



# What you should know about Financing Energy Efficiency Upgrades

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Catalyst Financial Group, Inc.  
In Support of EPA's ENERGY STAR® Program  
2016



## Learning Objectives

In this session you will become familiar with **EPA ENERGY STAR®'s Cash Flow Opportunity Calculator** in addition to:

- Basic accounting considerations when structuring financing
- How most financial institutions segment the market
- Financing Agreements vs. Collection Vehicles
- Common Energy Savings Performance Contracts
- Commercial and Tax-Exempt Financing Options
- ENERGY STAR financing tools and resources
- A Word about:
  - PACE, OBR/OBF, Green Banks
- Finding money for your project

Today's Presenter:  
Neil Zabler





## What is ENERGY STAR?

- A government-backed, voluntary program that helps businesses and individuals protect the environment through superior energy performance by providing energy-efficient solutions for homes, businesses, and institutions
- The national symbol for environmental protection through energy efficiency, recognized by more than 85% of all U.S. households



# Savings Opportunities in Buildings

- Commercial buildings and industrial facilities generate about **50 percent** of U.S. carbon dioxide emissions
- **30 percent** of energy consumed in commercial and industrial buildings is wasted
- Reductions of **10 percent** in energy use can be possible with little or no cost
  - Reductions up to **40 percent** in energy use is possible if deep improvements are made



# ENERGY STAR Partnership

- **Align with a trusted brand** to communicate your energy management accomplishments
- ENERGY STAR partners **gain access** to a rich variety of promotional materials **and the ability to co-brand with ENERGY STAR**
- Partners **commit** to:
  - Measure/track/benchmark building energy use
  - Implement a plan to improve energy performance
  - Educate and communicate others about energy efficiency
- More information at <http://www.energystar.gov/buildings/about-us/become-energy-star-partner/online-partnership-agreement>





# A Distinction

- Financing Agreements
  - Loans
  - Leases
    - Taxable
    - Tax-Exempt
  - Bonds
  - Energy Service Performance Contracts
  - Etc.
- Collection Vehicles
  - Direct Billing
    - On-Bill Financing (OBF)
  - On-Bill Recovery (OBR)
  - PACE



# Accounting 101

## Capital Budget (Debt)

- **Payments beyond 12 months**
  - What is the approval process?
  - Ceiling on capital expenses?
  - Impact on credit rating



# Accounting 101

## Capital Budget (Debt)

- **Payments beyond 12 months**
  - What is the approval process?
  - Ceiling on capital expenses?
  - Impact on credit rating

## Operating Budget (Expense)

- **Payments within Operating Period (12 months)**
  - Already in utility payments
  - Easier approval process
  - Energy efficiency projects may provide access to captive funds for other needs

Public, private, and non-profit sector organizations face different challenges



# Lender's View of Market Sectors

- Residential (Consumer)
- Commercial and Industrial (Taxable)
- Municipal (Tax Exempt)
  - MUSH
- Federal
  - Termination for Convenience

# Energy Savings Performance Contracts





# What is an Energy Savings Performance Contract (ESPC)?

A service providing customers with a **comprehensive set of energy efficiency, renewable energy and distributed generation measures** often accompanied with **guarantees that the savings produced by a project will be sufficient to finance the full cost of the project.** A typical ESPC project is delivered by an Energy Service Company (ESCO) and consists of the following elements:

- Turnkey Service
- Comprehensive Measures
- Project Financing
- Project Savings Guarantee



# Components of an Energy Savings Performance Contract

Related but Independent Documents

- Project Development Agreement
- Energy Services Agreement
- Finance Agreement



# Components of an Energy Savings Performance Contract

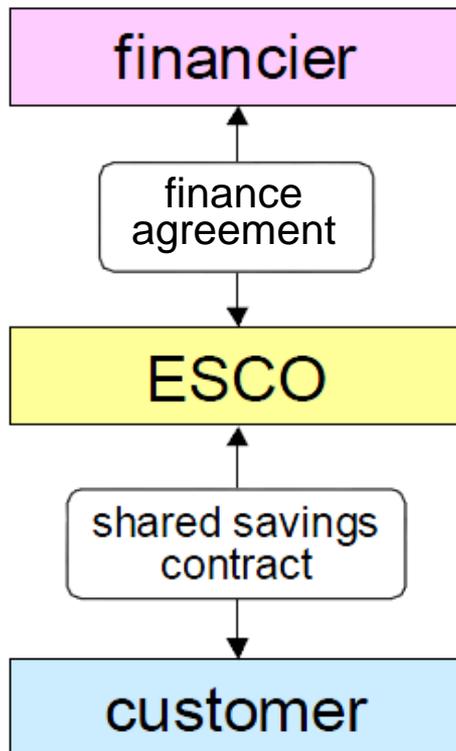
Related but Independent Documents

- Project Development Agreement
- Energy Services Agreement
- **Finance Agreement**

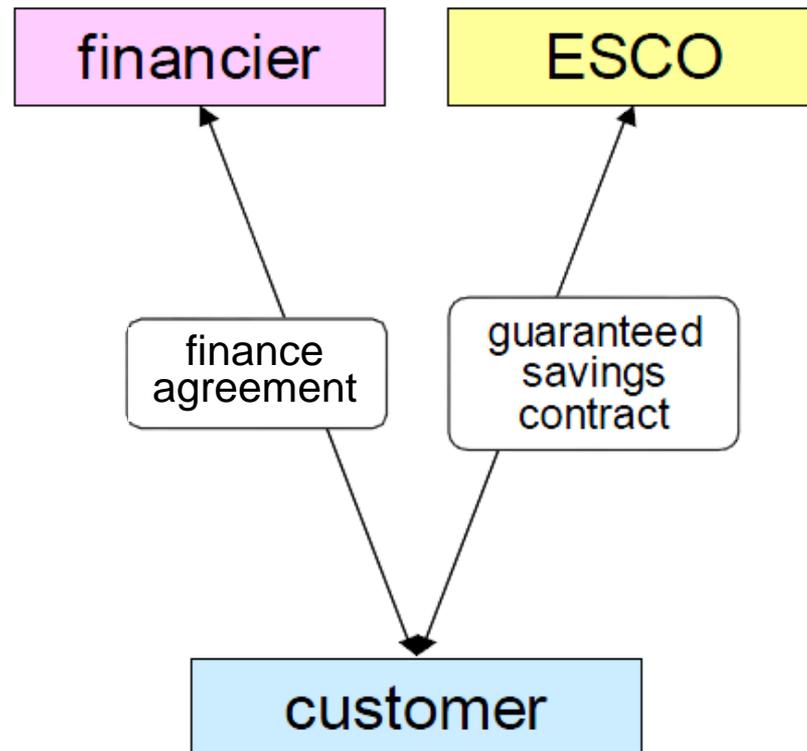


# Two Common ESPCs

## Shared Savings

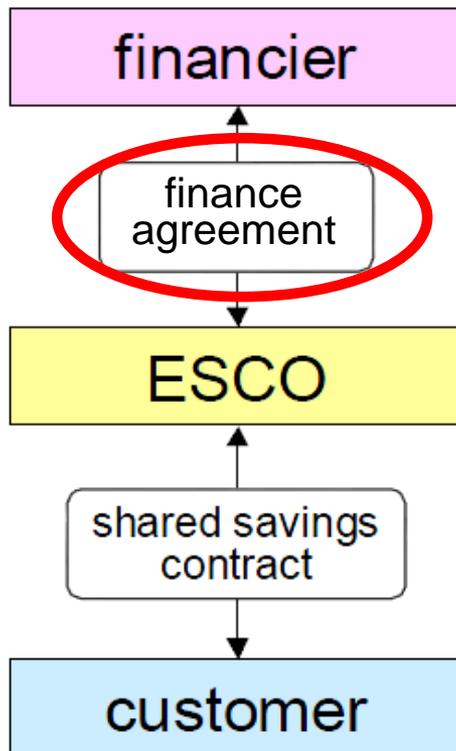


## Guaranteed Savings



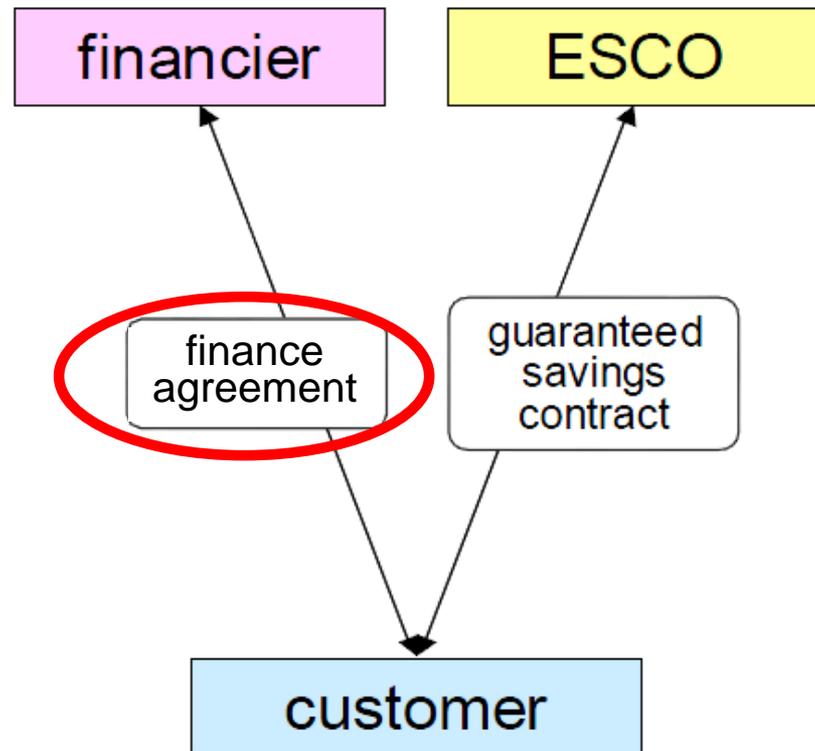
# Two Common ESPCs

## Shared Savings



**Less Common**

## Guaranteed Savings



**More Common**



## Other ESPC structures

- **Managed Energy Savings Agreement (MESA)**
  - Developer pays the building owner's on-going utility bill directly, pays for upgrades, and charges the building owner a fixed monthly fee.
- **Efficiency-Services Agreement (ESA)**
  - Equipment owned by the energy-efficiency company and not the host. Host continues to pay the utility bills and pays the energy-efficiency company a portion of the realized savings.



# Does your organization need an ESCO?

- Need help identifying potential projects?
- Need help implementing projects?
- Lack available and/or experienced staff to maintain the equipment?
- Need performance guarantees to obtain approval?
- Need help identifying and implementing Monitoring & Verification protocols?
- Have ready access to the funds needed to implement the project?



# Financial Products: Loans





# Loan Primer

- Common Features
  - Interest Rates Vary
    - Term
    - Type
      - Secured or unsecured
    - Size
    - Risk
  - Bank Loans Often:
    - Require Compensating Balances
    - Have Restrictive Covenants
      - i.e., maintain performance ratios, limit asset sales, etc.



# Financial Products: Commercial Leases





# Why do Customers Lease?

- Effective Tax Strategy
  - Avoid Depreciation
    - Section 179 Deduction reduced in 2015 to from \$500k to \$25k
- Effective financing strategy
  - May avoid debt coverage ratio issues
  - Off balance sheet treatment currently under review (FASB)
  - Allow third party to monetize tax credits and/or depreciation
- Facilitates creative “structuring”
  - Skip Payments
  - Step Payments
  - Arrears or Advance Payment
- Flexible!



## Topic 842 - FASB's Dual Approach to Leasing

- **TYPE A lease** (old “Capital Lease”)
    - Longer than 12 months
    - Installment purchase by the lessee
    - List payment in two categories:
      - Right-of-use (ROU)
      - Interest
  - **TYPE B lease** (old “Operating Lease”)
    - Recognize a single total lease expense
- 

**GASB** (governments) reconsidering classification



# Financial Products: Tax Exempt Financing





# Taxable vs. Tax Exempt

- Tax exempt = lower interest
  - No Federal Income tax on interest earned
- Public Sector can issue tax exempt (IRS)
  - Eminent Domain
  - Taxing Powers
  - Police Powers
- Private Sector & Large Non-profits must go through Conduit Agency to issue tax exempt
- Public sector does not pay taxes
  - Can't use tax incentives or strategies



# Tax Exempt Financing Examples

- **Short Term** (less than 12 months)
  - *Not usually relevant when dealing with EE projects*
- **Long Term** (greater than 12 months)
  - Bonds
    - Revenue Bonds
    - General Obligation Bonds
    - Many hybrids
  - Tax Exempt Lease Purchase Agreements
    - Certificates of Participation (COPS)
    - Master Leases



# Benefits of Tax-Exempt Lease-Purchase Agreements

- *Title* to the Equipment Rests with Lessee
- Access to Low Cost, *Tax-Exempt Funds*
- Payments may be Subject to *Annual Appropriation of Funds* by Lessee
- Accommodates *Construction Financing*
- Payments *in arrears*
- True Interest Cost (TIC) often less than bonds
- Faster closing
- Master Lease accommodates a variety of assets

# Mixed Financing

Think about combining:

- Grants
- Low Interest Loans
- Lease Financing
- Capital Contributions
- Etc.



*It's OK!*



**“We are paying for  
energy efficiency  
projects  
*whether or not*  
we do the projects!”**



# Financial Value Tools

- Building Upgrade Value Calculator – Commercial Real Estate

**Building Upgrade Value Calculator** For Office Properties  
Version 1.0

Use Sample Data  
Glossary  
Print

The Building Upgrade Value Calculator allows practitioners to analyze the financial value of capital investments in energy efficiency measures in commercial real estate. Enter the inputs below and select the "Calculate" button to determine the investment's financial and energy benefits. This tool presents the results in two ways: a printable report that summarizes the financial and energy results, and a letter that you can modify and use to make a compelling business case to fund the investment.

**Property Information**

Property Name   
 Square Footage   
 Annual Utility Bill

**Financial Information**

Analysis Term (years)   
 Discount Rate   
 Capitalization Rate   
**If Financing,**  
 Loan Period (in years)   
 Number of Loan Payments (per year)   
 Interest Rate

**Energy Project Information**

Measure	Cost	Annual Savings
Variable speed drive on pumps & cooling towers	\$202,850	\$185,200
Garage lighting retrofit	\$27,772	\$30,400
Electronic ballasts & T8's	\$122,050	\$162,400
VFD's on supply fans	\$128,800	\$175,500
1000 surge protectors with motion sensors	\$32,750	\$21,000
<b>Sub Total</b>	<b>\$524,222</b>	<b>\$474,500</b>

Additional Annual Savings for Labor and Supplies   
 ENERGY STAR Rating   
 Rebates (\$/sq)

Calculate Clear



# Financial Value Tools

- Building Upgrade Value Calculator – Commercial Real Estate
- Cash Flow Opportunity Calculator – All Sectors

**Building Upgrade Value Calculator** For Office Properties  
Version 1.0

Use Sample Data  
Glossary  
Print

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**Property Information**

Property Name: Sample Office Building  
 Square Footage: 500,000  
 Annual Utility Bill: \$1,050,000

**Financial Information**

Analysis Term (years): 10  
 Discount Rate: 8%  
 Capitalization Rate: 8%

**If Financing:**  
 Loan Period (in years): 5  
 Number of Loan Payments (per year): 12  
 Interest Rate: 8%

Calculate Clear

**Energy Project Information**

Measure	Cost	Annual Savings
Variable speed drive on pumps & cooling towers	\$202,850	\$185,200
Garage lighting retrofit	\$27,772	\$30,400
Electronic ballasts & T8's	\$122,050	\$162,400
VFD's on supply fans	\$128,800	\$175,500
1000 surge protectors with motion sensors	\$32,750	\$24,000
<b>Sub Total</b>	<b>\$524,222</b>	<b>\$477,500</b>

Additional Annual Savings for Labor and Supplies: \$5,000  
 ENERGY STAR Rating: 55  
 Rebates (\$/sq): \$20,000

HELP Using Benchmark Results from EPA's Portfolio Manager - DATA ENTRY TABLE

Name: Sample Facility Data Set

Select type of analysis: Using Benchmark Results from EPA's Portfolio Manager

Values: Sample Values

Using Benchmark Results from EPA's Portfolio Manager	SF	Annual energy costs (\$) - all fuel types	\$/SF	Savings target (%)	Potential annual savings
75 or better	200,000	\$150,000	\$0.75	10.00	\$15,000
between 50 and 74	350,000	\$400,000	\$1.14	20.00	\$80,000
between 25 and 49	300,000	\$500,000	\$1.67	30.00	\$150,000
below 25	150,000	\$450,000	\$3.00	40.00	\$180,000
<b>Total SF</b>	<b>1,000,000</b>	<b>\$1,500,000</b>	<b>\$1.50</b>	<b>28.33%</b>	<b>\$425,000</b>

ENERGY STAR® does not guarantee that your project will generate the results presented herein. An investment grade audit performed by a qualified engineering organization is required to determine the actual size of your savings opportunity.

# Quantifying the COST OF DELAY





## What Does it Do?

Addresses three critical questions about installing energy efficiency projects:

1. How much new energy efficiency equipment can be purchased from the anticipated savings?
2. Should this equipment purchase be financed now or is it better to wait and use cash from a future budget? (avoid paying interest)
3. Is money being lost by waiting for a lower interest rate?



# Energy Efficiency: A Cash Flow Opportunity



## CASH FLOW OPPORTUNITY CALCULATOR

Version 2.2 - May 2012

Please send any comments to Katy Hatcher, ENERGY STAR National Manager [Hatcher.Caterina@epa.gov](mailto:Hatcher.Caterina@epa.gov).

Developed by The Cadmus Group, Inc. and Catalyst Financial Group, Inc.,  
under contract with the U.S. EPA

**IMPORTANT NOTICE:** The macros imbedded in this spreadsheet must be enabled to use this calculator. To enable the macros using Microsoft Excel 2000, 2002, or 2003, please click on Tools > Macro > Security Level and select the "medium" (recommended) or "low" security level (not recommended as this "low" macro security option enables macros without giving you the option to enable/disable the macros). If you are using Microsoft Excel 2007, click Developer > Macros and select "Disable all macros with notification" option. Note that you will need to close all Excel applications after enabling the macros and reopen this worksheet. You must enable macros if and when prompted by the program upon opening. CAUTION: Macros in other spreadsheets may carry harmful programming codes. Do not enable macros from sources you do not trust.

This spreadsheet is designed to work with Microsoft Excel 97 or later versions for Windows OS. It may not work properly with earlier versions. It is best viewed with 1024x768 pixels or higher resolution.

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# Energy Efficiency: A Cash Flow Opportunity



*Don't forget to enable  
the Macros*



## CASH FLOW OPPORTUNITY CALCULATOR

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# “Data Entry” Tab



HELP

## User Generated Categories - DATA ENTRY TABLE

Name

Select type of analysis

Values

User Generated Categories	SF	Annual energy costs (\$) - all fuel types	\$/SF	Savings target (%)	Potential annual savings
Enter Category Name Here	0	\$0		0.00	
Enter Category Name Here	0	\$0		0.00	
Total energy costs (\$) - all fuel types					
	Total SF		\$/SF	Weighted savings target (%)	Total potential annual savings (\$)

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# “Data Entry” Tab



HELP

## User Generated Categories - DATA ENTRY TABLE

Name

Select type of analysis

Values

**← Click Here**

User Generated Categories	SF	Annual energy costs (\$) - all fuel types	\$/SF	Savings target (%)	Potential annual savings
Enter Category Name Here	0	\$0		0.00	
Enter Category Name Here	0	\$0		0.00	
Total energy costs (\$) - all fuel types					
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# “Data Entry” Tab

User Generated Categories  
 Using Benchmark Results from ENERGY STAR  
 Green Building Categories (LEED-EB O&M)  
 Water Wastewater Treatment Plants  
 By Efficiency Project Type (Building Upgrades & Tune-up)  
 Manufacturing Plants

User Generated Categories	SF	Annual energy costs (\$) - all fuel types	\$/SF	Savings target (%)	Potential annual savings										
Enter Category Name Here	0	\$0		0.00											
Enter Category Name Here	0	\$0		0.00											
<table border="1"> <thead> <tr> <th>Total SF</th> <th>Total energy costs (\$) - all fuel types</th> <th>\$/SF</th> <th>Weighted savings target (%)</th> <th>Total potential annual savings (\$)</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						Total SF	Total energy costs (\$) - all fuel types	\$/SF	Weighted savings target (%)	Total potential annual savings (\$)					
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# “Data Entry” Tab

HELP
**User Generated Categories - DATA ENTRY TABLE**

Name

Select type of analysis

Values

User Generated Categories	SF	Annual energy costs (\$) - all fuel types	\$/SF	Savings target (%)	Potential annual savings
High School #1	<b>350,000</b>	<b>\$1,000,000</b>	<b>\$2.86</b>	<b>25.00</b>	<b>\$250,000</b>
Middle School #3	<b>200,000</b>	<b>\$525,000</b>	<b>\$2.63</b>	<b>20.00</b>	<b>\$105,000</b>
		Total energy costs (\$) - all fuel types	\$/SF	Weighted savings target (%)	Total potential annual savings (\$)
		<b>550,000</b>	<b>\$2.77</b>	<b>23.28%</b>	<b>\$355,000</b>

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This tab “translates” project savings (i.e., kWh, therms, etc.) into dollars saved



# “Investment Values” Tab

## INVESTMENT OPPORTUNITY



HELP SAMPLE VALUES

---

**Potential Annual Savings = Cash Flow Opportunity**

	More efficient facility(s)	Less efficient facility(s)	Totals
Annual energy costs	\$1,000,000	\$525,000	<b>\$1,525,000</b>
Potential annual savings	\$250,000	\$105,000	<b>\$355,000</b>

**What Can \$355,000.00 of Annual Savings Buy?**

Assuming an interest rate of	5.00	%	
Assuming a term of	7	Year(s)	
Savings used to pay energy/retrofit investments	90.0	%	

**Calculate**

Taken from operating funds, these savings could finance energy/retrofit projects equal to

⚠ Project Cost

Additional Funding Required

Contribution that your operating budget can make towards energy improvements

Simple Payback

\$0
\$0
\$0.000
Year(s)
Month(s)

without increasing today's capital and operating budgets. (Note: Savings calculated on a monthly basis).

%110 of funds taken from operating funds entered automatically as an example. If desired, any rebate amount can be included in this cost.

Consider blending short- and long-term projects to maximize use of the savings.

[Important Notice](#)



# “Investment Values” Tab

## INVESTMENT OPPORTUNITY

HELP
SAMPLE VALUES

**Potential Annual Savings = Cash Flow Opportunity**

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**Calculate**

Taken from operating funds, these savings could finance energy/retrofit projects equal to

Project Cost **\$0**

Additional Funding Required \$0

Contribution that your operating budget can make towards energy improvements \$0.000

Simple Payback

without increasing today's capital and operating budgets. (Note: Savings calculated on a monthly basis).

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## INVESTMENT OPPORTUNITY



HELP SAMPLE VALUES

**Potential Annual Savings = Cash Flow Opportunity**

	More efficient facility(s)	Less efficient facility(s)	Totals
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**What Can \$355,000.00 of Annual Savings Buy?**

Assuming an interest rate of	5.00	%	<div style="border: 2px solid red; border-radius: 50%; padding: 10px; display: inline-block; background-color: green; color: white; font-weight: bold; font-size: 1.2em;">Calculate</div>
Assuming a term of	7	Year(s)	
Savings used to pay energy/retrofit investments	90.0	%	

Taken from operating funds, these savings could finance energy/retrofit projects equal to

Project Cost ⚠ **\$0**

Additional Funding Required **\$0**

Contribution that your operating budget can make towards energy improvements **\$0.000**

Simple Payback

without increasing today's capital and operating budgets. (Note: Savings calculated on a monthly basis).

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# “Investment Values” Tab

## INVESTMENT OPPORTUNITY



HELP

SAMPLE  
VALUES

ENERGY STAR

### Potential Annual Savings = Cash Flow Opportunity

	More efficient facility(s)	Less efficient facility(s)	Totals
Annual energy costs	\$1,000,000	\$525,000	\$1,525,000
Potential annual savings	\$250,000	\$105,000	\$355,000

### What Can \$355,000.00 of Annual Savings Buy?

Reset

Assuming an interest rate of	5.00	%
Assuming a term of	7	Year(s)
Savings used to pay energy/retrofit investments	90.0	%

Taken from operating funds, these savings could finance energy/retrofit projects equal to

**\$1,883,800**

without increasing today's capital and operating budgets. (Note: Savings calculated on a monthly basis).

Project Cost	\$2,072,180	
Additional Funding Required	\$188,380	
Contribution that your operating budget can make towards energy improvements	\$9.419	/SF
Simple Payback	5	Year(s)
		Month(s)

%110 of funds taken from operating funds entered automatically as an example. If desired, any rebate amount can be included in this cost.

Consider blending short- and long-term projects to maximize use of the savings.

[Important Notice](#)



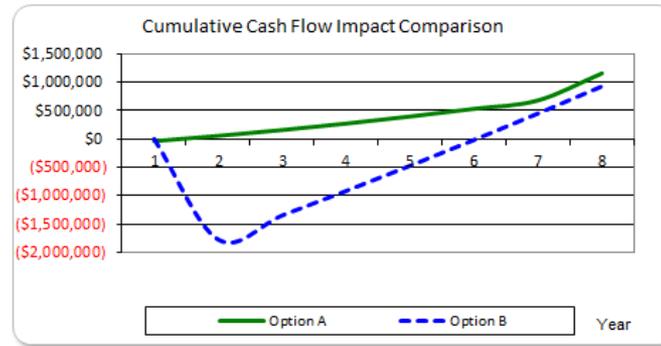
# “Cash Flow” Tab



HELP SAMPLE VALUES

## COST OF DELAY and CASH FLOW ANALYSIS

Amount Financed	1,883,800	\$
Simple payback	5	years
	0	month(s)
Interest rate	5.00	%
Financing term	7	years
Year(s) postponed	1	years
Project cost increase due to postponement	5.00	%
Estimated energy cost change in year 2	10.00	%
Annual change in energy costs after year 2	2.50	%
Estimated energy savings in year 1	75.00	%



These cash flow calculations are on a pretax basis.  
 For purposes of this calculation, all cash flows are being discounted at the interest rate indicated in cell G7 - financing paid monthly in arrears.

<b>Net Present Value of Option A (Fast Track Financing)</b>	<b>\$857,589</b>	<b>\$455,734</b>	<b>Net Present Value of Option B (Waiting for Cash)</b>
---	------------------	------------------	---

**Fast Track Financing generates \$401,855 or 88% more cash than waiting!**

Year	Option A (Fast Track Financing)				Option B (Waiting for Cash)			
	Savings	Project Cost including financing	Annual Cash Flow	Cumulative Cash Flow	Savings	Project Cost	Annual Cash Flow	Cumulative Cash Flow
1	\$281,176	(\$319,505)	(\$38,329)	(\$38,329)	\$0	\$0	\$0	\$0
2	\$412,391	(\$319,505)	\$92,886	\$54,556	\$309,294	(\$2,082,990)	(\$1,773,696)	(\$1,773,696)
3	\$422,701	(\$319,505)	\$103,196	\$157,752	\$422,701	\$0	\$422,701	(\$1,350,995)
4	\$433,269	(\$319,505)	\$113,763	\$271,516	\$433,269	\$0	\$433,269	(\$917,726)
5	\$444,101	(\$319,505)	\$124,595	\$396,111	\$444,101	\$0	\$444,101	(\$473,626)
6	\$455,203	(\$319,505)	\$135,698	\$531,808	\$455,203	\$0	\$455,203	(\$18,423)
7	\$466,583	(\$319,505)	\$147,078	\$678,886	\$466,583	\$0	\$466,583	\$448,160
8	\$478,248	\$0	\$478,248	\$1,157,133	\$478,248	\$0	\$478,248	\$926,408

Important Notice



# “Cash Flow” Tab

Amount Financed	1,883,800	\$
Simple payback	5	years
	0	month(s)
Interest rate	5.00	%
Financing term	7	years
Year(s) postponed	1	years
Project cost increase due to postponement	5.00	%
Estimated energy cost change in year 2	10.00	%
Annual change in energy costs after year 2	2.50	%
Estimated energy savings in year 1	75.00	%

### OF DELAY and CASH FLOW ANALYSIS

Cash Flow Impact Comparison

Option A (solid green line) represents Fast Track Financing, and Option B (dashed blue line) represents Waiting for Cash. The graph shows that Option A consistently has a higher cash flow over the 8-year period.

Net Present Value of Option B (Waiting for Cash): \$5,734

**Fast Track Financing generates \$401,855 or 88% more cash than waiting!**

Year	Option A (Fast Track Financing)				Option B (Waiting for Cash)			
	Savings	Project Cost including financing	Annual Cash Flow	Cumulative Cash Flow	Savings	Project Cost	Annual Cash Flow	Cumulative Cash Flow
1	\$281,176	(\$319,505)	(\$38,329)	(\$38,329)	\$0	\$0	\$0	\$0
2	\$412,391	(\$319,505)	\$92,886	\$54,556	\$309,294	(\$2,082,990)	(\$1,773,696)	(\$1,773,696)
3	\$422,701	(\$319,505)	\$103,196	\$157,752	\$422,701	\$0	\$422,701	(\$1,350,995)
4	\$433,269	(\$319,505)	\$113,763	\$271,516	\$433,269	\$0	\$433,269	(\$917,726)
5	\$444,101	(\$319,505)	\$124,595	\$396,111	\$444,101	\$0	\$444,101	(\$473,626)
6	\$455,203	(\$319,505)	\$135,698	\$531,808	\$455,203	\$0	\$455,203	(\$18,423)
7	\$466,583	(\$319,505)	\$147,078	\$678,886	\$466,583	\$0	\$466,583	\$448,160
8	\$478,248	\$0	\$478,248	\$1,157,133	\$478,248	\$0	\$478,248	\$926,408

Important Notice



# “Cash Flow” Tab

HELP SAMPLE VALUES

**COST OF DELAY and CASH FLOW ANALYSIS**

Amount Financed	1,883,800	\$
Simple payback	5	years
	0	month(s)
Interest rate	5.00	%
Financing term	7	years
Year(s) postponed	1	years
Project cost increase due to postponement	5.00	%
Estimated energy cost change in year 2	10.00	%
Annual change in energy costs after year 2	2.50	%
Estimated energy savings in year 1	75.00	%

Cumulative Cash Flow Impact Comparison

These cash flow calculations are on a pretax basis.  
For purposes of this calculation, all cash flows are being discounted at the interest rate indicated in cell G7 - financing paid monthly in arrears.

**Net Present Value of Option A  
(Fast Track Financing)**

**\$857,589**

**\$455,734**

**Net Present Value of Option B  
(Waiting for Cash)**

**Fast Track Financing generates \$401,855 or 88% more cash than waiting!**

Year	Option A (Fast Track Financing)				Option B (Waiting for Cash)			
	Savings	Project Cost including financing	Annual Cash Flow	Cumulative Cash Flow	Savings	Project Cost	Annual Cash Flow	Cumulative Cash Flow
1	\$281,176	(\$319,505)	(\$38,329)	(\$38,329)	\$0	\$0	\$0	\$0
2	\$412,391	(\$319,505)	\$92,886	\$54,556	\$309,294	(\$2,082,990)	(\$1,773,696)	(\$1,773,696)
3	\$422,701	(\$319,505)	\$103,196	\$157,752	\$422,701	\$0	\$422,701	(\$1,350,995)
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7	\$466,583	(\$319,505)	\$147,078	\$678,886	\$466,583	\$0	\$466,583	\$448,160
8	\$478,248	\$0	\$478,248	\$1,157,133	\$478,248	\$0	\$478,248	\$926,408

[Important Notice](#)



# “Cash Flow” Tab

HELP SAMPLE VALUES

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7	\$466,583	(\$319,505)	\$147,078	\$678,886
8	\$478,248	\$0	\$478,248	\$1,157,133

**Net Present Value of Option B (Waiting for Cash)**

waiting!

Annual Cash Flow	Cumulative Cash Flow
\$0	\$0
(\$1,773,696)	(\$1,773,696)
\$422,701	(\$1,350,995)
\$433,269	(\$917,726)
\$444,101	(\$473,626)
\$455,203	(\$18,423)
\$466,583	\$448,160
\$478,248	\$926,408

Important Notice

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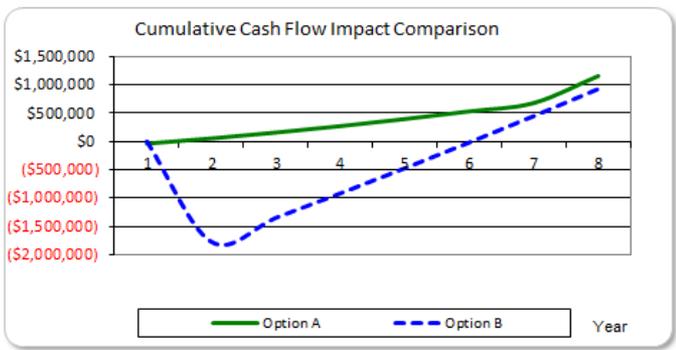


# “Cash Flow” Tab

HELP SAMPLE VALUES

## COST OF DELAY and CASH FLOW ANALYSIS

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Simple payback	5	years
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These cash flow calculations are on a pretax basis.  
 For purposes of this calculation, all cash flows are being discounted at the interest rate indicated in cell G7 - financing paid monthly in arrears.

<b>Net Present Value of Option A (Fast Track Financing)</b>	<b>\$857,589</b>	<b>Net Present Value of Option B (Waiting for Cash)</b>
---	------------------	---

**Fast Track Financing generates \$401,855 or 88% more cash than waiting!**

Year	Option A (Fast Track Financing)				Option B (Waiting for Cash)			
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[Important Notice](#)



# “Interest Rate” Tab

ENERGY STAR		HELP	SAMPLE VALUES	COST OF DELAY - Comparative Interest Rate Analysis			
Interest rate of higher financing	5.00	%		Month	Balance at beginning of month	Amount lost in monthly utility bills	Balance at end of month
Interest rate of a lower financing	4.00	%		1	\$188,900	\$31,400	\$157,400
Cost of the equipment	\$3,350,000			2	\$157,400	\$31,400	\$126,000
Simple payback	8	year(s)		3	\$126,000	\$31,400	\$94,600
	11	month(s)		4	\$94,600	\$31,400	\$63,200
Potential annual savings	\$377,097			5	\$63,200	\$31,400	\$31,700
Term of financing	12	year(s)		6	\$31,700	\$31,400	\$300
<b>Lower interest rate savings*</b>	<b>\$188,900</b>			7	\$300	\$31,400	(\$31,100)
Amount lost in utility bills	\$31,400	/month		8	(\$31,100)	\$31,400	(\$62,500)
<b>Break-Even Point</b>	<b>6.0</b>	month(s)		9	(\$62,500)	\$31,400	(\$94,000)
				10	(\$94,000)	\$31,400	(\$125,400)
				11	(\$125,400)	\$31,400	(\$156,800)
				12	(\$156,800)	\$31,400	(\$188,200)

\*Lower Interest Rate Savings number is calculated by taking the NPV of the difference between the two monthly payments (immediate versus lower financing rates), discounted at the lower interest rate.

[Important Notice](#)



# “Interest Rate” Tab

ENERGY STAR			COST OF DELAY - Comparative Interest Rate Analysis																																																				
Interest rate of higher financing	5.00	%	<table border="1"> <thead> <tr> <th>Month</th> <th>Balance at beginning of month</th> <th>Amount lost in monthly utility bills</th> <th>Balance at end of month</th> </tr> </thead> <tbody> <tr><td>1</td><td>\$188,900</td><td>\$31,400</td><td>\$157,400</td></tr> <tr><td>2</td><td>\$157,400</td><td>\$31,400</td><td>\$126,000</td></tr> <tr><td>3</td><td>\$126,000</td><td>\$31,400</td><td>\$94,600</td></tr> <tr><td>4</td><td>\$94,600</td><td>\$31,400</td><td>\$63,200</td></tr> <tr><td>5</td><td>\$63,200</td><td>\$31,400</td><td>\$31,700</td></tr> <tr><td>6</td><td>\$31,700</td><td>\$31,400</td><td>\$300</td></tr> <tr><td>7</td><td>\$300</td><td>\$31,400</td><td>(\$31,100)</td></tr> <tr><td>8</td><td>(\$31,100)</td><td>\$31,400</td><td>(\$62,500)</td></tr> <tr><td>9</td><td>(\$62,500)</td><td>\$31,400</td><td>(\$94,000)</td></tr> <tr><td>10</td><td>(\$94,000)</td><td>\$31,400</td><td>(\$125,400)</td></tr> <tr><td>11</td><td>(\$125,400)</td><td>\$31,400</td><td>(\$156,800)</td></tr> <tr><td>12</td><td>(\$156,800)</td><td>\$31,400</td><td>(\$188,200)</td></tr> </tbody> </table>	Month	Balance at beginning of month	Amount lost in monthly utility bills	Balance at end of month	1	\$188,900	\$31,400	\$157,400	2	\$157,400	\$31,400	\$126,000	3	\$126,000	\$31,400	\$94,600	4	\$94,600	\$31,400	\$63,200	5	\$63,200	\$31,400	\$31,700	6	\$31,700	\$31,400	\$300	7	\$300	\$31,400	(\$31,100)	8	(\$31,100)	\$31,400	(\$62,500)	9	(\$62,500)	\$31,400	(\$94,000)	10	(\$94,000)	\$31,400	(\$125,400)	11	(\$125,400)	\$31,400	(\$156,800)	12	(\$156,800)	\$31,400	(\$188,200)
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[Important Notice](#)



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[Important Notice](#)



# Cash Flow Opportunity Calculator

The screenshot shows the Energy Star website header with navigation links: ABOUT ENERGY STAR, PARTNER RESOURCES, and a search bar. Below the header is the Energy Star logo and the tagline "The simple choice for energy efficiency." A horizontal menu contains four links: ENERGY EFFICIENT products, ENERGY SAVINGS at home, ENERGY EFFICIENT new homes, and ENERGY STRATEGIES FOR buildings & plants. The last link is circled in red with a red arrow pointing to it. Below the menu is a large banner for "ENERGY STAR Certified Plants Accrue Big Savings" with a "READ MORE" button. To the right is a blue box with the EPA logo and text about the program. Below that is an orange box titled "ENERGY STAR RESULTS" with a "See Climate Change" link.

[www.energystar.gov](http://www.energystar.gov)

# Cash Flow Opportunity Calculator

The screenshot shows the Energy Star website's 'Buildings & Plants' section. The top navigation bar includes the Energy Star logo and the tagline 'The simple choice for energy efficiency.' Below this are four main categories: 'ENERGY EFFICIENT products', 'ENERGY SAVINGS at home', 'ENERGY EFFICIENT new homes', and 'ENERGY STRATEGIES FOR buildings & plants'. A red arrow points to the 'Buildings & Plants' link in the top navigation bar. Below the navigation bar is a secondary menu with 'Home', 'Buildings & Plants', 'join us', 'about us', 'press room', 'help desk', and 'portfolio manager login'. The main content area features a large banner with the text 'Environmental protection and financial value. Achieve them both with help from ENERGY STAR.' and a cityscape image. To the right of the banner is a text block about Energy Star's impact. Below the banner is a section titled 'How Can We Help You?' with four main categories: 'Build an energy program', 'Benchmark energy use', 'Improve energy performance', and 'ENERGY STAR in action'. A red arrow points to the 'Financing strategies and incentives' link under 'Build an energy program'. To the right is a 'SPOTLIGHT' section featuring a photo of 'THE LOREE GRAND' building and text about its benchmarking.

Home

**Buildings & Plants** | join us | about us | press room | help desk | portfolio manager login

Owners and managers | Service providers | Program administrators | **Tools and Resources** | Training

**Environmental protection and financial value.**  
Achieve them both with help from ENERGY STAR.

ENERGY STAR is about more than products. In fact, since 1992, EPA has also worked with organizations to help them save money and reduce greenhouse gas emissions by making their buildings and plants more energy efficient.

Every year, they're saving more than \$9 billion and preventing nearly 135 million metric tons of greenhouse gas emissions from entering our atmosphere. Learn how ENERGY STAR can help you create a better building, a better bottom line, and a better world.

### How Can We Help You?

- Build an energy program**
  - Guidelines for energy management
  - The business case for energy
  - Financing strategies and incentives**
- Benchmark energy use**
  - Learn about benchmarking
  - Use ENERGY STAR tools
- Improve energy performance**
  - Improve commercial buildings
  - Find guidance for design projects
  - Manage energy use in manufacturing
  - Develop programs and policies
- ENERGY STAR in action**
  - Programs and policies leveraging ENERGY STAR
  - Green buildings and ENERGY STAR

**SPOTLIGHT**

**THE LOREE GRAND**

This community began benchmarking in Portfolio Manager soon after construction concluded in 2010.

Download at: <http://www.energystar.gov/buildings/tools-and-resources/financial-resources>



# Cash Flow Opportunity Calculator

The screenshot shows the Energy Star website's 'Tools and Resources' section. At the top, there is a navigation bar with 'ABOUT ENERGY STAR' and 'PARTNER RESOURCES' links, and a search bar. Below this is the Energy Star logo and the tagline 'The simple choice for energy efficiency.' followed by four main categories: 'ENERGY EFFICIENT products', 'ENERGY SAVINGS at home', 'ENERGY EFFICIENT new homes', and 'ENERGY STRATEGIES FOR buildings & plants'. A breadcrumb trail reads 'Home » Buildings & Plants » Tools and Resources'. A secondary navigation bar includes 'Owners and managers', 'Service providers', 'Program administrators', 'Tools and Resources' (which is highlighted), and 'Training'. Below this, a 'Tools and Resources' section is titled 'NEW & NOTEWORTHY' and features three tool cards. The third card, 'Cash Flow Opportunity Calculator', is circled in red with a red arrow pointing to it. To the right of the tool cards is a search bar labeled 'search library' and a list of filters under 'Browse tools and resources by:'. The 'Topic' filter includes 'Commercial building design (9)', 'Energy management guidance (132)', 'Financial (15)', 'Portfolio Manager (77)', 'Products and purchasing (4)', 'Recognition (57)', and 'Target Finder (3)'. The 'Resource type' filter includes 'Campaigns (31)', 'Communication/educational tools (120)', and 'Research and reports (99)'.

Home » Buildings & Plants » Tools and Resources

join us | about us | press room | help desk | portfolio manager login

Owners and managers | Service providers | Program administrators | **Tools and Resources** | Training

## Tools and Resources

NEW & NOTEWORTHY

Portfolio Manager quick start guide

ENERGY STAR Treasure Hunt Guide: Simple Steps to Find Energy Savings

**Cash Flow Opportunity Calculator**

Commercial building design (9)  
Energy management guidance (132)  
Financial (15)  
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# Cash Flow Opportunity Calculator

ENERGY STAR

SEARCH

ENERGY EFFICIENT products | ENERGY SAVINGS at home | ENERGY EFFICIENT new homes | ENERGY STRATEGIES FOR buildings & plants

ABOUT ENERGY STAR | PARTNER RESOURCES

Home » Buildings & Plants » Cash Flow Opportunity Calculator

join us | about us | press room | help desk | portfolio manager login

Owners and managers | Service providers | Program administrators | **Tools and Resources** | Training

## Cash Flow Opportunity Calculator

[< Back to search results](#)

The Cash Flow Opportunity Calculator helps inform strategic decisions about financing energy efficiency projects. Using the tool, you will be able to estimate how much new equipment you can finance using anticipated savings, as well whether you should finance now or wait for a lower interest rate. Use the CFO Calculator to get answers to critical questions, such as:

- How much new energy efficiency equipment can be purchased from the anticipated savings?
- Should this equipment purchase be financed now, or is it better to wait and use cash from a future budget?

[Download the Cash Flow Opportunity Calculator as an Excel file here.](#) (797KB)

Topic: Energy Management

<b>Energy Efficient Products</b> Find ENERGY STAR Products Energy Savings at Home Take the Pledge Learn about Climate Change	<b>Energy Savings At Home</b> Start Saving Now Take the Pledge Home Assessment Tools Seal and Insulate Your Home	<b>Energy Efficient New Homes</b> Find Builders and Incentives Home Features and Benefits Homeowner Testimonials	<b>Energy Strategies for Buildings &amp; Plants</b> Facility Owners & Managers Service Providers Energy Efficiency Program Administrators Tools & Resources	<b>ENERGY STAR Home</b> Recursos en Español Publications Contact Us   FAQs Newsroom Kids
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ENERGY STAR

EPA Home | DOE Home

[http://www.energystar.gov/sites/default/files/buildings/tools/cfo\\_calculator.xls](http://www.energystar.gov/sites/default/files/buildings/tools/cfo_calculator.xls)

# A word about:

- **Property Assessed Clean Energy**
- **On-Bill Recovery/On-Bill Finance**
- **Green Banks**





## A Word About PACE

- Property Assessed Clean Energy (PACE)
  - Innovative way to finance energy efficiency and renewable energy upgrades to buildings
    - Can overcome “split incentives” hurdle
  - Interested property owners can receive 100% financing
  - Repaid as a property tax assessment (up to 20 years)
    - Must pay property tax to use (excludes public sector and large non-profits)
    - Technically not a “loan”
  - 31 states and the District of Columbia adopted legislation

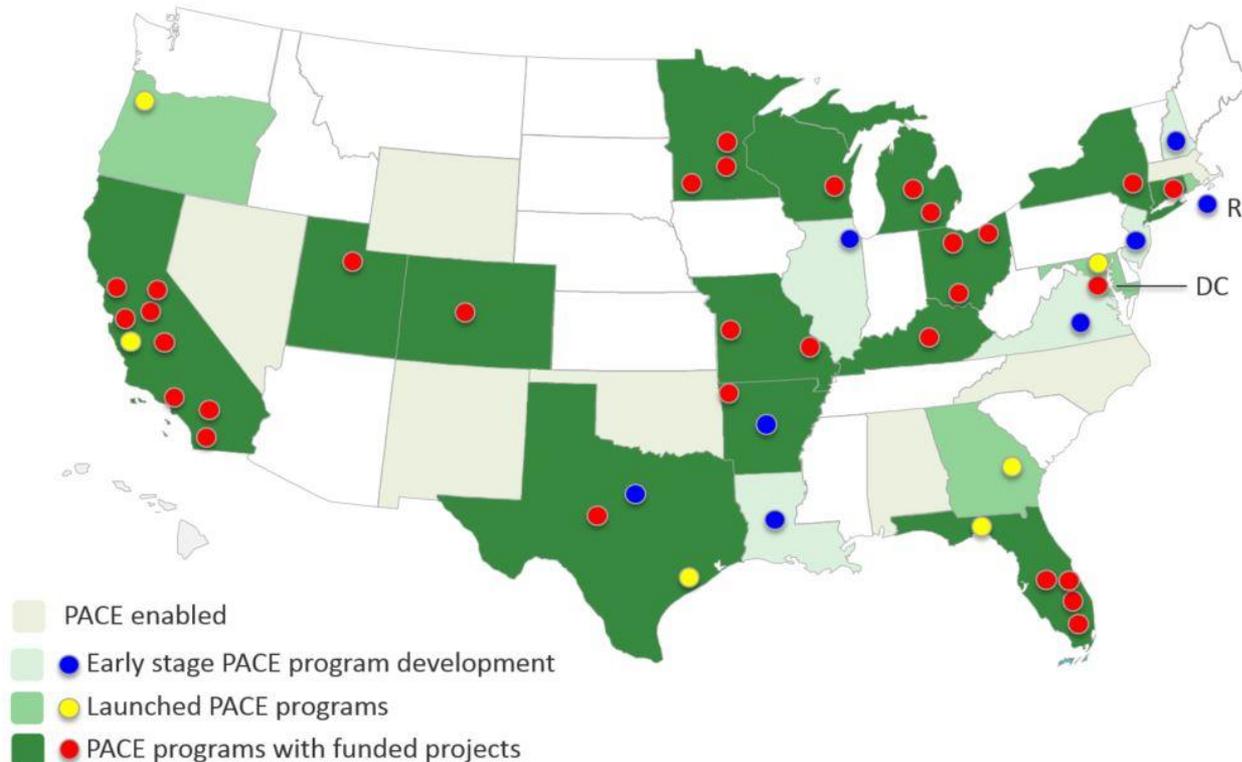


## How Does PACE Work?

- A municipal government establishes a type of land or real property secured benefit district
- Property owners *voluntarily* choose to participate
- Contractor assesses the scope of EE improvements
- The municipality provides financing typically by selling bonds secured by payments made from participating property owners
- Participating property owners agree to accept a property tax assessment or charge for up to 20 years

# Is PACE Available in your State?

- Commercial and Residential Programs





## A Word About OBF and OBR

- On Bill Financing
  - Billing services provided by utility
  - Funds provided by **utility**
- On Bill Recovery
  - Billing services provided by utility
  - Funds provided by **a third party**
- Specifics vary by state & utility
  - Term, bill to meter or owner, etc.



# A Word About GREEN BANKS

- A green bank is a **financial organization** that uses strategic **public-private partnerships** to **overcome market barriers** and increase the amount of private capital available to **finance clean energy projects.**



# Goal of a GREEN BANK

- Increase investment in clean energy projects in a given geographic area by engaging the private sector
  - **Identify** underserved clean energy lending markets
  - **Partner** with private sector lenders to fill the gap while the private sector works to develop capacity
  - **Transition** financing to private sector as capacity develops

- **Common Barriers to Financing**
  - **Transactional Issues (Size, Complexity, Standardization)**
  - **Misperception of Risk (New Markets, New Technologies, Lack of Performance History)**
  - **Structural Issues (Split Incentives, Timeframe Mismatches)**
  - **Expensive Capital (Low Volumes, No Secondary Markets)**

# State Campaigns



1. California

2. Colorado

3. Connecticut

4. Hawaii

5. Illinois

6. Kentucky

7. Maryland

8. Massachusetts

9. Minnesota

10. Missouri

11. Nevada

12. New Hampshire

13. New Jersey

14. New York

15. Rhode Island

16. Vermont

17. Washington

Source: <http://www.coalitionforgreencapital.com>



# Finding Money For Your Project





# Where to start?

- State Energy Office
  - NASEO.org
    - National Association of State Energy Officials
- DSIREUSA.org
  - Database of State Incentives for Renewables & Efficiency



# Finding Money for your Project

- Different Funders offer different types of financing
  - Tax Exempt (public sector)
  - Taxable (private sector)
- Funder Demographics
  - Large-Ticket (Over \$5 Million)
  - Middle-Ticket (\$250,000 - \$5 Million)
  - Small-Ticket (\$25,000 - \$249,999)
  - Micro-Ticket (Less Than \$25,000)



# Finding Money for your Project

- State Specific Programs
- Money Center Banks
- Regional Banks
- Community and Local Banks
  - including S&Ls and Credit Unions
- Independent Commercial Equipment Leasing and Finance Companies
- Bank Owned Leasing Companies
- Captive Financing Companies
- Specialty EE Finance Companies
- Other Non-Traditional Lenders
  - Local or Regional Community Development Corporations
  - Economic Development Corporations
  - Non-Profit Revolving Loan Funds



# Questions?

Email: [buildings@energystar.gov](mailto:buildings@energystar.gov)

Visit: [www.energystar.gov](http://www.energystar.gov)

Katy Hatcher, US EPA  
National Manager, Public Sector  
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