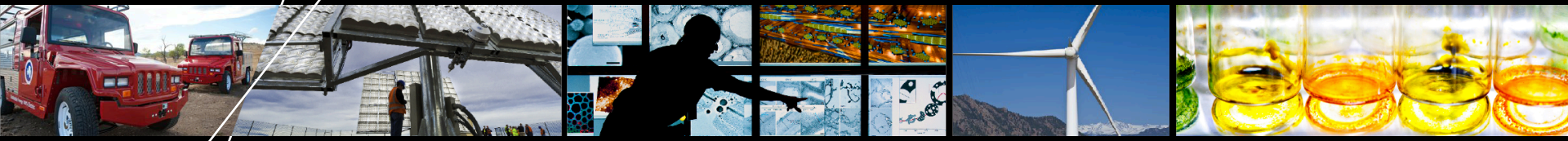
NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Leveraging SBA Loan Programs to Finance Building Energy Efficiency Projects



Rois Langner

Electricity, Resources, and Building Systems Integration Center

National Renewable Energy Laboratory

Laboratory Snapshot

Only National Laboratory Dedicated Solely to Energy Efficiency and Renewable Energy

- Leading clean-energy innovation for 37 years
- 1740 employees with world-class facilities
- Campus is a living model of sustainable energy
- Owned by the Department of Energy
- Operated by the Alliance for Sustainable Energy

Scope of Mission

Energy Efficiency

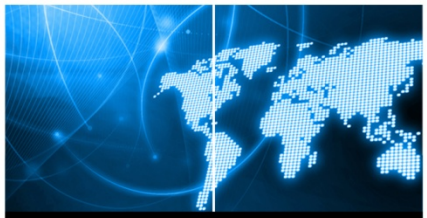
- Residential Buildings
- Commercial Buildings
- Personal and Commercial Vehicles

Renewable Energy

- Solar
- Wind and Water
- Biomass
- Hydrogen
- Geothermal

Systems Integration

- Grid Infrastructure
- Distributed Energy Interconnection
- Battery and Thermal Storage
- Transportation



Market Focus

- Private Industry
- Federal Agencies
- Defense Dept.
- State/Local Govt.
- International

Working with SBA

Dollars saved through energy efficiency can *directly impact* the BOTTOM LINE.

DOE and NREL collaborated with SBA to provide small businesses with

easy-to-use information

to help make better decisions about energy efficiency.

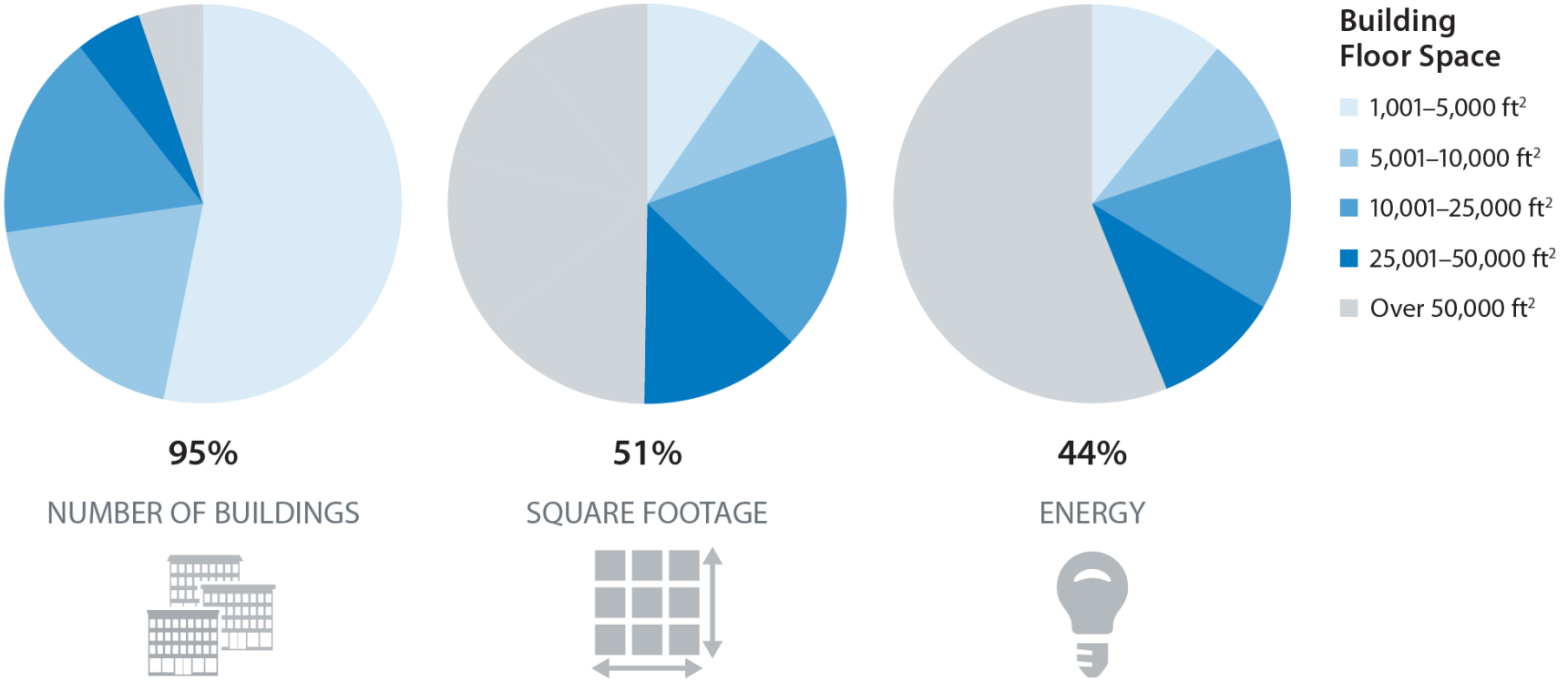
SBA Loan Programs

DID YOU KNOW…

SBA loan programs are available for financing building upgrade and **energy efficiency projects:**

- 7(a) General Small Business Loan
- CDC/504 Real Estate & Equipment Loan
- 7(a) Express Loan
- SBA Micro Loans
- SBA Low-Interest Disaster Loan

Why Target Small Businesses?



Defined as buildings <50,000 ft², most are <8,000 ft²

Data from the U.S. Energy Information Administration's Commercial Buildings Energy Consumption Survey, 2003.

Barriers Small Business Owners Face

Many barriers inhibit small business/small building owners from adopting energy efficiency solutions.

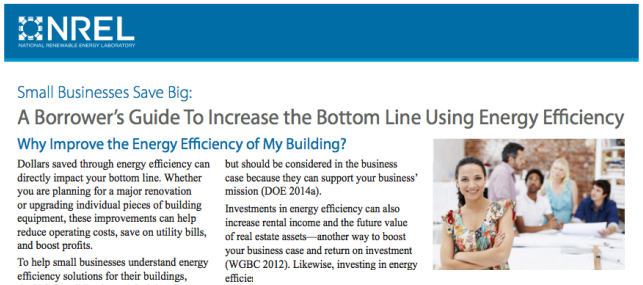
The largest barriers include:

- Limited capital
- Higher transaction costs
- Lack of time
- Split incentive obstacles
- Lack of resources and technologies

Small Businesses Save Big!

Two Fact Sheets:

- A **Borrower's Guide** to Increase the Bottom Line Using Energy Efficiency (http://www.nrel.gov/docs/fy15osti/62960.pdf)
- A Guide to Help **SBA Lenders** Understand and Communicate the Value of Energy Efficiency Investments (http://www.nrel.gov/docs/fy15osti/62959.pdf)



NREL

Small Businesses Save Big:

A Borrower's Guide To Increase the Bottom Line Using Energy Efficiency

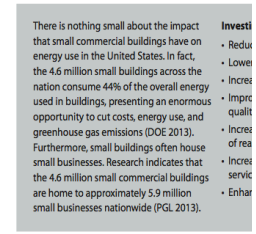
Why Improve the Energy Efficiency of My Building?

Dollars saved through energy efficiency can directly impact your bottom line. Whether you are planning for a major renovation or upgrading individual pieces of building equipment, these improvements can help reduce operating costs, save on utility bills, and boost profits.

To help small businesses understand energy efficiency solutions for their buildings, the U.S. Small Business Administration (SBA), the U.S. Department of Energy (DOE), and DOE's National Renewable Energy Laboratory have collaborated to provide small businesses with easy-to-use information to help make better decisions around energy efficiency—ultimately improving a business' bottom line.

There are many benefits related to investing in energy efficiency, including "nonenergy" benefits. For example, upgrades that improve the amount of daylight in a space and increase the quality of lighting, can help increase productivity and improve customer experience. Likewise, improvements to your heating, ventilation, and air conditioning (HVAC) system can improve air quality, occupant comfort, and well-being. These extra benefits can be hard to quantify and are often omitted from financial analyses, but should be considered in the business case because they can support your business' mission (DOE 2014a).

Investments in energy efficiency can also increase rental income and the future value of real estate assets—another way to boost your business case and return on investment (WGBC 2012). Likewise, investing in energy



There is nothing small about the impact that small commercial buildings have on energy use in the United States. In fact, the 4.6 million small buildings across the nation consume 44% of the overall energy used in buildings, presenting an enormous opportunity to cut costs, energy use, and greenhouse gas emissions (DOE 2013). Furthermore, small buildings often house small businesses. Research indicates that the 4.6 million small commercial buildings are home to approximately 5.9 million small businesses nationwide (PGL 2013).

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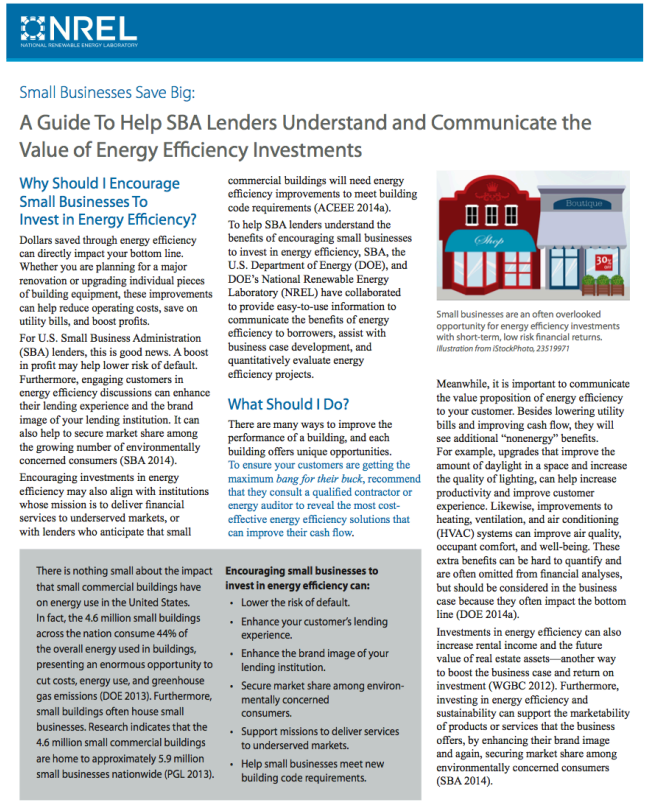
Office of Energy Efficiency and Renew



NREL

Small Businesses Save Big:

A Guide To Help SBA Lenders Understand and Communicate the Value of Energy Efficiency Investments

Why Should I Encourage Small Businesses To Invest in Energy Efficiency?

Dollars saved through energy efficiency can directly impact your bottom line. Whether you are planning for a major renovation or upgrading individual pieces of building equipment, these improvements can help reduce operating costs, save on utility bills, and boost profits.

For U.S. Small Business Administration (SBA) lenders, this is good news. A boost in profit may help lower risk of default. Furthermore, engaging customers in energy efficiency discussions can enhance their lending experience and the brand image of your lending institution. It can also help to secure market share among the growing number of environmentally concerned consumers (SBA 2014).

Encouraging investments in energy efficiency may also align with institutions whose mission is to deliver financial services to underserved markets, or with lenders who anticipate that small commercial buildings will need energy efficiency improvements to meet building code requirements (ACEEE 2014a).

To help SBA lenders understand the benefits of encouraging small businesses to invest in energy efficiency, SBA, the U.S. Department of Energy (DOE), and DOE's National Renewable Energy Laboratory (NREL) have collaborated to provide easy-to-use information to communicate the benefits of energy efficiency to borrowers, assist with business case development, and quantitatively evaluate energy efficiency projects.

What Should I Do?

There are many ways to improve the performance of a building, and each building offers unique opportunities. To ensure your customers are getting the maximum *bang for their buck*, recommend that they consult a qualified contractor or energy auditor to reveal the most cost-effective energy efficiency solutions that can improve their cash flow.

Small businesses are an often overlooked opportunity for energy efficiency investments with short-term, low risk financial returns.
Illustration from iStockPhoto, 23519971

There is nothing small about the impact that small commercial buildings have on energy use in the United States. In fact, the 4.6 million small buildings across the nation consume 44% of the overall energy used in buildings, presenting an enormous opportunity to cut costs, energy use, and greenhouse gas emissions (DOE 2013). Furthermore, small buildings often house small businesses. Research indicates that the 4.6 million small commercial buildings are home to approximately 5.9 million small businesses nationwide (PGL 2013).

Encouraging small businesses to invest in energy efficiency can:

- Lower the risk of default.
- Enhance your customer's lending experience.
- Enhance the brand image of your lending institution.
- Secure market share among environmentally concerned consumers.
- Support missions to deliver services to underserved markets.
- Help small businesses meet new building code requirements.

Meanwhile, it is important to communicate the value proposition of energy efficiency to your customer. Besides lowering utility bills and improving cash flow, they will see additional "nonenergy" benefits. For example, upgrades that improve the amount of daylight in a space and increase the quality of lighting, can help increase productivity and improve customer experience. Likewise, improvements to heating, ventilation, and air conditioning (HVAC) systems can improve air quality, occupant comfort, and well-being. These extra benefits can be hard to quantify and are often omitted from financial analyses, but should be considered in the business case because they often impact the bottom line (DOE 2014a).

Investments in energy efficiency can also increase rental income and the future value of real estate assets—another way to boost the business case and return on investment (WGBC 2012). Furthermore, investing in energy efficiency and sustainability can support the marketability of products or services that the business offers, by enhancing their brand image and again, securing market share among environmentally concerned consumers (SBA 2014).

NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.

Goals

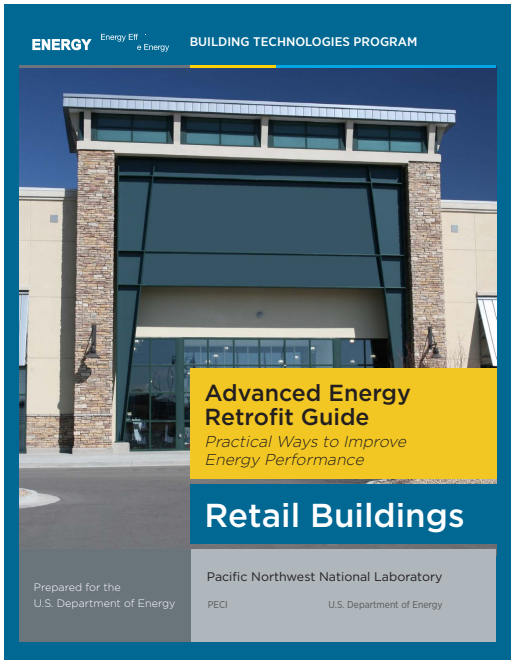
- **Awareness** that SBA Loan Programs can be used to finance energy efficiency building projects and upgrades

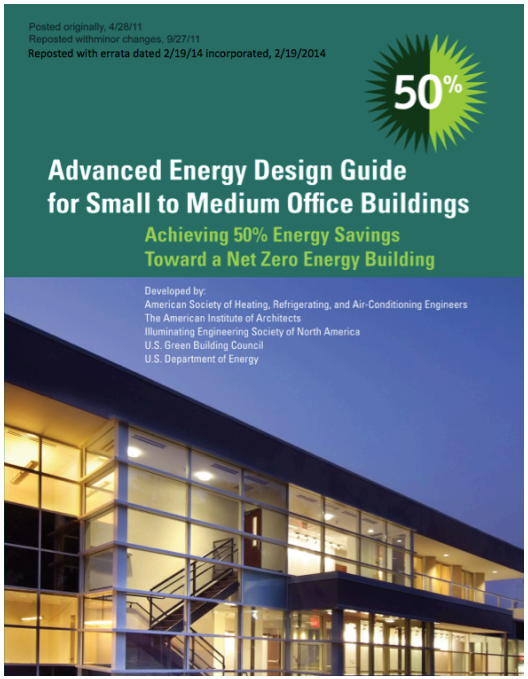
- Point Borrowers and Lenders to appropriate **resources** that can help with:
  - Business case, value proposition
  - Process and timing
  - Energy and non-energy benefits
  - Contractor qualifications
  - Evaluation methods
  - SBA services

- Encourage building owners to **make energy efficiency investments**

- Work with lenders to **understand benefits** of energy efficiency investments

Fact Sheets Point to Available Resources





There's a new focus on environmental responsibility, and as a small business owner, you can make a difference. Help protect our ecosystem and serve your customers who value your environmental efforts.

ARTICLE
Green Marketing
If you are already competitive in terms of price, quality and performance, adding sustainability and green marketing to your business strategy may enhance your brand image and secure your market...

ARTICLE
Green Business Case Studies
Find out about a few of the most well known green business and their commitments to economic success.

ARTICLE
Green Business Practices
Every business can make simple changes that save energy costs and natural resources. What can you do to Green Up Your Business?

ARTICLE
Green Certification and Ecolabeling
Ecolabeling is important way to market your product to green consumers and differentiate your product or service as environmentally sound. Learn more about

ARTICLE
Environmental Grants & Loans
Use the links below to help find financial resources to pay for energy efficient upgrades to your facilities, to finance your business's innovative environmental

ARTICLE
Green Commuting
Do you know your green commuting options? Learn more about green alternatives to your daily commute.

- ENERGY STAR
- Database of State Incentives for Renewables & Efficiency (DSIRE)

2030 DISTRICTS®

architecture 2030

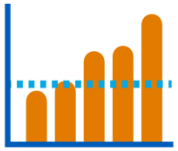
AMERICA SAVES!
Communities Saving Energy Together

How Can These Resources Help?

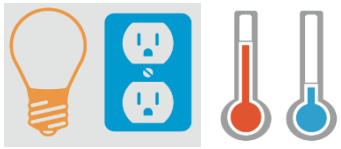
- Planning

- Setting efficiency goals

- Benchmarking



- Evaluating efficiency measures



- Economic analysis

- Guidance for measurement and verification and operations and maintenance

Make the Business Case

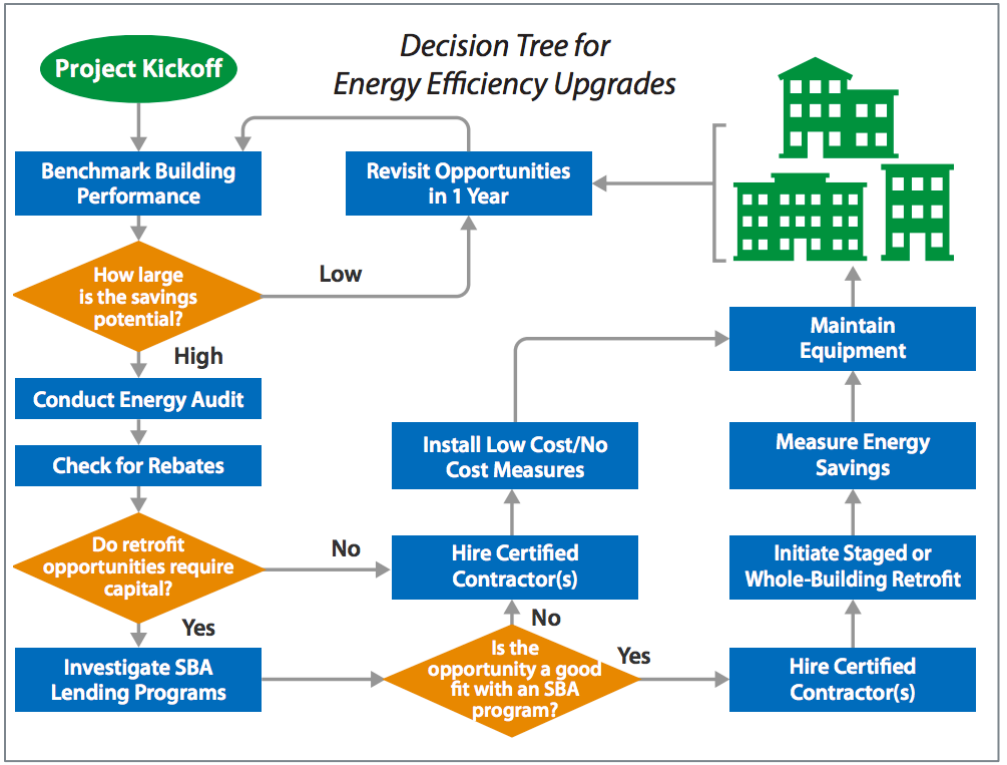
Investing in energy efficiency can:

- Reduce operating costs
- Lower utility bills
- Increase profits
- Improve indoor environmental quality
- Increase rental income and future value of real estate assets

- Increase marketability of products or services
- Enhance brand image

Additional Information

- Qualifications for auditors and contractors
- Common low- or no-cost energy savings opportunities
- SBA loan program options
- Positive and negative cash flows associated with energy efficiency investments
- Decision tree for energy efficiency upgrades



Low- or No-Cost Energy Savings Opportunities

Common Low- or No-Cost Energy Savings Opportunities

Envelope

- Repair broken windows and weather-strip/caulk windows and doors where drafts can be felt or there are visible signs of deterioration.
- Repair and air tighten broken and misaligned exterior doors.
- Add, repair or replace interior shading devices such as curtains and blinds.

Lighting and Plug Loads

- If lamps need to be replaced, use lower wattage versions (LEDs or fluorescents) that produce equivalent or superior light output and quality.
- Make sure lights and plug loads are turned off at night, and throughout the day when not needed.

Service Water Heating

- Repair any damaged or missing insulation on pipes and tanks.
- Repair leaky faucets.

HVAC: Heating and Cooling

- Replace manual thermostats with programmable thermostats, and turn down heating and cooling systems when the building is unoccupied.
- Apply upper and lower limits on heating and cooling temperature set points.
- Clean coils, burners, radiators, filters, and vents for major appliances or building equipment.
- Update and maintain a systems manual with operation and maintenance (O&M) requirements.
- Verify or establish a comprehensive maintenance protocol for HVAC equipment.
- Suspend ventilation during unoccupied period.

Building Operations

- Regularly check and confirm that aspects of the building are being operated as intended (window opening/closing, blinds to control solar gains, computer energy management settings) and look for possible operational improvements.
- Consolidate occupants to the extent possible, to reduce the need to condition and power underutilized space (applies mostly to office buildings).
- Recommission the building regularly (for example, balance air distribution, verify sensor operation, tune up boilers, etc.) to ensure the building equipment is operating at its maximum efficiency.

Building Controls

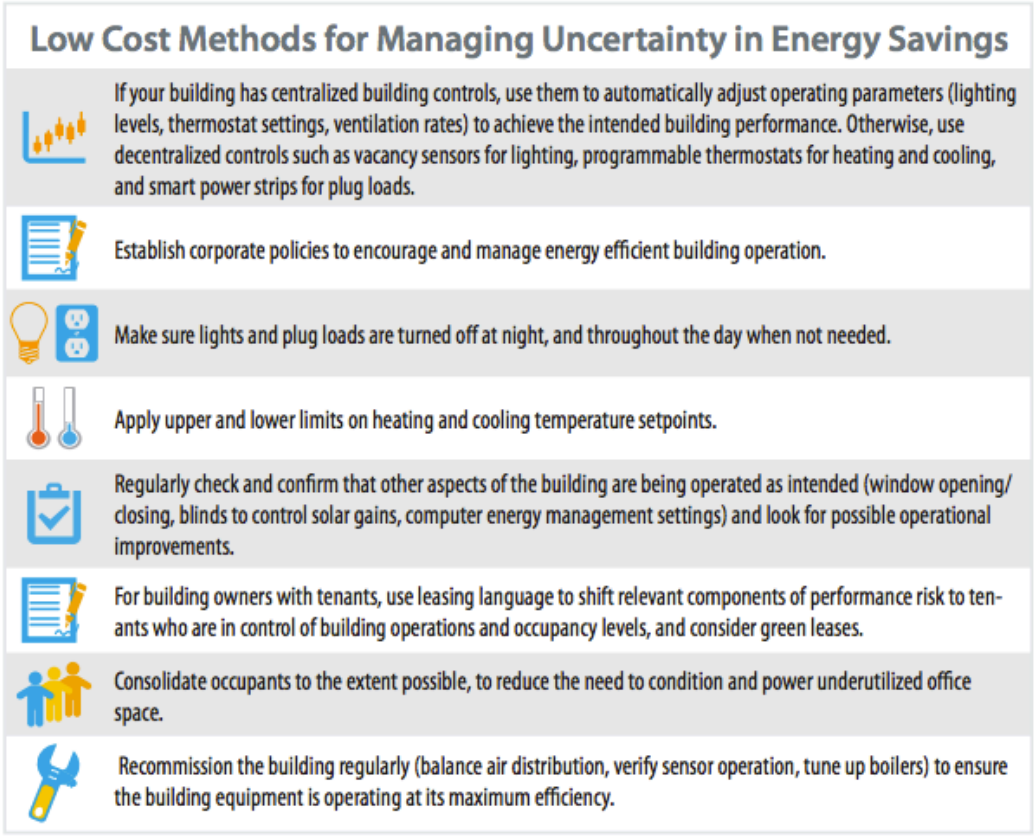
- If your building has a centralized building control system, use the controls to automatically adjust operating parameters (such as lighting levels, thermostat settings, ventilation rates) to achieve the intended building performance. Otherwise, use decentralized controls such as vacancy sensors for lighting, programmable thermostats for heating and cooling, and smart power strips for plug loads.

Policy

- Establish corporate policies to encourage and manage energy-efficient building operation.

Guides Help Lenders:

- Communicate value proposition
- Talk about timing
- Point borrowers to available resources
- Help borrowers understand positive and negative cash flows
- Point borrowers to SBA Partners for business case development



Low Cost Methods for Managing Uncertainty in Energy Savings

If your building has centralized building controls, use them to automatically adjust operating parameters (lighting levels, thermostat settings, ventilation rates) to achieve the intended building performance. Otherwise, use decentralized controls such as vacancy sensors for lighting, programmable thermostats for heating and cooling, and smart power strips for plug loads.

Establish corporate policies to encourage and manage energy efficient building operation.

Make sure lights and plug loads are turned off at night, and throughout the day when not needed.

Apply upper and lower limits on heating and cooling temperature setpoints.

Regularly check and confirm that other aspects of the building are being operated as intended (window opening/closing, blinds to control solar gains, computer energy management settings) and look for possible operational improvements.

For building owners with tenants, use leasing language to shift relevant components of performance risk to tenants who are in control of building operations and occupancy levels, and consider green leases.

Consolidate occupants to the extent possible, to reduce the need to condition and power underutilized office space.

Recommission the building regularly (balance air distribution, verify sensor operation, tune up boilers) to ensure the building equipment is operating at its maximum efficiency.

- Understand methods for managing uncertainty in energy savings
- Understand methods for evaluating efficiency projects

Why Should Lenders Care?

- Lower the risk of default
- Enhance customer's lending experience
- Enhance the brand image of your lending institution
- Secure market share among environmentally concerned customers
- Support missions to deliver services to underserved markets
- Help small businesses meet new building code requirements

NREL PIX #17205

Fact Sheet Questions

Ask us!

SBA Borrowers, Lenders, and Partners can submit questions to:

commercialbuildings@nrel.gov

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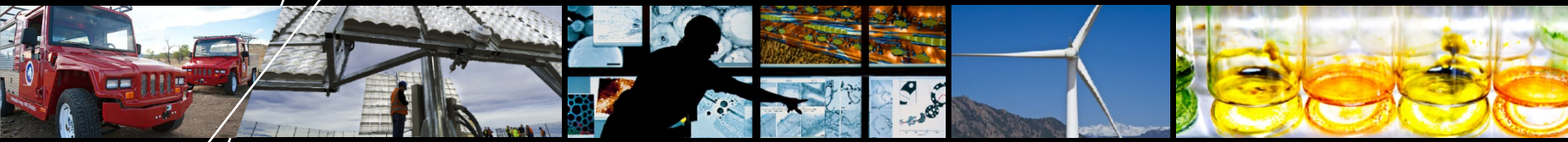

Thank you!