	**1000**	kW/ton peak: **.59** kW/ton IPLV:	**$10,600** (see example 2 calculation below)
***Example 3*: Water Cooled Chillers** 300 to 1000 tons	$16/ton	0.58 kW/ton peak and 0.53 kW/ton IPLV	$5/ton for each .01 kW/ton point below min. criteria	**1**	**400**	**1200**	kW/ton peak: kW/ton IPLV: **.39**	**$27,200** (see example 3 calculation below)

Example 1: rebate calculation for a proposed 100 ton air cooled chiller unit with an EER of 10.7

[(A x D) + ((C x (E - B) x 10) x D)] x quantity

[($40 x 100 tons) + ($6 x (10.7 – 10.2) EER x 10) x 100 tons] x 1 unit = $4,000 + $3,000 = $7,000

Additional Rebate Calculation: ($5 x (10.7 – 10.2) EER x 10) = $25/ton < cap of $52 / ton - OK use $25 / ton

Example 2: rebate calculation for a 200 ton water cooled chiller unit with a Peak kW/ton of 0.59kW/ton

[(A x D) + [(C x (E - B) x 100) x D] x quantity

[($33 x 200 tons) + [($4 x (.64-.59) kW/ton x 100) x 200 tons] = $6,600 + $4,000 = $10,600

Additional Rebate Calculation: ($4 x (.64 - .59 kW/ton IPLV) x 100) = $20/ton < cap of $52 / ton - OK use $20 / ton

Example 3: rebate calculation for a 400 ton water cooled chiller unit with a IPLV =0.39

[(A x D) + [(C x (B - E) x 100) x D] x quantity

[($16 x 400 tons) + [($5 x (.53-.39) x 100) x 400 tons] = $6,400 + $20,800 = $27,200

Additional Rebate Calculation: ($5 x (.53 - .39 kW/ton IPLV) x 100) = $70 > cap of $52 / ton, - use $52 / ton

Post-Installation:

Utility Representative must verify that:

1. The Chiller has been installed and operable.
2. The installed chiller matches the Chiller Rebate Application information. If the equipment has changed from what was approved for the initial rebate offer, the substituted equipment specifications must be submitted and reviewed by the utility to verify compliance with technical requirements and approved before a rebate is considered.
3. The invoice or proof of payment has been submitted.
4. The Utility Representative & Customer have signed / dated the post installation inspection block on the rebate form.