

Energy Conservation Initiative (ECI) Project Summary

Growth Chamber Phase 1

What We Did: 57 environmental growth chambers used to house research plants were retrofit with new high efficiency lighting and digital controls in collaboration with the Cornell University Agricultural Experiment Station. The lighting is now T5 fluorescent with very high efficiency reflectors. The controls were updated to provide off cycle control on the refrigeration, modern digital controls with remote accessibility, and ease of scheduling. The interiors of many chambers were lined with a highly reflective surface. Electricity energy use on the chambers was reduced between 50 and 75% after retrofit.

What It Cost: \$447,000

How Long It Took: 12 months. Completed December 2011.

What We Saved: \$91,000 and 580 tons/per year carbon equivalent annually.

Benefits: The growth chambers now provide energy efficient, properly controlled growing environments for plant research. The project cost per chamber was less than 20% of the cost of replacement chambers in a time when capital was extremely tight. Researchers and operations staff have full remote access to the controls and trend data.

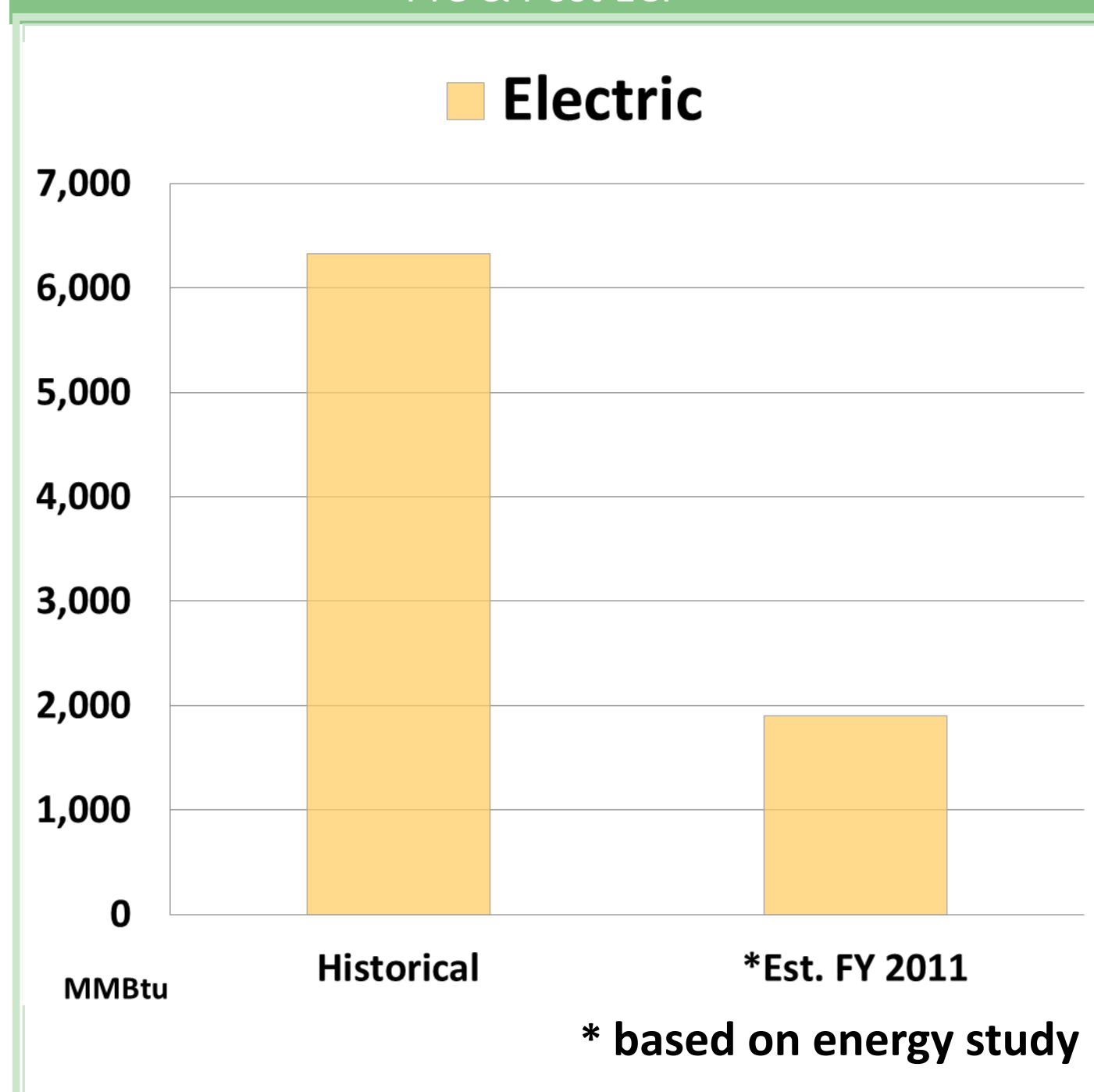
Our oldest and largest growth chambers now use half the energy while doubling the light intensity and providing greatly improved reliability.

Nick VanEck,
Growth Chamber Supervisor

Growth Chamber Phase 1



Growth Chamber Phase 1
Total Energy Use
Pre & Post ECI



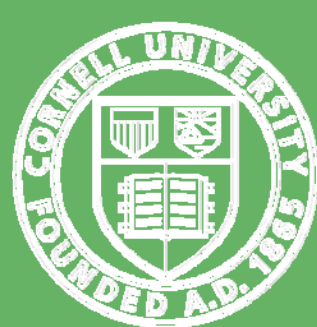
Growth Chamber Phase 1: ECI Savings Table

Utility	Historical Energy Use (MMBtu)	Est. FY 2011 Energy Use (MMBtu)	Energy Savings (MMBtu)	% REDUCTION	Historical Cost (billed rates)	*Est. FY 2011 Cost (billed)	Annual Savings \$	Equivalent # Homes
Electric	6,300	1,900	4,400	70%	130,000	39,000	91,000	110
Steam	-----							N/A
Chilled Water	-----							N/A
Totals	6,300	1,900	4,400	70%	130,000	39,000	91,000	110



Energy use based on project scope

Equivalent # Homes Savings based on average home use: 40 MMBtu Electric ■ 90 MMBtu Heat ■ 50 MMBtu Cooling



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