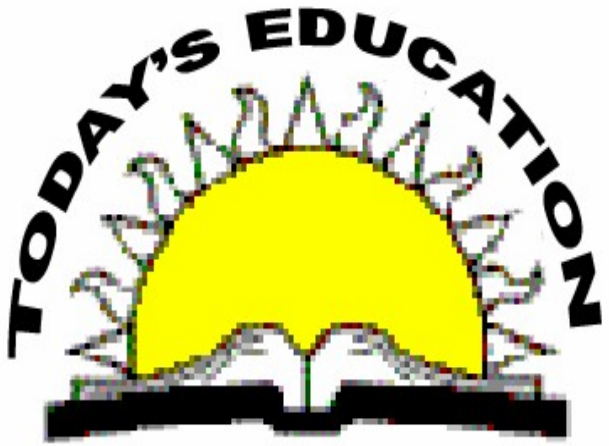
Flemington Raritan Regional School District; Energy Saving Improvement Program (ESIP)

ESIP Energy Savings Plan
April 18, 2013

Presenters:
Stephanie Voorhees; FRRSD Bus. Admin
Jon Zeller; Ameresco, Sr. Account Executive
Rich Alderiso; Design ideas Group, Principal,



Flemington-Raritan Schools

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Presentation Outline

TODAY'S EDUCATION IS TOMORROW'S FUTURE
Flemington-Raritan Schools

- Energy Saving Improvement Program (ESIP) Overview
- Project History Overview
  - District Team
  - Schedule of Events
  - ESIP RFP Procurement Process
- Investment Grade Energy Audit (IGEA)
  - Energy Savings Plan: Energy Conservation Measures (ECMs)
- Project Financials and Process Post-IGEA
- Project Construction and Next Steps

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Energy Saving Improvement Program (ESIP) Overview

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Energy Saving Improvement Program (ESIP) A1185/S1537

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- NJ Legislation that Allows Districts to Utilize Energy Savings from Existing Operating Budgets to Finance District Improvements
- District can Make Energy Related, **CAPITAL** Improvements to their Facilities and Pay for the Costs Using the Value of Energy Savings Resulting from the Improvements
- Uses the Energy Savings Found within District Facilities to Self-fund Improvements and Repairs to Campus Infrastructure without Using Funds that could Better be Used for other Priorities
  - **Requires NO Capital outlay** from the District to implement, and is 100% budget neutral

*"…the **savings generated from reduced energy use from the program will be sufficient to cover the cost** of the program's energy conservation measures as set forth in an energy savings plan." (A1185 ACS 1R)*

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ESIP: Typical Energy Conservation Measures (ECMs)

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ESIP Energy Equity The FRRSD can make energy related, Capital improvements to its facilities and pay for the costs using the value of energy savings resulting from the Improvements:

- Energy efficient HVAC equipment and systems
  - Variable Frequency Drives, Premium Efficiency Motors, Unit Vent Replacements, energy efficient hot water heaters, etc…
- Enhanced energy efficient lighting and lighting control systems
- Boiler plant upgrades and replacements
- Cooling system upgrades
- Energy management control systems
- Building envelope improvements
- Energy and fuel source optimization
- IT Efficiencies

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ESIP Financing Models

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Savings Can be Financed out 15 years (20 Years for projects that include Combined Heat & Power (CHP) solutions) by a BOE utilizing:

- Third-party Tax Exempt Lease Purchase (TELP) Financing Arrangements
  - Public solicitation to select most competitive Lender
  - No added costs for issuance
  - No pre-approval requirements or project implementation delays
  - Competitive rates
- Issuance of Energy Savings Obligations or "Re-funded Bonds"
  - Potentially longer process
  - Local Finance Board approval required
  - Added costs of issuance
  - Potentially lower rates outside issuance costs

Project History Overview

- District Team
- Schedule of Events
- ESIP RFP Procurement Process

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Project History Overview

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- **Flemington Raritan Regional Schools**
  - K-8 School District (approximately 3,500 students)
  - 6 schools (4 elementary, 1 intermediate and 1 middle)
  - School range in age from approximately 7 years old to 150 years old
  - Almost 700,000 square feet of facilities
- **District Team** (*Utilizing ESIP "Plan C: Hybrid" Contracting Model)*
  - FRRSD School Bus. Admin./ Board Sec.: Stephanie Voorhees
  - FRRSD Facilities Manager: Jim Shumate
  - FRRSD School Board Members:
  - District Architect of Record: Richard D. Alderiso, AIA, NCARB; Design Ideas Group (Principal)
  - District Legal Counsel: Robert Tosti, Esq. (Parker McCay)
  - District Financial Consultants: Mary K Lyons (Phoenix Advisors) and Lisa A. Gorab, Esq. (Wilentz, Goldman & Spitzer, P.A.)

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Project History Overview

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ESIP Project Process: "Key Steps"	Start Date	Finish Date	Duration
LGEAP Energy Audits	Feb 2010	Jun-10	4 months
RFP (Public Announcement to Award)	July 21st, 2011	Oct. 17th, 2011	3+ Months
Investment Grade Energy Audit (IGEA)	Jan. 24th, 2012	May 18th, 2012	4+ Months
Energy Savings Plan (ESP) Customization and Project Financial Modeling	May 18th, 2012	June 11th, 2012	< 1 Month
Energy Services Agreement (ESA)	Aug 20th, 2012	Oct. 8th, 2012	1+ Month
Project Financing Arrangement	July 24th, 2012	Sept. 11th, 2012	1+ Month
"P4P" Energy Reduction Plan Application and Approval	Nov. 30th, 2012	April, 2013	5 Months
Dept of Education Approvals	Feb. 1st, 2013	Feb. 22nd, 2013	3 Weeks
Public Bidding through Construction	Bid Package #1: April 1, 2013	In Construction	15 Months

Project History Overview

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- **ESIP Request for Proposal (RFP)**
  - Public Solicitation to NJ DPMC Qualified and Listed Energy Services Companies (ESCOs/C036)
  - Four (4) ESCO RFP Responses Received
  - District evaluated proposals then interviewed short-listed ESCOs and scored proposals
  - "**Best Value**" ESCO Selection by District:
    - ESCO Qualifications
    - Approach to Energy Savings Plan Development
    - Ability to Implement Project
    - Energy Savings Plan Projections
    - Effort Expended to Familiarize Self with Facilities
    - Fee Proposal

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Investment Grade Energy Audit (IGEA)

– Energy Savings Plan: Energy Conservation Measures (ECMs)

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Project Selection Sheet (Example)

Example

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Measure Number	School	Building	ECM Description	Measure Costs	Annual Savings	Simple Payback (years)	Include? (1=yes)
1	1	JP Case	Lighting System Improvements - JP Case	$ 139,681	$ 30,561	4.57	1
1	2	Reading-Fleming	Lighting System Improvements - Reading-Fleming	$ 237,196	$ 34,286	6.92	1
1	3	Copper	Lighting System Improvements - Copper	$ 184,625	$ 14,110	13.09	1
1	4	Desmares	Lighting System Improvements - Desmares	$ 155,787	$ 13,013	11.97	1
1	5	Hunter	Lighting System Improvements - Hunter	$ 80,341	$ 11,994	6.70	1
1	6	Sheaf	Lighting System Improvements - Sheaf	$ 113,815	$ 13,334	8.54	1
2	1	JP Case	Lighting Controls - JP Case	$ 937	$ 163	5.74	1
2	2	Reading-Fleming	Lighting Controls - Reading-Fleming	$ 37,308	$ 4,832	7.72	1
2	3	Copper	Lighting Controls - Copper	$ 11,967	$ 608	19.68	1
2	4	Desmares	Lighting Controls - Desmares	$ 4,992	$ 380	13.13	1
2	5	Hunter	Lighting Controls - Hunter	$ 2,366	$ 190	12.44	1
2	6	Sheaf	Lighting Controls - Sheaf	$ 5,220	$ 492	10.60	1
3	1	JP Case	New Energy Management Systems - JP Case	$ 18,792	$ 11,096	1.69	1
3	2	Reading-Fleming	New Energy Management Systems - Reading-Fleming	$ 103,168	$ 36,892	2.80	1
3	3	Copper	New Energy Management Systems - Copper	$ 35,141	$ 7,555	4.65	1
3	4	Desmares	New Energy Management Systems - Desmares	$ 22,550	$ 10,935	2.06	1

Energy Savings Plan: Energy Conservation Measures by School

ECM Implementation Summary Per FRRSD Facility	J. P Case Middle	RFIS	Robert Hunter	Barley Sheaf	Copper Hill	Francis A. Desmares
Lighting System Improvements	✓	✓	✓	✓	✓	✓
Exterior Lighting Improvements		✓	✓		✓	✓
Lighting Controls	✓	✓	✓	✓	✓	✓
New Energy Management Systems	✓	✓	✓	✓	✓	✓
Weatherization/Infiltration Reductions	✓	✓		✓	✓	
Vending Machine Controllers	✓	✓	✓	✓		✓
Variable Frequency Drives		✓				
Computer Load Management	✓	✓	✓	✓	✓	✓
Premium Efficiency Motors		✓	✓	✓	✓	✓
High Efficiency Transformers			✓		✓	
Destratification Fans	✓		✓	✓	✓	
Boiler Replacement		✓		✓		
Unit Ventilator Replacement					✓	
Chiller Replacements				✓		
Domestic Hot Water Heater Replacement						✓
Electric to Hot Water Conversion				✓		
Green Print	✓	✓	✓	✓	✓	✓

Energy Conservation Measures (ECMs)

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1. Lighting System Improvements
   a) Interior lighting systems
   b) Exterior lighting improvements

2. Lighting Controls
   a) Dual technology occupancy sensors
   b) Daylight harvesting

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Energy Conservation Measures (ECMs)

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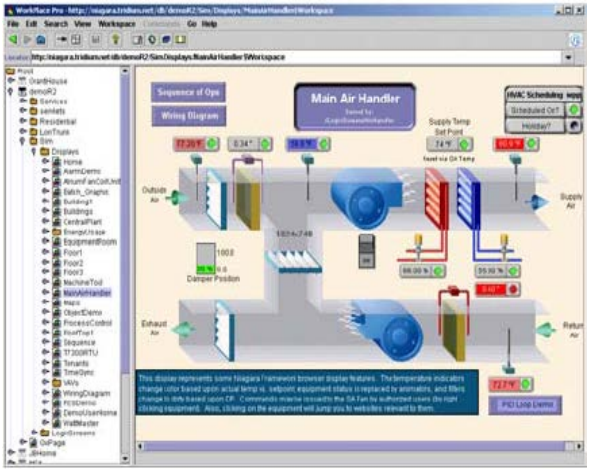
3. New Energy Management System
   a) Web-based District wide system
   b) All major HVAC equipment controlled



4. Weatherization/Infiltration Reductions
   a) Exterior door weather stripping
   b) Window and exterior wall air sealing
   c) Roof wall interface
   d) Included at RFIS, Copper and Sheaf schools

Zerodraft Foam Sealant being applied to seal gap between window frame and rough opening.

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Energy Conservation Measures (ECMs)

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5. Vending Machine Controls
   a. 11 Soft drink machines
   b. 4 Snack machines

6. Variable Frequency Drives
   a. Installed on RFIS heating hot water pumps

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7. Computer Load Management
   a. District-wide computer power management software
   b. 935 computers

8. Premium Efficiency Motors
   a. 37 new motors

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Energy Conservation Measures (ECMs)

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9. High Efficiency Transformers
   a. 17 new low voltage transformers

10. Destratification Fans
   a) 30 new fans install at Case, Copper, Hunter and Sheaf Schools
   b) Installed in gymnasiums and cafeterias

Energy Conservation Measures (ECMs)

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11. Boiler Replacements
    a. Proposed boiler replacements at RFIS and Sheaf.

12. Unit Ventilator Replacements
    a. Proposed replacement of all 49 units at Copper Hill

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Energy Conservation Measures (ECMs)

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13. Chiller Replacements
    a. Main Office chiller at Sheaf

14. Domestic Hot Water Heater Replacement
    a. Replace two units at Desmares

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Energy Conservation Measures (ECMs)

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15. Electric to Hot Water Conversion
    a. Replace Library electric coil with hot water coil

16. Green Print Software
    a. District-wide software to control and reduce ink, toner and paper consumption

Project Financials and Process Post-IGEA

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Project Economics and Financial Modeling:

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- Modeled to responsibly maximizes the net economic benefit to the District while minimizing the financial risk over the entire contract term.
- Utilizes "Best Industry Practices" to responsibly model ESIP solutions
- Is economically viable for each year of the project's 15 year repayment term
  - Cash-Flow Positive Project
- FRRSD does not need to pay any additional monies outside of the total cost established in the Energy Savings Plan

Energy Conservation Measures (ECMs)

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	Measure Name	Measure Costs	Annual Savings	Simple Payback (years)
1	Lighting System Improvements (Int./Ext.)	$ 1,040,566	$ 126,363	8.23
2	Lighting Controls	$ 62,791	$ 6,666	9.42
3	New Energy Management Systems	$ 396,887	$ 116,065	3.42
4	Weatherization/Infiltration Reductions	$ 69,143	$ 8,281	8.35
5	Vending Machine Controllers	$ 5,527	$ 3,144	1.76
6	Variable Frequency Drives	$ 40,929	$ 6,120	6.69
7	Computer Load Management	$ 17,808	$ 20,784	0.86
8	Premium Efficiency Motors	$ 91,546	$ 8,969	10.21
9	High Efficiency Transformers	$ 233,148	$ 19,598	11.90
10	Destratification Fans	$ 84,543	$ 7,681	11.01
11	Boiler Replacements	$ 791,343	$ 5,849	135.29
12	Unit Ventilator Replacements	$ 1,717,648	$ 4,781	359.26
13	Chiller Replacements	$ 113,131	$ 359	314.70
14	Domestic Hot Water Heater Replacement	$ 30,484	$ 119	256.37
15	Electric to Hot Water Conversion	$ 86,130	$ 3,570	24.13
16	Green Print	$ 38,550	$ 17,436	2.21
	Totals:	**$ 4,820,174**	**$ 355,785**	**13.55**

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Estimated Costs, Savings, Rebates (Year 0)

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Total Project Cost	Total Annual Energy Savings	Estimated Annual Operational Savings	NJ OCE "Pay-for-Performance" Energy Rebates & Incentives:	Estimated Total Savings: Energy, Operational, & P4P Rebates	Project Simple Payback (Years)
$4,820,174	$326,682	$29,103	$419,261	$775,046	13.55 Years

Over 27% in savings off the total annual operational spend of FRRSD

More than $6,400,000 in energy & operational cost savings over 15 year repayment term

Project Greenhouse Gas (GHG) & Carbon Emission Reductions	GHG	Annual Reductions	Total Project Term Reductions
	CO2	3,070,548	46,058,215
	SO2	10,630	159,451
	NOX	5,039	75,584
	Total	3,086,217	46,293,250

Figure above reflects environmental impact in pounds (Lbs) of greenhouse gas & carbon emission reductions as a result of the FRRSD implementing the proposed ECMs

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Project Process Post-IGEA:

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- All Energy Saving Plan ("ESP") project savings calculations independently verified by 3rd party firm
- FRRSD officially adopted the final scope-of-work as the District's ESP
  - ESP submitted to NJ BPU for record and posted to District website
- FRRSD and Ameresco Executed an Energy Services Agreement ("ESA") for Project Implementation/Construction
  - Ameresco ESA Mitigates Technical and Financial Risk to FRRSD
  - Transparently identifies all project costs needed to successfully build the project
- FRRSD Executed Financing Agreement for Preferred Project Funding Source
  - Competitively Selected Vendor: **2.2% Interest Rate**
- Pay-for Performance Energy Reduction Plan (ERP) Completed, Submitted, and Approved by NJ BPU

Project Construction and Next Steps

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Project Construction Next Steps:

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- DoE Approvals and Permits Obtained
- Ameresco builds the defined project in accordance to FRRSD public procurement requirements
  - "Bid Packages" prepared for the various ECMs and defined scopes of work
  - All scopes of work competitively and transparently procured
  - Implemented on a "not-to-interfere" basis
- Local contractors encouraged to participate in project bidding/ construction
- Project commissioning, verification, and training for District personnel
- Energy Rebate Management
  - Ameresco: District's "P4P" Program Services Provider

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