

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 Winnepesaukee**
- ***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**













603-707-2272



Composting









Inter-Lakes High School Ground Mount Solar PV Array



NO SNOWMOBILING
NO SNOWBOARDING
ON SCHOOL
PROPERTY

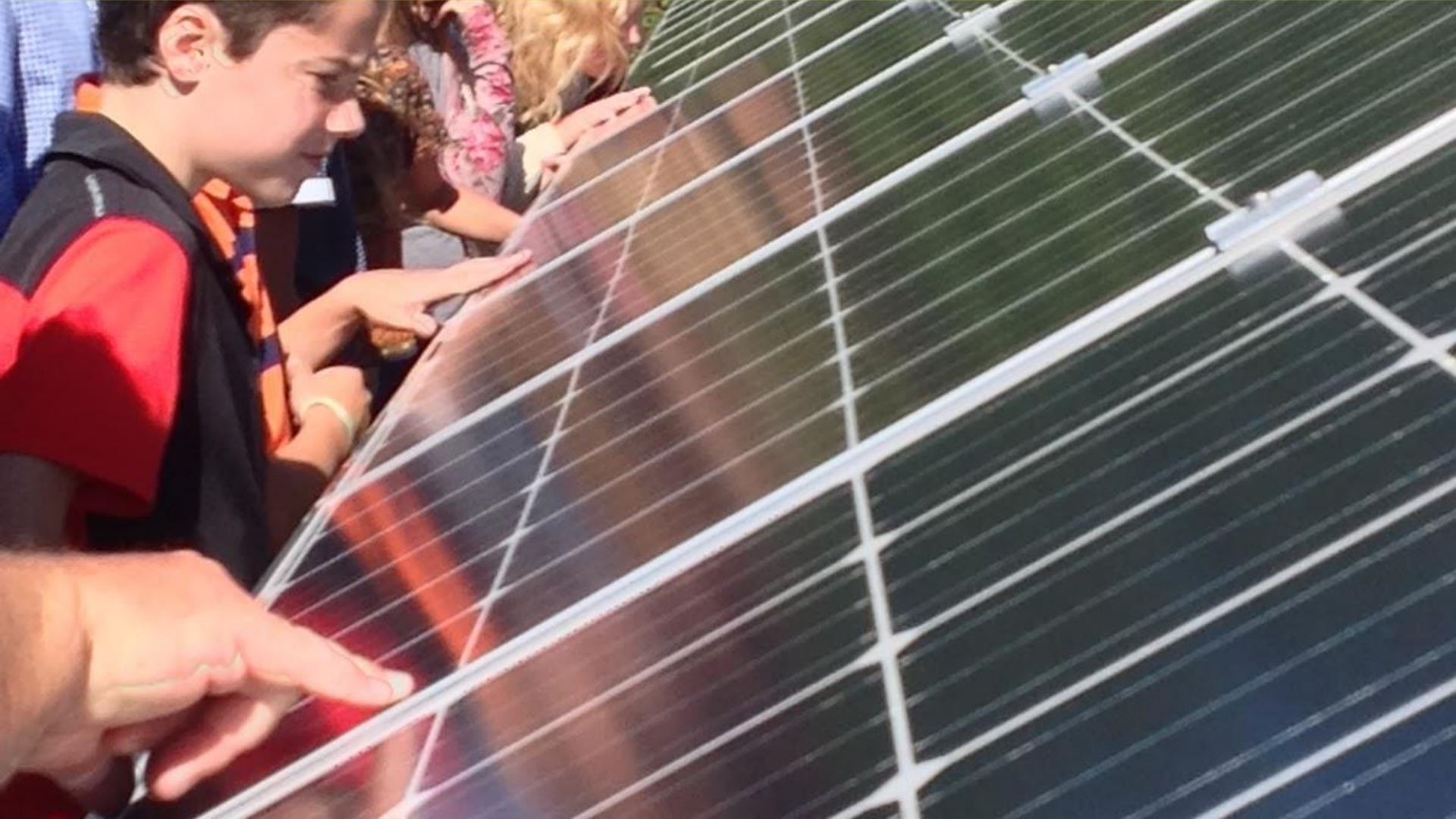
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WAY
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Sandwich School Solar PV Array





Solar Thermal Heating for Domestic Hot Water



AIR-TERRA 3D

603-707-2272

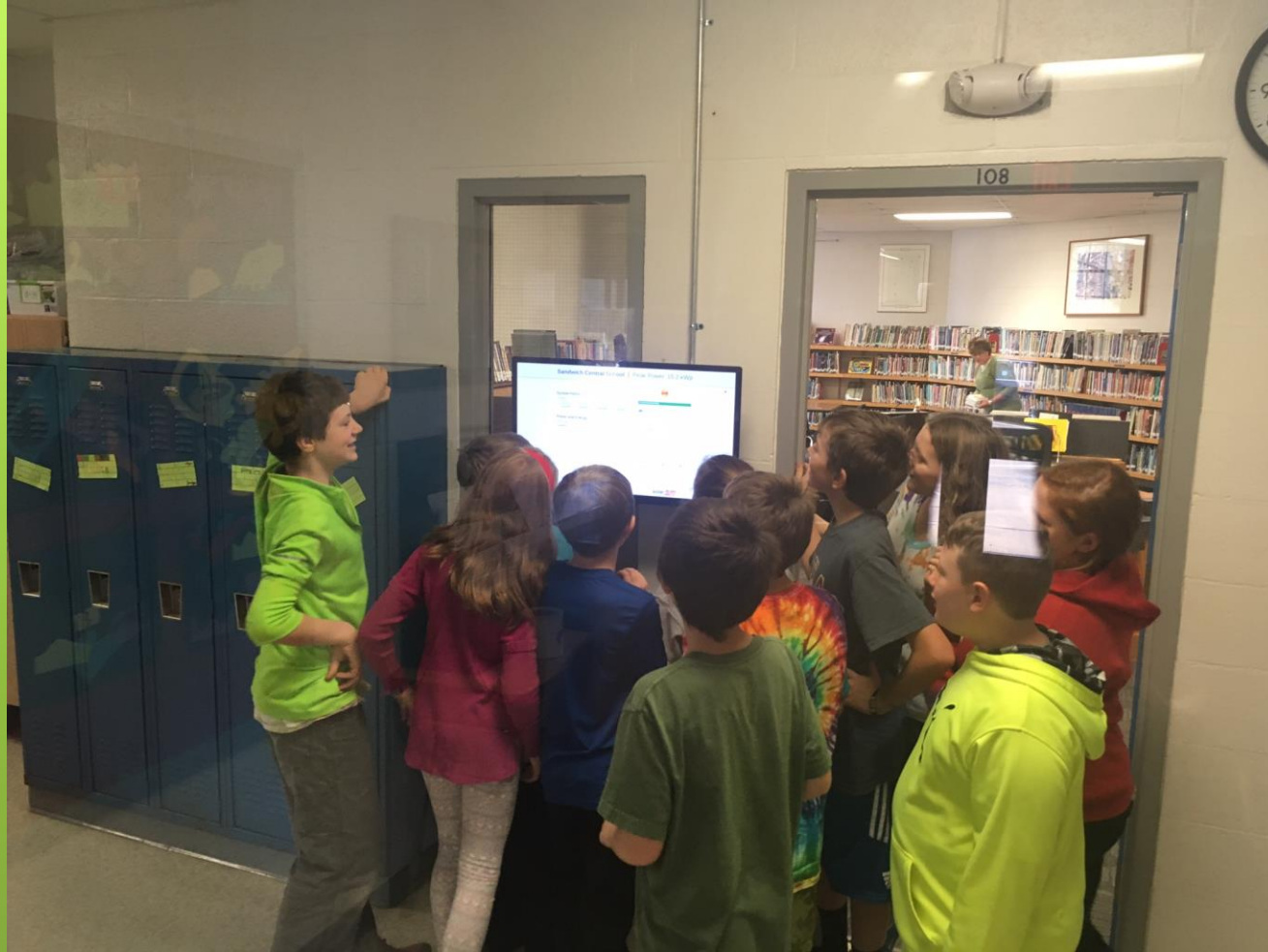


**Wood Pellet Boilers at
Inter-Lakes High School & Inter-Lakes
Elementary School**





Lead By Example & Promote Success



Sandwich Central School Students at Solar Kiosk

Questions?
Thoughts?