

Caltech High Efficiency Freezer Program Summary

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Overview

Summary

The Caltech High Efficiency Freezer Program can provide substantial energy and costs savings through reducing electricity consumption and demand from low efficiency freezers. The program is intended to incentivize both the replacement of existing low efficiency, ultra-low temperature freezers (-80°F) and the purchase of high efficiency, ultra-low temperature freezers in new laboratories and spaces.

Freezer Metrics

	Low Efficiency	Standard Efficiency	High Efficiency
Models	Revco, New Brunswick, Thermo Fisher	Panasonic, Thermo Fisher, NuAire	Stirling, Thermo TSX, Eppendorf
Electrical Demand (kWh/Day)	20 – 24	16 -18	7 - 9
Cost	N/A	\$8,000 – \$9,000	\$16,000 – \$22,000 (list) \$11,500 – \$13,000 (w/ vendor discount)

Rebate Estimation

- Estimated Average Rebate for the Replacement of an Existing Freezer: \$5,000 – \$8,500
- Estimated Average Rebate for the Installation of a Freezer in a New Laboratory/Space: \$2,000 – \$5,000

Rebate Calculation

Rebates for the replacement of existing freezers are derived from the difference in electricity consumption between measured energy for the existing freezer (20 – 24 kWh/day for low efficiency freezers) and published energy usage for the new, high efficiency freezer (7 – 9 kWh/day).

Rebates for the installation of freezers in new laboratories and spaces are derived from the difference in electricity consumption between published energy usage for an equivalent standard freezer model and published energy usage for the new, high efficiency freezer. Rebates are based on the current accepted utility cost of electricity, as established by Energy Services. The current Pasadena Water & Power electric rate is \$0.185 per kWh.

Estimated CECIP Impact

The Caltech High Efficiency Freezer Program's impact on the CECIP budget depends on the number of freezers purchased via rebate, the type of freezers purchased, and whether or not the freezers are replacing existing freezers or intended for new laboratories/spaces.

The minimum estimated impact, using an assumption of 18 freezers purchased via rebate, is \$75,000. The maximum estimated impact, using an assumption of 135 freezers purchased via rebate, is \$1,000,000. To avoid reaching this \$1,000,000 annual spend, Energy Services has proposed the implementation of a \$500,000 freezer rebate cap, which would allow for a greater degree of control in program implementation and funding.