Through broad knowledge and deep experience, we help you

SAVE ENERGY
SAVE MONEY
SAVE THE PLANET

ENERGY EFFICIENCY IS ALL WE DO
• Established in 1988
  • Staff of 30
  • 15 Engineers (10 P.E.s)
  • Architects, Analysts, Technicians...
• Energy Efficiency is all we do
  • Energy Management
  • Energy Assessments
  • Implementation Assistance
  • Commissioning, Retro-commissioning and System Optimization
• New Building Energy Design & LEED Services
• Education Outreach and Policy
DATA DRIVEN ENERGY MANAGEMENT

Automatically collecting, analyzing and presenting data

+ Providing *Actionable Feedback*

so that

ENERGY IS SAVED CONTINUOUSLY

REMEMBER

Most of the important data is already somewhere!
THE PLATFORM — SKYSPARK

Verify Savings

$\text{kWh}$

Connecting Points to Platform

SkySpark

Production Data
- Tons of product/hr
- Quality
- recycled material
- etc..

Facility & Building

- AHU
- Fan
- Lights
- Chiller
- Cooling Tower
- Pump
- Dust Collection
- Air Comp 1
- Air Comp 2
- Oven 1
- Oven 2
- Power
- Nitrogen
- Water
- Gas

ENERGY EFFICIENCY

Improvement
(e.g. set point change, new equipment, etc...)

PROCESS

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ENERGY ENGINEERING FOR A SUSTAINABLE FUTURE
LIVE DEMO

DEMO LINK

1. Owens Illinois – Facility Level Data
   • Meter and Production Level Comparison 2010 - 2012

2. Golden Aluminum – System Level Data
   • Compressed Air Data from August 2011

3. Site Comparison – Fault Detection
   • HVAC and Lighting Data Live Connection
LEVERAGE YOUR DATA

1. Provide a strategic picture

2. Establish a foundation for comparison

3. Performance benchmarking

4. Ongoing commissioning

5. Automatic fault detection
Benchmarking & Diagnostics

Level 1 - Building Performance

Building Performance
Utility: Electric, Gas, Water
KPI:
Energy $/Site
kW/SQF/°F-day

Level 2 - System Performance

Chiller Plant
KPI:
kW/ton
kW/gpm
kW/°F-day

HVAC
KPI:
kW/CFM
(per AHU, sub-system, etc)

Boiler Plant
KPI:
dth/lbs_{steam}
kW/gpm_{HW}

Level 3 - Fault Detection and Diagnostics

Trend & Point Data + Calc’d Values
Chiller
(status, current, CHWS, CHWR,...)
CHW Pump
(power, speed, flow, system DP,...)
Cooling Tower
(Fan power, speed, CWS, CWR,...)
Etc...

Trend Data
Etc...

Trend Data
Etc...
REPORTING

Energy Management Reporting

Level 1 - Facility Performance

Level 2 - System Performance

Level 3 - Fault Detection and Diagnostics

Monthly Reporting

Weekly Reporting

Upper Level Management Report

*High Level Performance Results
*Facility Performance Results
*System Energy Cost

Supervisor/Maintenance Report

*System Performance Tracking
*Fault Detection and Diagnostic

*Analysis
*Interpretation
*Recommendations

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ENERGY ENGINEERING FOR A SUSTAINABLE FUTURE
REPORTING

Energy Management Reporting

Level 1 - Facility Performance

Level 2 - System Performance

Batch or Real Time

Level 3 - Fault Detection and Diagnostics

DASHBOARDS
Batch or Real Time Metrics

X Industries

Utah Performance
kW/SQF kW/part

Utah Energy Saved: 2,010,000 kWh
Total Energy Saved: 14,980,000 kWh
Facility of the Month: Chile

kW/Part
#1 - Utah
#2 - Switzerland

Energy/SQF/°F
#1 - Chile
#2 - Utah

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PROPOSED RAFFLE

• Proposed CIEC and ETC Group assistance
  • Strategic consulting assistance
  • Developing a foundation for Data Driven Energy Management
  • Building a sample Skyspark site and hosting data for 1 year.

• Scope of assistance
  • Develop a strategic plan
  • Setup a site for one 1 system (BAS, chiller plant, etc)

• Participation
  • Assistance from your staff
  • Purchase hardware and pay for integration
• Winners - 2 companies eligible (random drawing)
• If interested – Neil will coordinate
• Deadline By May 24

Follow up demo in 3-4 months