Energy Projects to Increase Safety, Comfort & Performance

Learn how Inter-lakes School District began a 10-year journey toward energy efficiency. With school board and community support, the district teamed up with Honeywell to complete projects that resulted in $7M of savings. Improvements include infrastructure upgrades, solar array that provides high school's electricity, and integration of new technology into the curriculum.
Introductions

- Mark Billings – School Board
- Chris Wald - Facilities Director
- Jim Lucy - Honeywell
- Joe Lajewski – NH Electric Co-Op
Introduction: Inter-Lakes School District Profile

- Located in central NH on the shores of Lake Winnipesaukee
- K-12 School District with an enrollment of 1,058
- Have a total of three schools totaling 220,000 sq. ft.
- Comprised of the towns of Meredith, Sandwich, and Center Harbor
Presentation Outline

- Keys to Success
- Background
- Project Goals
- Issues & Opportunities
- Phase I & II Overview
- Academic Alignment
- Keys to Success
- Panel Discussion
Vision, Planning, Partnerships, Execution

- School Board
- Leadership Team
- Facilities
- Resources
- Commitment

Program Attributes Include:

- Comprehensive energy demand and supply solutions
- Renewable energy solutions
- Comprehensive energy infrastructure renewal
- Integration & Alignment with STEAM Curriculum
Background

- Phase I - Planning and Design Commenced Spring 2005
- Phase I - Construction Phase, March 2006 to December 2006
- Phase II - Planning and Design Commenced Summer 2014
- Phase II - Construction Phase, May 2015 to December 2016
Project Goals

- Eliminate the need for upfront capital and self-fund all improvements
- Reduce energy & operating cost and introduce renewable energy technologies
- Improve building safety and comfort
- Ability to make buildings living and breathing classrooms for experiential learning
Issues & Opportunities

- Uneven building temperatures
- Areas of school without mechanical ventilation
- Upgrade windows and exterior doors to improve safety & energy efficiency
- Improve building security and parental communication system
- Reduce and contain operating and future capital repair costs
Phase I Overview

- **Project Cost:** $2,296,783
- **Project Funding Sources:**
  - Guaranteed energy cost avoidance: Approximately $2 million over 15 yr. term
  - State Aid @ 45% of Project Cost
  - Utility rebates
- **Scope of Work:**
  - Lighting retrofit
  - Building weatherization
  - Heating system upgrades
  - Solar thermal hot water system at HS
  - Upgraded computerized temperature control technology
  - Mechanical ventilation upgrades
  - Shop dust collection system upgrade
Phase II Overview

- **Project Cost:** $4,719,566
- **Project Funding Sources:**
  - Guaranteed energy cost avoidance: $3.15 million over 13 year term
  - Refinance phase I debt
  - Utility rebates, grants & RECs
- **Scope of Work:**
  - New windows
  - Heating system upgrades
  - Mechanical ventilation upgrades
  - LED Lighting retrofit
  - Solar thermal hot water system at ES
  - Solar PV systems @ two schools
  - Wood pellet boilers @ 2 schools
Phase I & II
Combined Results

- $7 Million in Self-Funded Capital Improvements
- Reduced Baseline Oil Usage by 83%
- Reduced Baseline Electric Usage by 63%
- Improved Safety, Comfort and Indoor Air Quality Schools
- Implemented Sustainable Academic Learning Programs
Integration & Alignment with STEM Curriculum

- Meets next generation science standards
- Integration with curriculums
- Interactive Display
- Greenhouse Project
- Composting
- Sustainability Club
Living Classroom
PLANTING THE SEEDS OF KNOWLEDGE IN A DIFFERENT WAY
Composting
Inter-Lakes High School
Ground Mount Solar PV Array
Sandwich School Solar PV Array
Solar Thermal Heating for Domestic Hot Water
Wood Pellet Boilers at
Inter-Lakes High School & Inter-Lakes
Elementary School
Lead By Example & Promote Success
Sandwich Central School Students at Solar Kiosk
Questions?
Thoughts?