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

Katie Conway & Tim Leach
MEA Key Accounts Luncheon
March 12, 2015
Energy efficiency is an investment.
Building energy use & savings potential

- Residential:
  - Post EE Retrofit
  - Savings!

- Commercial:
  - Post EE Retrofit
  - Savings!

- TRILLION BTU

Electric Heating (space and water)
AHFC Cash Flow Calculator

Waiting costs you money.

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
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.

---

### COMMERCIAL BUILDINGS & INFRASTRUCTURE

<table>
<thead>
<tr>
<th>State of Alaska</th>
<th>Federal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska Energy Facilities Construction Fund</td>
<td>Federal Energy Technology Office</td>
</tr>
<tr>
<td>Alaska Energy Facilities Construction Fund</td>
<td>Federal Energy Technology Office</td>
</tr>
<tr>
<td>Alaska Energy Facilities Construction Fund</td>
<td>Federal Energy Technology Office</td>
</tr>
</tbody>
</table>

### State of Alaska

<table>
<thead>
<tr>
<th>Alaska Energy Facilities Construction Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings &amp; Infrastructure</td>
</tr>
<tr>
<td>Commercial Buildings &amp; Infrastructure</td>
</tr>
<tr>
<td>Residential Buildings &amp; Infrastructure</td>
</tr>
<tr>
<td>State of Alaska</td>
</tr>
</tbody>
</table>

### Federal

<table>
<thead>
<tr>
<th>Federal Energy Technology Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings &amp; Infrastructure</td>
</tr>
<tr>
<td>Commercial Buildings &amp; Infrastructure</td>
</tr>
<tr>
<td>Residential Buildings &amp; Infrastructure</td>
</tr>
</tbody>
</table>

---

### More information about funding:


[http://www.eere.energy.gov/energy/environmental_protection_agency.html](http://www.eere.energy.gov/energy/environmental_protection_agency.html) - The Environmental Protection Agency (EPA) offers resources on energy efficiency and conservation.


[http://www.dsireusa.org/](http://www.dsireusa.org/) - The Database of State Incentives for Renewable Energy (DSIRE) provides information on state-level incentives for energy efficiency and renewable energy.


---

### Conclusion

For more information about funding options, please visit the websites listed above. These resources provide comprehensive information on energy efficiency and conservation incentives available at the federal, state, and local levels. Additionally, consulting with local organizations and professionals can provide tailored advice and resources specific to your project needs.
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
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,
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
1. Cash, grant, loan
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%)
1. Cash, grant, loan
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%)
   iii. Loan (immediate) vs. Appropriation (year 5) Cash Flow comparison is almost identical
1. Cash, grant, loan
2. Risk management
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!
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

Ownership

Efficiency

Operation & Maintenance
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:

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

Commercial Building Education Classes:
www.ahfc.us/classes/
Thank You!

Katie Conway
kconway@aidea.org
907-771-3078

Tim Leach
tleach@ahfc.us
907-330-8198