

Energy Efficiency: An Investment Opportunity You Can't Afford to Delay

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MEA Key Accounts Luncheon
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Energy efficiency is an investment.



Building energy use & savings potential





AHFC Cash Flow Calculator

Waiting costs
you money.

<https://www.ahfc.us/efficiency/non-residential-buildings/cash-flow-calculator/>

Mechanisms for investing in EE:

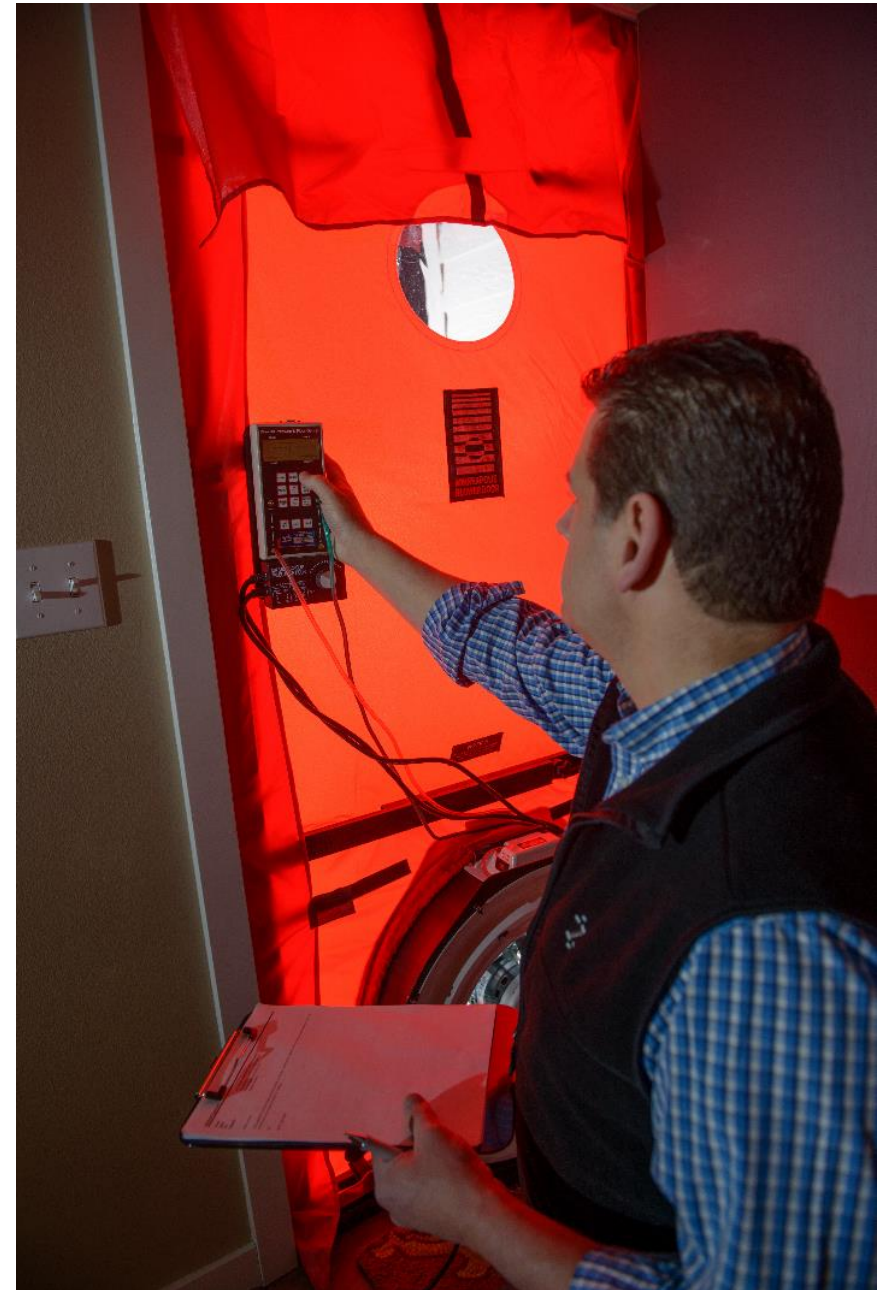


- **Grant**
- **Cash**
- **L.O.A.N.**

From Audit to Action: Tailored funding solutions for every project

Funding options currently available & well used:

1. Commercial Building Energy Audit (grant)
2. Energy Performance Contracts (via a private Energy Services Company—ESCO)
3. State appropriations (for public entities)



More about ESCOs

Energy Services Companies

- Start with Investment Grade Audit
- Integrated project design, finance, installation and operational elements: project developers
- Project contract terms typically range between 7 and 20 years depending on types of installed measures
- Guaranteed energy savings specified as part of terms of the energy savings performance contract (ESPC or EPC)
- In Alaska, ESCOs typically interested in projects greater than \$500,000 in scope for ESPCs

Also currently available:

For public buildings:

Alaska Energy Efficiency Revolving **Loan** Pgm

USDA REAP grants & **loan** participation

RCAC **loans**

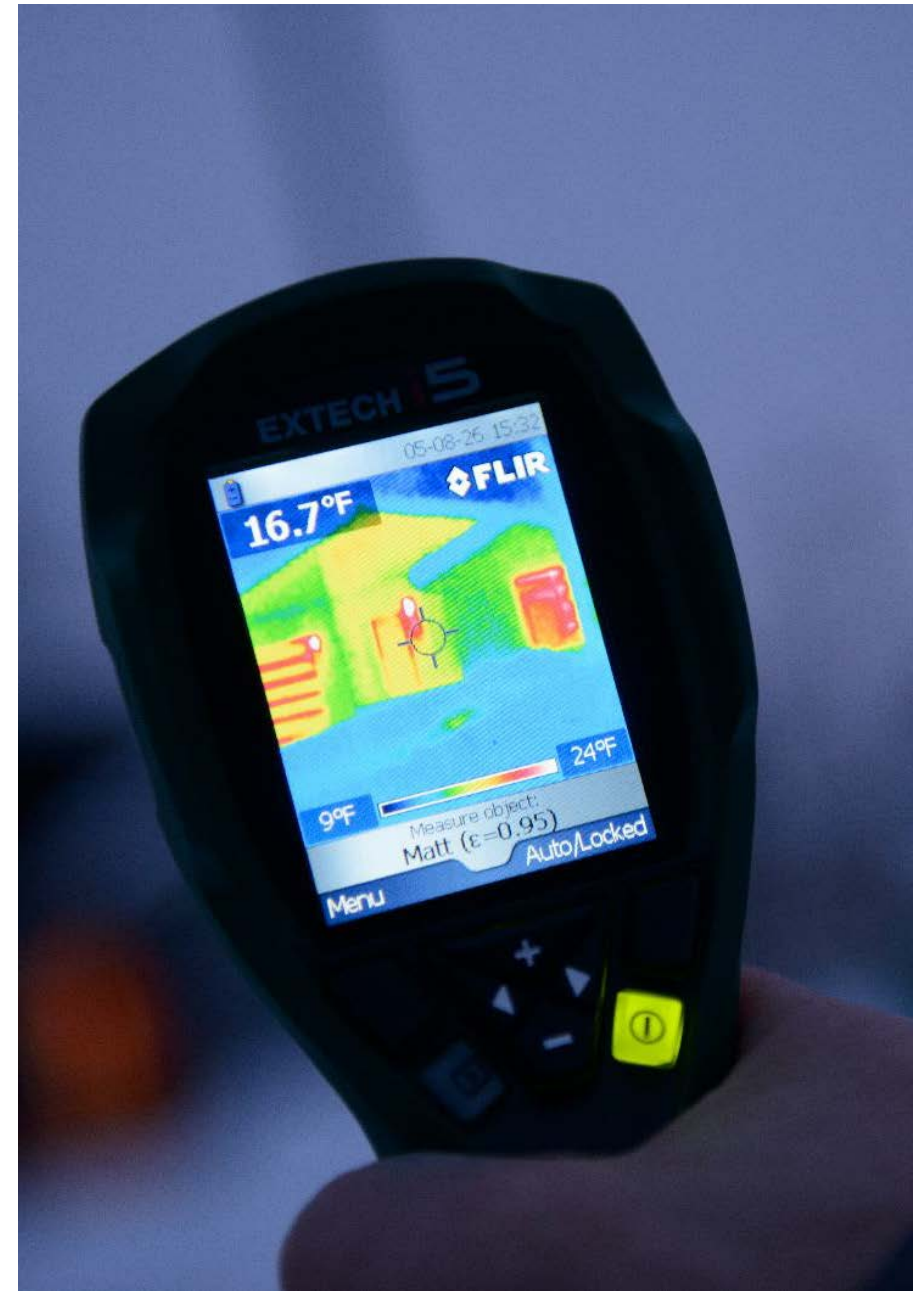
AIDEA **Loan** Participation

For private buildings:

DED Alternative Energy Conservation **Loan**

AIDEA **Loan** Participation

RCAC **loans**



Keeping PACE with new potential: Property Assessed Clean Energy

- Cost saving clean energy improvements to buildings
- Longer term loans with less risk
- Debt carries with property rather than owner
- Repayment through property tax assessment
- Cash flow positive from day one
- Enabling legislation pending in both House and Senate Finance committees



PACE

- Is great for business
- Is an optional project financing tool
- Connects building owners with private capital
- Facilitates more attractive loan terms
- Assuages landlord/tenant split incentive
- Must be authorized by Legislature
- Then adopted by local taxing authority
- Can be managed in-house or by third party
- Needs your support



Photo credit Tim Leach

PACE Case Study

Location/project



Location
relevant
photo

PACE in (presentation location)

- Specific information about how PACE would work in community/region where presentation is being given
- Which local entity would adopt PACE
- What other local energy issues this financing mechanism could sync with

More information about funding:

ALASKA ENERGY PROJECT FINANCING OPTIONS.

This spreadsheet is not comprehensive but does include most well-known financing options. Private sector opportunities for the commercial building sector are not included here.

		Loans	Eligible applicants	Eligible projects	Interest rate (1.16.14)	Terms	Limits	Agency	Process	Website	Contact	Other notes	
COMMERCIAL BUILDINGS & INFRASTRUCTURE	State of Alaska	Alaska Energy Efficiency Revolving Loan Fund	Regional education attendance areas, University of Alaska, State of Alaska and municipalities	Permanent efficiency improvements, identified by investment grade audit, to buildings owned by eligible applicants	Current rates between 1.5% and 4.5% depending on length of loan	As determined appropriate by			Submit loan	http://www.ahec.us/efficiency/energy	Eric Havelock	All improvements must	
		Alternative Energy and Conservation Loan	Alaska residents	Building level alternative energy systems and energy efficiency improvements	Current rate 5%								
		Power Project Fund	Utility, regional electric authority, municipality, region and village corporations, village councils and IPPs	Small scale power production less than 10MW, bulk fuel storage, transmission and distribution, waste energy, energy conservation and efficiency of supply side system and alternative energy systems (can be over 10MW)	12 month average of municipal bond rate (this week 4.88%) + ability to reduce to 0%								
		Sustainable Energy Transmission and Supply Development Fund	Individual, municipal government, tribe, business or other entity "that is organized in any manner"	Generation, transmission, distribution, storage and conservation associated with a qualified energy development, both heat and electric. Qualified energy development is a project that involves: transmission, generation, conservation, storage or distribution of heat or electricity or liquefaction, gas, distribution, storage or use of natural gas.	Currently 5.03% for variable a 5.68% fixed								
		Loan Participation Program	Borrowers who are approved through a qualified originator (approved private sector financial institution)	Developing, acquiring or enhancing Alaska business enterprises, loans for qualified energy development projects and energy efficiency. Project must be in Alaska	Currently 5.03% for variable a 5.68% fixed								
COMMERCIAL BUILDINGS & INFRASTRUCTURE	Federal	Rural Energy for America Program (REAP) Guaranteed Loan	Small businesses or agricultural producers outside the Municipality of Anchorage	1) Installation of renewable energy systems and 2) Energy efficiency improvements to buildings, equipment, and processes that reduce use of energy. The following purposes cannot exceed more than 5% of the loan amount: Working capital; Land acquisition; Routine lender fees; Energy Assessments, Energy Audit, technical reports, business plans, and Feasibility Studies	Lender customary interest (set fixed or variable, negotiated) lender and business Lender customary fees, negotiated by lender and business. One-time guarantee fee equal to 1% of guaranteed amount. Annual renewal fee.							Once a complete application has been submitted to and acknowledged by Rural Development, applicants can begin moving forward on their projects. If a project is selected for funding we can reimburse retroactively to the date upon which we received a complete application. In most cases, grant awards are reimbursement only.	
		Home Energy Rebate	Year round Alaska homeowners who own a single-family residence, condo or a duplex, triplex or 4-plex	Energy rating and energy efficiency improvements	Up to \$300 reimbursement towards energy ratings and up to \$10,000 toward energy efficiency improvements			AHFC	Sign-up at www.akrebate.com	http://www.ahec.us/efficiency/energy-program/home-energy-rebate/	Alaska Housing Finance Corporation 1-800-478-AHFC		
		Home Weatherization	Alaska homeowners and renters who meet income guidelines are eligible for FREE weatherization services through their local provider	Energy Efficiency measures and health and safety measures	Free energy efficiency and health and safety measures are provided at no cost to participants				AHFC	Contact your local service provider	http://www.ahec.us/efficiency/energy-program/weatherization/	Alaska Housing Finance Corporation 1-800-478-AHFC	
		5 Star Plus & 6 Star Rebates	Eligible applicants include purchaser or owner-builder of 5 Star Plus or 6 Star homes that are not more than 1 year old at time of purchase or completion	New home must meet AHFC's building energy efficiency standard, their property financing requirements and energy star level	\$7,000 rebate for 5 Star Plus \$10,000 rebate for 6 Star				AHFC	Sign-up at www.akrebate.com	http://www.ahec.us/efficiency/energy-program/5-star-plus/	Alaska Housing Finance Corporation 1-800-478-AHFC	
		Energy Wise	The Energy Wise Program engages rural Alaskan communities in behavior change practices resulting in energy efficiency and energy conservation. This tested model uses community-based social marketing to save energy - a multi-step educational approach involving residents in changing home energy consumption behaviors. Locally hired crews are trained to educate community residents and conduct basic energy efficiency upgrades during full-day home visits. Through Energy Wise, rural Alaskans reduce their energy consumption, lower their home heating and electric bills, and save money.							Rural CAP	http://ruralcap.com/page_41_139	Eric Milliken, 907-863-7358, Toll Free: 800-478-7227, x7358 (in Alaska only), emilliken@ruralcap.com	

Project Development: Project Feasibility through Construction

Steps to an EE project:

1. Data collection: building energy use benchmarking and tracking
2. Audit: not all audits are equal
3. Determine funding strategy: cash, grants, appropriations, L.O.A.N.s, cost of delay
4. Construction/implementation of measures
5. Savings generated, re-assess performance
6. Ongoing operations and maintenance (O&M)

Undertaking an EE project: Step 1. Data Collection

Benchmarking:

Evaluation of 12 -24 months of utility data and basic building information

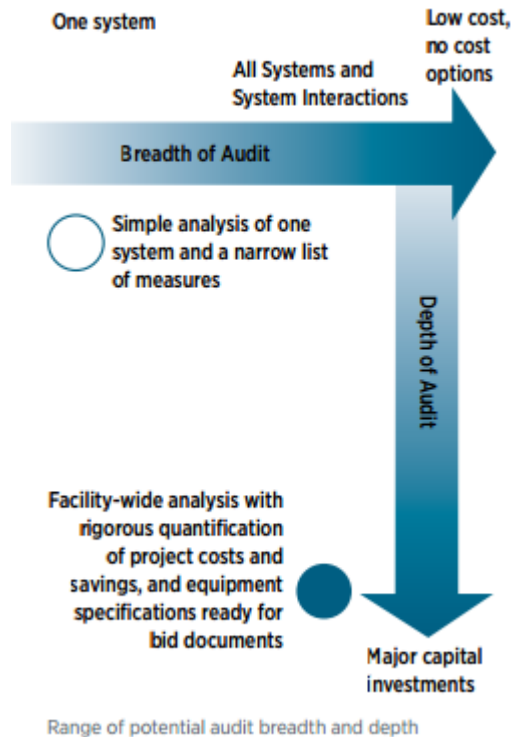
Used to:

1. Assess initial feasibility
2. Compare usage
3. Prioritize projects

The screenshot displays the Alaska Housing ARIS Web interface. At the top, the logo for Alaska Housing Finance Corporation and the text 'ARIS Web' are visible. Below the logo is a navigation menu with links: Commercial Home, REAL Form, Reports, Data Clean Up, Utilities, Admin, Change Password, About, and Logout. The main content area is titled 'Commercial REAL Form' and contains several sections:

- Filters:** A section on the left with dropdown menus for Facility Owner, Building Name/Identifier, Building Usage, Facility is owned by, Originally Created by, Last Updated by, ANCSA Region, and City. An 'Apply Filter' button is located below these menus.
- Summary Data:** A table on the right displaying a list of buildings with their names and codes. The table includes entries such as Aleknagik K-12 School (ALEK), Bayside Fire Station (KODM), and Chuglak High School (CHUG).
- Building Information / Energy Usage:** A section at the bottom with tabs for 'Building Information', 'Enter/Edit Energy Usage', and 'View Energy Usage'. The 'Building Information' tab is active, showing input fields for Facility Owner, Building Name/Identifier, Community Population, Date, and Facility Street. A 'Generate Akwarm File' button is also present.

Undertaking an EE project: Step 2. Energy Audit



Level I: Site Assessment or Preliminary Audits (“walk-through”) identify no-cost and low-cost energy saving opportunities, and a general view of potential capital improvements. Activities include an assessment of energy bills and a brief site inspection of your building.

Level II: Energy Survey and Engineering Analysis Audits identify no-cost and low-cost opportunities, and also provide EEM recommendations in line with your financial plans and potential capital-intensive energy savings opportunities. Level II audits include an in-depth analysis of energy costs, energy usage and building characteristics and a more refined survey of how energy is used in your building.

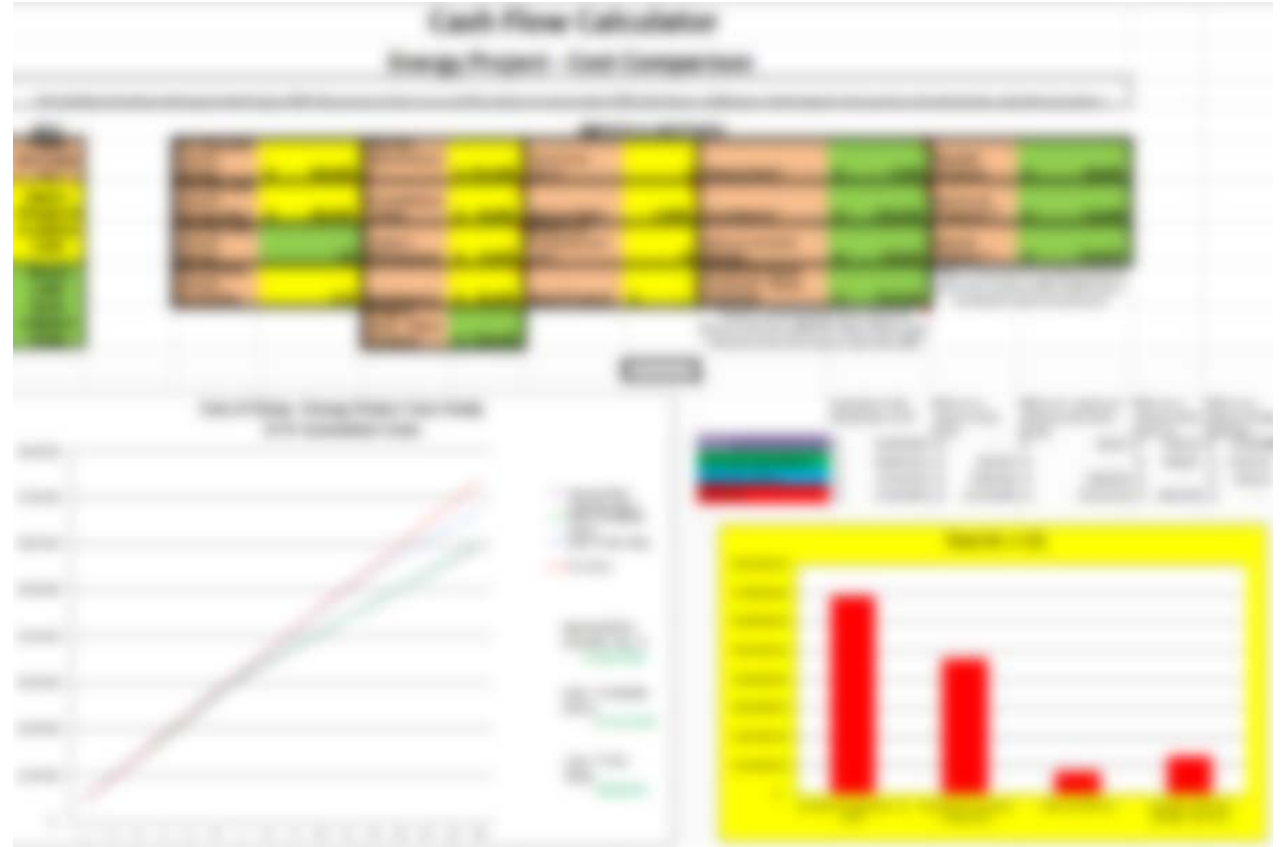
Level III: Detailed Analysis of Capital-Intensive Modification Audits (sometimes referred to as an “**investment grade**” audit) provide solid recommendations and financial analysis for major capital investments. In addition to Level I and Level II activities, Level III audits include monitoring, data collection and engineering analysis.

Source: U.S. Department of Energy,

http://www.pnnl.gov/main/publications/external/technical_reports/pnnl-20956.pdf

Undertaking an EE project: Step 3. Funding Strategy

1. Cash, grant, loan
2. Risk management
3. Case study:
Loan now vs Appropriation in
5 years vs No Action



Undertaking an EE project: Step 3. Funding Strategy

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2. Risk management
3. Case study:
 - i. Alaska school with \$460,000 annual utility expenditure
 - ii. 2012 Audit estimated \$143,000 annual utility cost savings (31%)

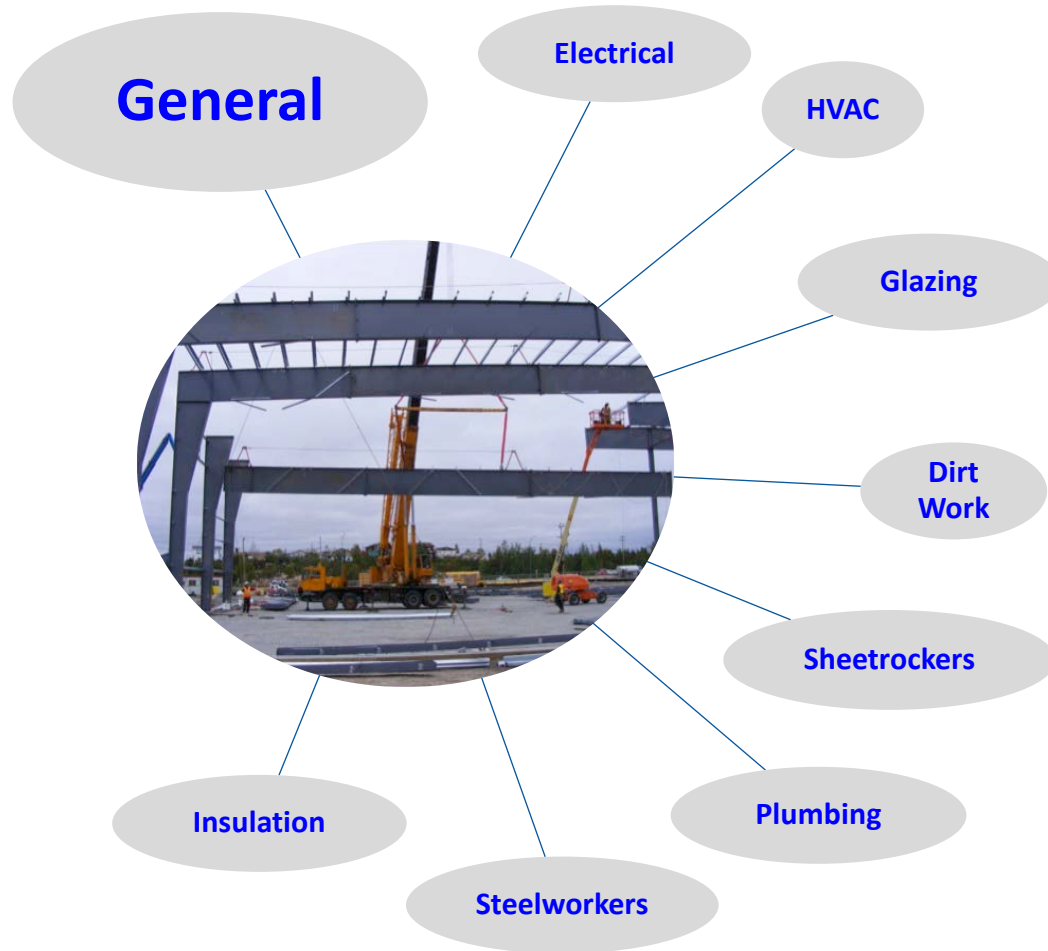
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 - iii. Loan (immediate) vs. Appropriation (year 5) Cash Flow comparison is almost identical

Undertaking an EE project: Step 3. Funding Strategy

1. Cash, grant, loan
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3. Case study:
 - a. Alaska school with \$460,000 annual utility expenditure
 - b. 2012 Audit estimated \$143,000 annual utility cost savings (31%)
 - c. Loan (immediate) vs. Appropriation (year 5) Cash Flow comparison is almost identical
 - d. If the school doesn't take action, **cost of delay is >\$1.3M over 15 years**

Undertaking an EE project: Step 4. Construction



Construction Management

ALL contractors play a critical role in building efficiency!

Undertaking an EE project: Step 5. Reassess

Commissioning

Measurement and Verification (M&V)



Verifying flow at a boiler

Undertaking an EE project: Step 6. O&M

Roles

O&M

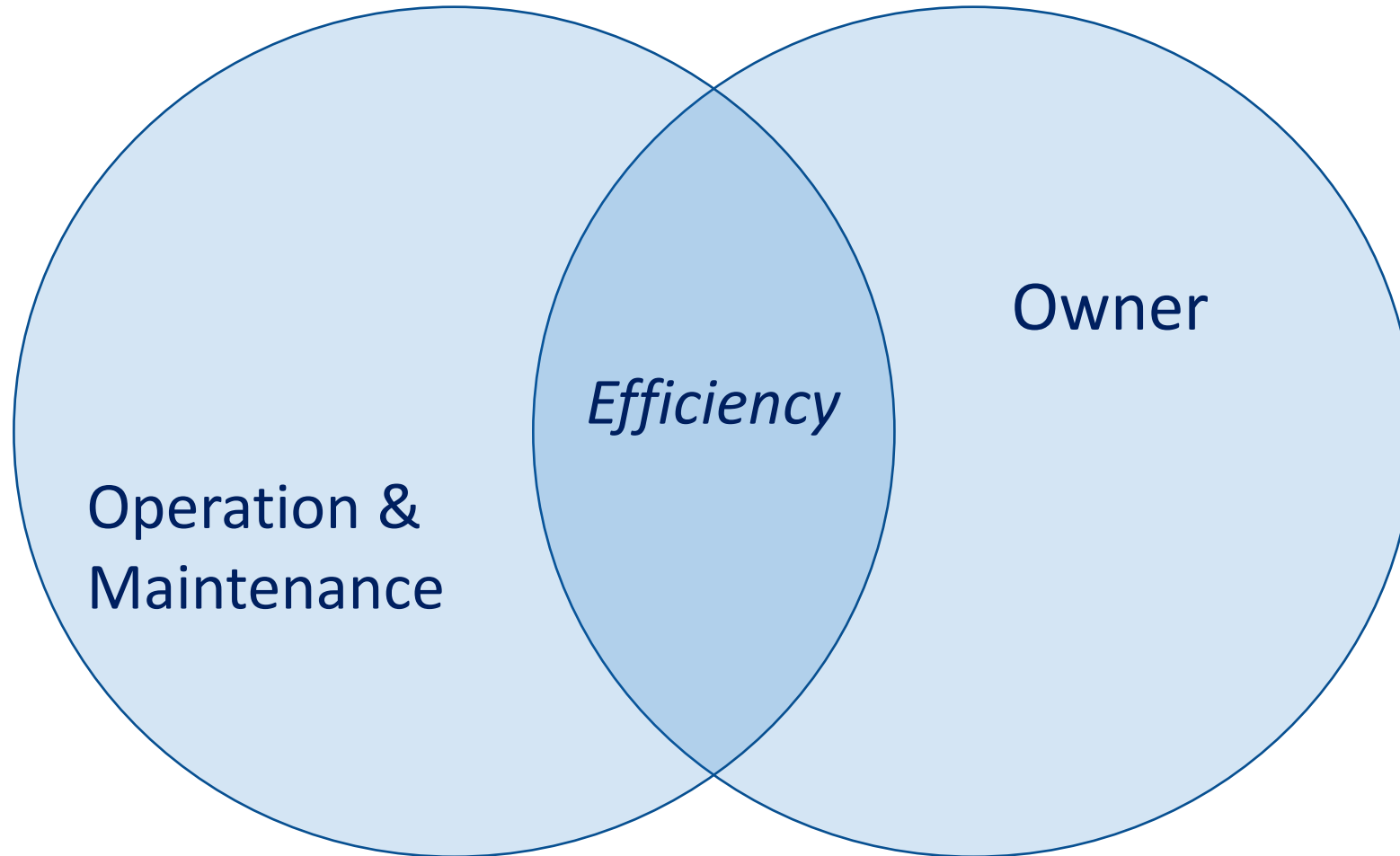
- Repair broken equipment (like for like)
- Maintain existing systems
- Respond to comfort complaints
- Preventative maintenance procedures

Owner

- Sets Policy
- Writes Checks
- Budget Management
 - Cost increases
 - Variance based

Undertaking an EE project: Step 6. O&M

Roles



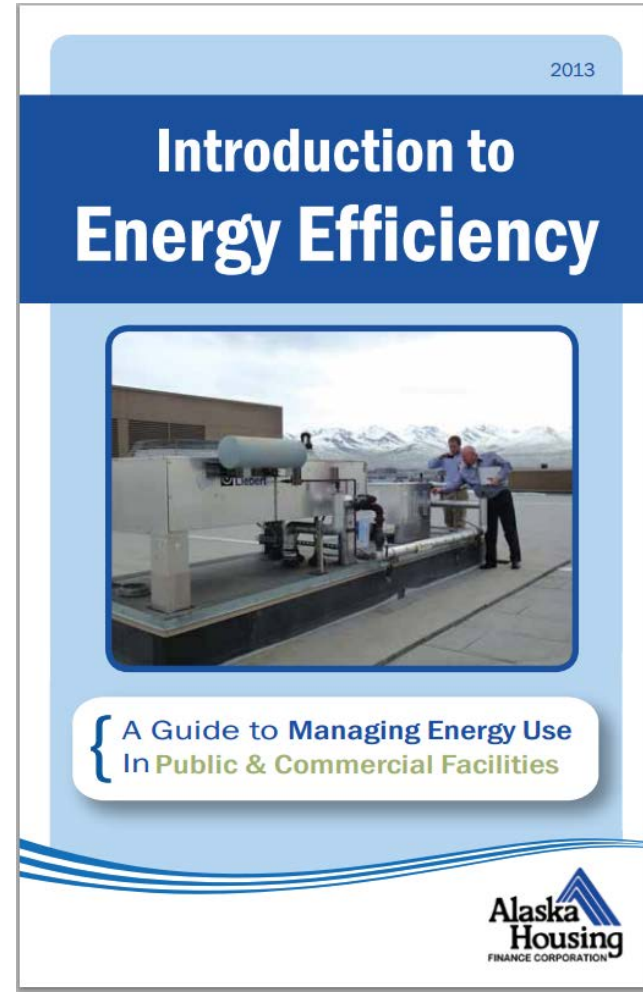
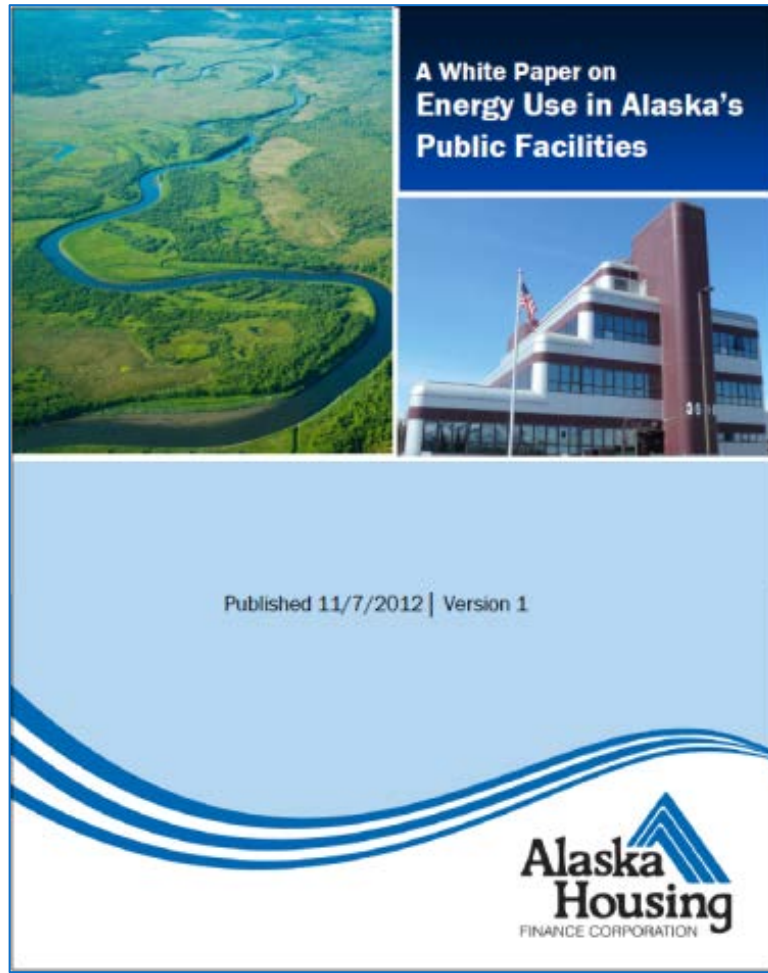
EE is an Investment Worth Celebrating

- Protects against fuel price volatility
- Supports self-sufficiency and community sustainability
- Improves comfort, convenience, and health
- Generates savings for other things



Other great resources:

In Depth
version



Cliff Notes
version

<http://www.ahfc.us/efficiency/research-information-center/energy-efficiency-public-facilities/>

One more great resource:

**Commercial Building
Education Classes:
www.ahfc.us/classes/**

1. Introduction and History to Green Building
2. Understanding Building Energy Use
3. The Economics of Energy Efficiency
4. Policy and Codes that Support Efficiency
5. High Performance Envelope Design
6. Climate Responsive Design in Cold Climates
7. Energy Modeling as a Design Tool
8. Building for Efficiency: The Role of Contractors & Trades
9. Energy Efficient Retrofits of Existing Buildings
10. Commissioning and Retro-commissioning

Thank You!

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