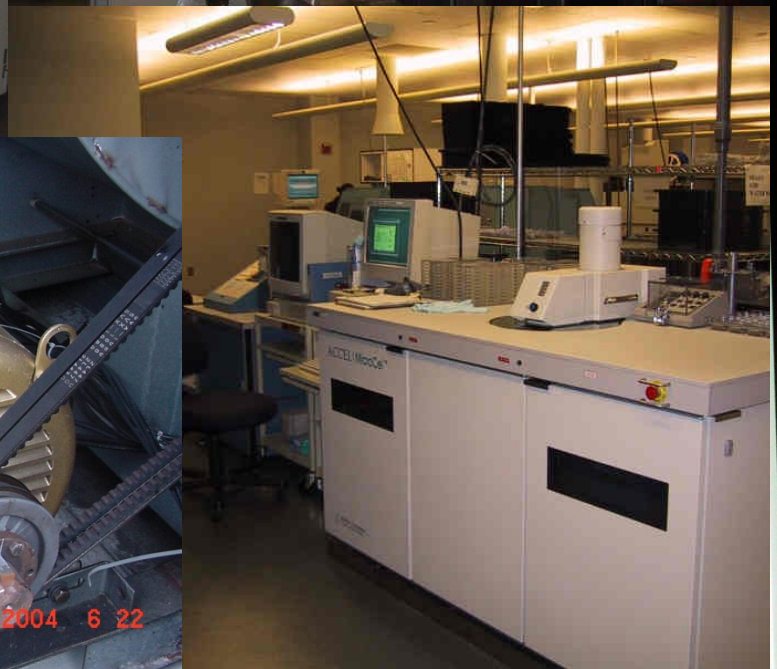
Alternative Resource Conservation and Energy

Vicor's Commitment to Our Global Community



- Resource Conservation – An action that decreases the use or consumption of a natural asset such as water, energy, or raw material, or

- Increases the efficiency of the use of the assets, without increasing risk to the public, workers, consumers, or environment and without increasing the amount of waste generated

Opportunity –Opportunity- Opportunity

- This is a chance to be Green through your conservation efforts and to generate Green (dollars) for your bottom line.
- Cost Savings and Cost Avoidance should be some of the Bench Marks of an ARC Program.
- Manufacturing Efficiencies can be leveraged to achieve your goals.

Resource Conservation-Survey

- Consider All Energy.
- Identify your major energy users
- Develop Your Site Profile – Collect Billing Data From All Sources
- Create & Maintain Past, Present, and Future Data

The Key is to Look For:

- Excess
- Excess
- Excess

Energy Conservation-Resources

- Electric Supplier-NGRID
- Equipment Service Providers-HVAC, Compressors,Vacuum Pumps etc.
- Energy Consultants-Bluestone Energy Services & Energy Resource Solutions
- Equipment Vendors
- Networking – Networking - Networking

Energy Conservation – First Phase

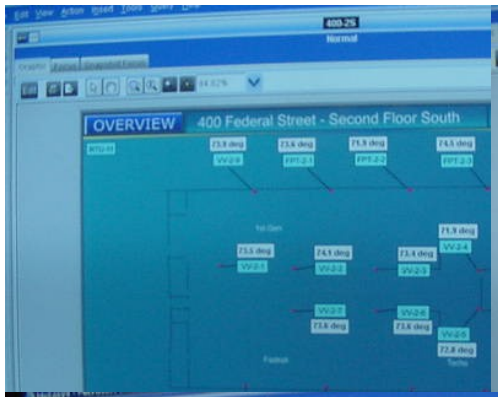
- Accu-Drain Project - 2001
- Vacuum System Project - 2001
- Energy Management – Corp Offices - 2001
- Dry Cooler Project - 2002
- Kitchen Hood Project - 2002
- VFD/Motor Projects – 2003 & 2004
- DX Units to Central Chiller Project - 2004

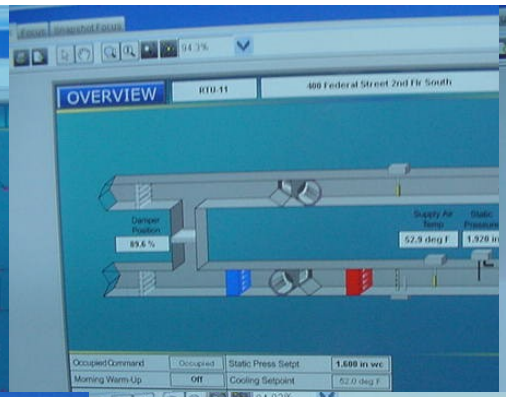
Accu-Drain Project

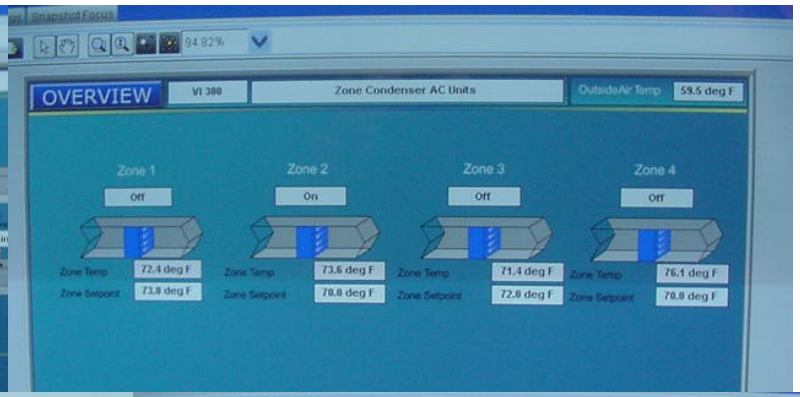
Results of Project- Accu-Drain

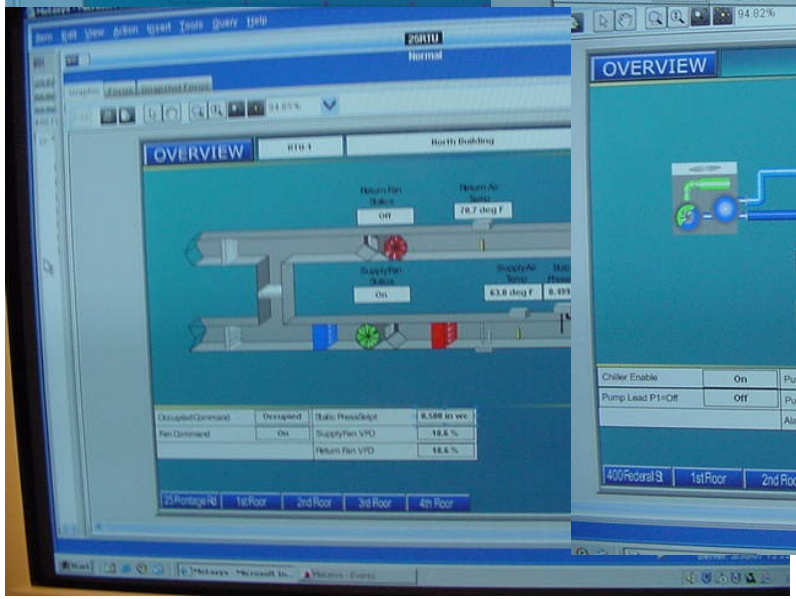
- Compressed Air Conserved – 4,737,408 cubic feet per year
- Energy Conserved – 10,702 Kilowatt-hours per year
- Reduced Maintenance
- Improved Operation of Oil Water Separator
- Estimated Annual Dollar Savings - $1942.00

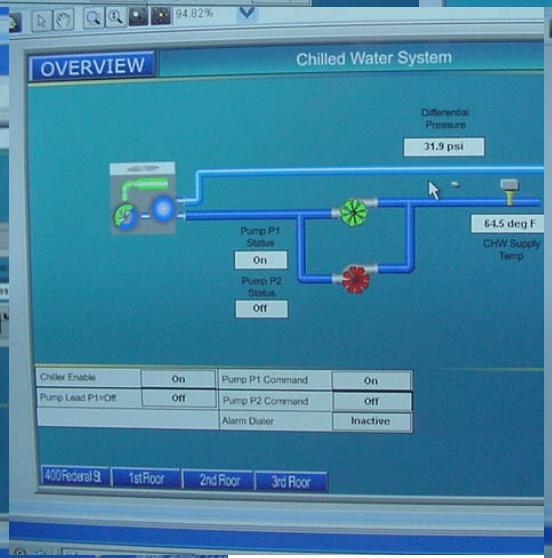
Energy Management – Corp Offices

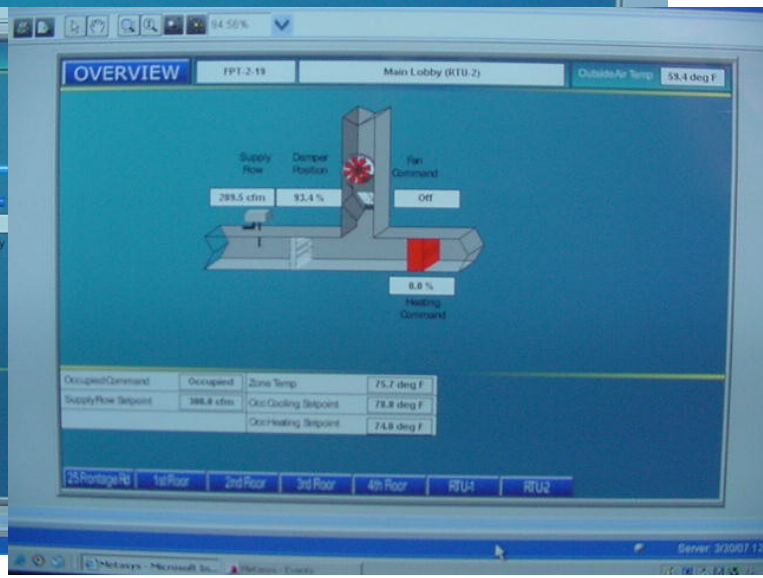












Results of Project- Energy Management

- Overall Energy Use Reduced by 24%
- Energy Conserved 429,760 kilowatt-hours per year
- Estimated Annual Dollar Savings - $44,265.00

Dry Cooler Project

Results of Project- Dry Cooler

- Free Cooling will be Available 9+ Months per year
- Estimated Energy Conserved 178,461 Kilowatt-hours per Year
- Estimated Annual Dollar Savings - $15,776.00
- Massachusetts Electric Energy Incentive Grant $20,575.00

Kitchen Hood Project

Results of Project- Kitchen Hood

- Estimated Energy Conserved 21,402 kilowatt-hours per year
- Estimated Annual Dollar Savings - $1,740.00
- Massachusetts Electric Incentive Grant $2773.00

VFD/Motor Projects - Corp Office & Manufacturing Site

Results of Project

- Installed 17 Variable Frequency Drives & 30 Premium Efficiency Motors
- Estimated Energy Conserved 737,529 kilowatt-hours per year
- Estimated Annual Dollar Savings - $ 57,599.00
- Massachusetts Electric Incentive Grant - $73,905.00
- No Cost Project to Vicor

DX Units to Central Chiller Project

Results of Project- DX Units to Chiller

- Transferred 16 DX Units to Chiller
- Estimated Energy Conserved 303,073 kilowatt-hours per year
- Estimated Annual Dollar Savings - $26,792.00
- Massachusetts Electric Energy Incentive Grant of $32,419.00

Energy Conservation - Second Phase Projects

- Control Pad Print Area - 2005
- VIC Lighting Up-Grade to T5 Units – 2005
- Reduce Compressor Discharge Pressure – 2005
- Replace 10 Air Guns – 2006
- Low/Un-Occupied Periods Management system – 2006
- Repair Tagged Compressed Air Leaks – 2006
- Replace Desiccant Dryers with a new Refrigeration Dryer - 2006

Energy Conservation - Second Phase Projects

- Machine Shop Lighting Up-Grade toT5 Units –2007
- Lighting Up-Grade to T5 Units 1st Floor North – 2007
- Up-Grade Compressed Air System to Variable Speed Unit – Budgeted for 2008.
- Lighting Up-Grade to T5 Units 2nd Floor South – 2009
- Stock Room / High Bay Lighting T5 Units - 2009

Control Pad Print Area HVAC

Results of Project-Pad Print

- Connected unit to Energy Management System.
- Reduced operation over weekends and 3rd Shift
- Estimated Energy Conserved 180,737 kilo-watt hours per year
- Estimated Annual Dollars Saved - $16,698.00
- Minimal Cost Project

5 Lighting Projects-Up-Grade to T5 Units

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Results of Projects- Lighting

- Lighting Up-Grade Completed as part of Product Manufacturing Retrofit.
- Estimated Energy Conserved 354,376 kilo-watt hours per year
- Estimated Annual Dollars Saved - $50,245.00
- Massachusetts Electric Incentive Grant - $28314.00

Compressed Air System - Reduce Discharge Pressure by 5 pounds

Project Results-Compressed Air System Change

- No Impact to Manufacturing
- Estimated Energy Conserved 24,856 kilo-watt hours per year
- Estimated Dollars Saved - $2772.00
- No Cost Project

Compressed Air System-Change Over Time

Project Results-Compressed Air System Change

- Switch Compressor Change over to Off Peak Hours
- No Impact to Manufacturing
- No Cost Project
- Estimated Annual Savings - $3,623.00 related to demand charges

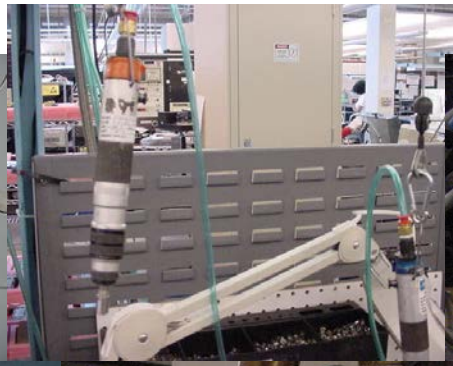
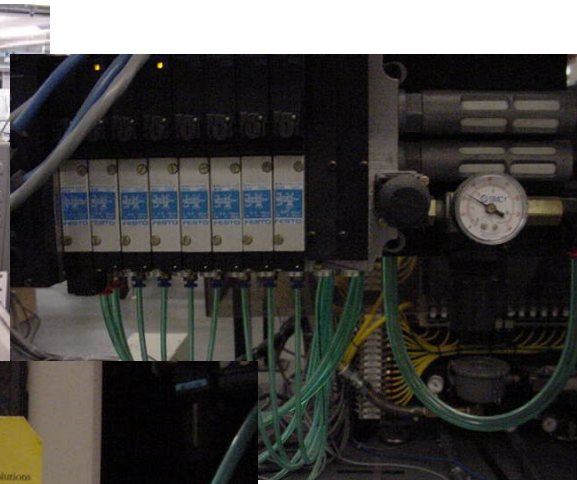
Compressed Air System-Air Gun

Project Results-Compressed Air System Change

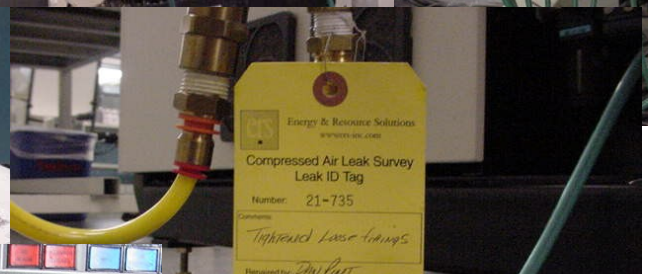
- Positive Impact to Manufacturing
- Replaced 10 Standard Air Guns with New Efficient Air Guns 10CFM vs 18CFM
- Estimated Energy Conserved 9,342 kilo-watt hours per year
- Estimated Dollars Saved - $1,098.00
- Minimal Cost Project

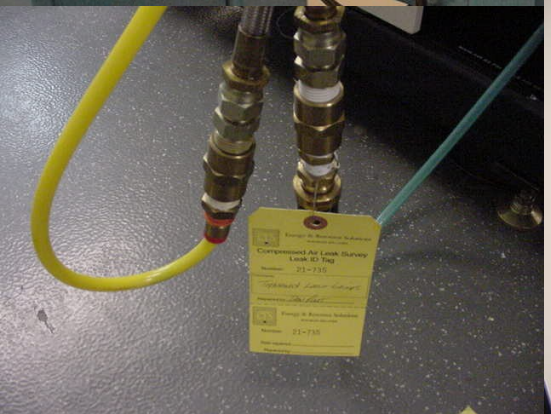
Compressed Air System-Leak Detection Program










Project Results-Compressed Air System Change

- Repaired the 105 Leaks That Were Detected During Initial Survey-Estimated at 225 CFM
- Purchased Ultrasonic inspection meter
- Implemented Leak Detection Program
- Estimated Energy Conserved 103,756 kilo-watt hours per year
- Estimated Dollars Saved - $14,108.00

Compressed Air System-Dryer Change

Project Results-Compressed Air System Change-Dryer

- No Impact to Manufacturing
- Reduced Dryer Maintenance
- Estimated Energy Conserved 72,456 Kilo-watts per Year
- Estimated Dollars Saved - $9,513.00
- Massachusetts Electric Incentive Grant - $3,048.00
- Increased Available Capacity of Compressed Air System by 23%

Compressed Air System Changes

- The Previous 5 Projects Have Reduced Demand on Existing System & Created a another Energy Savings Opportunity

Compressed Air System Upgrade

- We Have Installed 2 Variable Speed Compressors to replace one of our existing 150HP Units

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Project Results-Compressed Air System Upgrade

- Estimated Energy Conserved 349,253 kilowatt-hours per year
- Annual Greenhouse Gas Avoidance/Reduction of 598,620 pounds
- Increased Available Capacity of System
- Estimated Annual Dollar Savings $46,241.00
- NGRID Incentive $26,811.00

Results of Vicor Energy Conservation Efforts

- Total Annual Kilowatt Hours Saved – 2,871,342
- Estimated Annual Dollars Saved - $353,175.00*
- Annual Greenhouse Gas Avoidance / Reductions of – 4,921,480 lbs.

- *Electric Rate of 12.3 cents per kwh

The Cost of Doing Nothing

- Electric Conservation-Our Electric Supply Cost Has Risen From 3.7 cents to 11.5 cents per Kilo-watt Hour
- These Price Increases Make Past and Present Conservation Projects more Valuable.