Commercial PACE: Updates from the Field & New Resources for Design and Implementation

March 19th, 2013

DOE’s Technical Assistance Program
Commercial PACE: Updates from the Field & New Resources for Design and Implementation

March 18\textsuperscript{th}, 2013

DOE’s Technical Assistance Program
Agenda

• Welcome & Introduction of Technical Assistance Program: Molly Lunn, U.S. DOE

• Commercial PACE Update & New Resources: Cisco DeVries, Renewable Funding

• Experiences from the Field:
  – Rich Chien, City & County of San Francisco
  – Genevieve Sherman, State of Connecticut
  – Jeremy Kalin, Eutectics Consulting/Minnesota PACE

• Q&A and Next Steps
DOE’s Technical Assistance Program

**Priority Areas**
- Strategic Energy Planning
- Program & Policy Design and Implementation
- Financing Strategies
- Data Management and EM&V
- EE & RE Technologies

**Resources**
- General Education (e.g., fact sheets, 101s)
- Case Studies
- Tools for Decision-Making
- Protocols (e.g., how-to guides, model documents)

**Peer Exchange & Trainings**
- Webinars
- Conferences & in-person trainings
- Better Buildings Project Teams

**One-on-One**
- Level of effort will vary
- In-depth efforts will be focused on:
  - High impact efforts
  - Opportunities for replicability
  - Filling gaps in the technical assistance marketplace
Priority Area: Financing Strategies

• **Resources**
  - *Commercial PACE materials* live now on DOE Solution Center
  - Also featured: *DOE’s Clean Energy Finance Guide* & other finance resources
  - Improved Solution Center portal for finance resources live later this year

• **Peer exchange & trainings**
  - One-time national peer exchange – follow up session next week, *Local Trends in Clean Energy Finance, Wednesday, March 27th*
  - Long-term small group peer exchange – join the *Better Buildings Project Team for Financing Strategies, kicking off in May*
  - Additional national webinars, including – *Guidelines for Developing a State ESPC Program (March 26th)* and *Financing Energy Upgrades for K-12 School Districts (April 11th)*

• Apply for **one-on-one assistance** and **peer matching**
Tap into Commercial PACE Resources

Visit our Commercial PACE pages on the TAP Solution Center

http://www4.eere.energy.gov/wip/solutioncenter/finance_guide/content/commercial_property_assessed_clean_energy_financing
U.S. Department of Energy
Commercial PACE Update and Materials
Cisco DeVries | March 19, 2013
How PACE Works

City or county creates type of land-secured financing district or similar legal mechanism

Property owners voluntarily sign up for financing and install energy projects

The lender provides funds to property owner to pay for energy project

Property owner repays bond through property tax bill (up to 20 years)
Regulatory Issues with Residential PACE

- **July 2010: FHFA guidance letter**
  - PACE creates “safety and soundness concerns.” Authorize punishment of PACE properties and communities:
    - **Require larger down payments** for all new mortgages issued in communities that offer PACE financing.
    - **Require mortgage holder consent** prior to homeowners receiving PACE financing.
    - **Tighten underwriting requirements** to make it harder for buyers to qualify for new mortgages in entire communities that offer PACE financing.

- **June 2012: FHFA Proposed Rule**
  - Court case resulted in requirement for FHFA to undertake rulemaking
  - Proposed rule would continue prohibition on PACE and directs Fannie Mae and Freddie Mac to take ‘immediate’ actions to protect first lien, including requiring immediate repayment of mortgage.

- **September 2013: Deadline for Final Rule**
  - FHFA indicates they are reviewing record regarding the value of energy improvements to homes.
The Commercial PACE Opportunity

- Commercial properties not regulated by the FHFA
- PACE helps solve fundamental challenges in the market
  - Long term financing at reasonable rates makes deep retrofits cash flow positive immediately
  - Ability to transfer obligation at ownership change allows for projects even when property sale is contemplated
  - Many leases will allow pass through to tenants for cost of improvements when attached to property tax bill
  - PACE lien provides improves likelihood of repayment, allowing for lower cost financing and access to larger pool of properties
Commercial PACE Expands Across the U.S.
Existing Commercial PACE Programs

- Ann Arbor PACE Program
- Boulder County ClimateSmart Loan Program (Suspended)
- CaliforniaFIRST
- Clean Energy Sacramento
- Connecticut C-PACE
- Edina Emerald Energy Program
- California PACE
- Florida Green Energy Works
- Green Corridor, Miami-Dade
- Green Energy DC
- GreenFinanceSF
- Lean & Green Michigan
- Los Angeles County
- mPower Placer
- Palm Dessert Energy Independence Program
- Western Riverside Council of Governments
- Sonoma County Energy Independence Program
- Toledo PACE Program
- Yucaipa Energy Independence Program
Popular Commercial PACE Financing Structures

1. **Warehouse model.** Government program sponsor or private capital provider uses a credit line (or internal capital) to fund projects, followed by ‘takeout financing’.

2. **Pooled Bond model.** Program aggregates project applications and then issues a bond to fund all projects at the same time.

3. **Owner-arranged model.** Program provides access to a roster of approved finance entities which compete for opportunity to finance projects.
Questions Facing Local and State Governments

- **Residential.** Do you establish a program for residential financing now or wait for FHFA rulemaking to complete?

- **Alone or Together.** Do you establish a stand-alone program or participate in a larger statewide or regional effort?

- **Capital Source.** Do you provide a single source of capital established by the program or allow an open market for capital providers?

- **Lender Engagement.** Do you require the affirmative consent or acknowledgement from existing mortgage lenders?

- **Demand.** How do you best go about generating demand for the program?
DOE Provided Commercial PACE Materials

- Clean Energy Financing Guide Chapter 12: Commercial PACE Financing (Updated)
- Application Template Package (Updated)
- Marketing Template Package (New)
The Financing Guide chapter describes how to:

1. Review and address issues
2. Establish a supporting framework
3. Choose a capital sourcing approach
4. Determine if and how to deploy credit enhancement
5. Choose eligible property types
6. Assemble eligible project measures
7. Choose energy audit requirements
8. Choose program eligibility criteria
9. Leverage existing utility rebate/incentive programs
10. Plan quality assurance/quality control
11. Design application processing procedures
12. Specify contractor requirements
13. Market and launch the program
Template Application Documents

- Program Handbook
- Eligible Measures List
- Application Form
- Lender Acknowledgment Form
Template Marketing Documents

- Customizable Press Release
- Program Overview
- Program FAQ
- Program Brochure
- Social Media Toolkit
Cisco DeVries | cisco@renewfund.com | (510) 451-7900
GreenFinanceSF Case Study

Prologis
Pier 1, San Francisco, CA

DOE Commercial PACE Webinar
March 19, 2013

Rich Chien, City and County of San Francisco  richard.chien@sfgov.org
GreenFinanceSF Basics

• Mello-Roos Community Facilities District Act 1982 (“special tax bonds”).

• Open Market C-PACE: City & County of San Francisco acts as conduit issuer.

• ARRA grants for debt service reserve fund (DSRF)
  o Helps cover payments to project investor in the case of late payments or default by property owner (optional)
  o Might also be used for interest rate buydown, and approved administrative costs.

• Program design with Renewable Funding, and extensive information sharing with Los Angeles Commercial PACE program and Clinton Climate Initiative/C40.

• Extensive outreach with property owners/managers, energy service providers, contractors, capital providers, mortgage lenders, and active and emerging PACE programs around the country.
GreenFinanceSF Features

• Program Flexibility
  o Multiple capital providers can compete to finance a wide range of buildings and projects
    ▪ Owner-occupied or multitenant office; retail; industrial/warehouse; multifamily w/5+ units; nonprofit-owned
    ▪ Energy efficiency, on-site renewable energy, water conservation
  o Financing terms can be customized for each transaction (interest rate and other terms)
  o Publicly-owned property are eligible
  o Leasehold interests can serve as security
  o Can leverage other financing tools (e.g. QECBs)
  o Could eventually offer to new construction projects
Building Background

Pier 1, San Francisco, CA

• 151,000 square feet of commercial class A office space on San Francisco’s historic waterfront.

• In 1999, AMB Property Corporation entered into development agreement to renovate the original Pier 1 structure in a public-private partnership with the Port of SF, and operate the building under a 50 year master lease.

• In 2011 AMB merged with Prologis, becoming the largest owner and operator of commercial and industrial property in the world.

• 5 subtenants, including Port of San Francisco administrative offices.

• Electrical service provided by San Francisco Public Utilities Commission.
Project Background

• **Milestones**
  – GreenFinanceSF commercial program launched Nov. 2011
  – Prologis engaged Johnson Controls Inc. (JCI) in early 2012 to provide turnkey design and implementation of energy efficiency and solar upgrades for Pier 1
  – Bond issued October 15, 2012
  – Construction to be competed Q2/2013

• **Owner’s Motivations**
  – Reduce energy costs and consumption at Pier 1
  – Update aging systems, resolve comfort problems, reduce maintenance costs, improve occupant experience
  – Develop DOE Better Buildings case study

• **Other Notable Points**
  – First C-PACE project in the City and County of San Francisco
  – First “open market” C-PACE project to leverage QECB
  – First privately-owned net metered solar project in SFPUC territory
  – First privately financed C-PACE project to incorporate efficiency and renewables.
Project Scope

Retrocommissioning

- Optimize Siemens EMS to initiate and shut down systems as needed
- Optimize chilled water setpoints
- Install VFD drives on pumps; shut down pumps when not needed
- Optimize HW and CHW supply/return temperatures
- Repair air-side economizers

Solar

- Install 200kW rooftop solar array
- Solar modules installed parallel to roof surface (not visible from street)
- String inverter design (no ground space or building closets required)
- Mechanically fastened to roof – no ballast
- Modules placed in roof areas consistent with structural analysis

Lighting upgrade

- Upgrade fixtures, ballasts and bulbs with energy efficient products
- Enhance light quality and control
- Install photocells and occupancy sensors to control lights
- Install LED lighting in selected areas (ex: truss-mounted flood lights)
- Reduce maintenance by installing longer-life equipment

Related work

- Assessment, engineering and verification work
- Roof replacement under areas designated for solar array
- Match roof life with solar array life expectancy for ~40% of roof area
- 4-ply BUR with asphalt cap sheet that meets T24 requirements
Financing Details

- **PACE bond**: $1,400,000
- **Term**: 20 years (longest useful life = solar PV)
- **Bond purchaser**: Clean Fund
- **Issue date**: October 15, 2012
- **Project designed to align energy savings with payments**
- **Prologis master leasehold as security under Mello-Roos framework**
- **Program applied for and received a QECB allocation to enhance financing**

<table>
<thead>
<tr>
<th>PACE bond features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repayment term</td>
</tr>
<tr>
<td>PACE bond market interest rate</td>
</tr>
<tr>
<td>QECB</td>
</tr>
<tr>
<td>Net interest rate</td>
</tr>
</tbody>
</table>

**Qualified Energy Conservation Bonds** (QECB’s) are a form of tax credit bond that can be issued to finance government initiatives designed to reduce greenhouse gas emissions. Proceeds may be used to finance, in part, capital expenditures incurred for purposes of implementing “green community programs” (including the use of loans, grants, or other repayment mechanisms to implement such programs, such as GreenFinanceSF) under Sections 54A and 54D of the Internal Revenue Code. Subsidies can be tax credit payments in lieu of interest to bondholders, or as cash payments to issuers.

Many rules apply, incl. issuing and spending deadlines; Davis Bacon prevailing wage compliance; and costs of issuance limits.

### Projected Performance

- **Projected energy savings**
  - 390,486 kWh
  - 17,580 therms

- **Projected solar energy production**
  - 200kW: 245,520 kWh

<table>
<thead>
<tr>
<th></th>
<th>Electricity (kWh)</th>
<th>Gas (therms)</th>
<th>Annual Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline use (2011)</td>
<td>1,858,862</td>
<td>55,590</td>
<td>-</td>
</tr>
<tr>
<td>Lighting</td>
<td>252,386</td>
<td>0</td>
<td>$35,772</td>
</tr>
<tr>
<td>Retrocommissioning</td>
<td>138,100</td>
<td>17,580</td>
<td>$30,091</td>
</tr>
<tr>
<td>Solar (200kW)</td>
<td>245,520</td>
<td>0</td>
<td>$32,140</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>636,006</strong></td>
<td><strong>17,580</strong></td>
<td><strong>$98,003</strong></td>
</tr>
<tr>
<td>Percent Savings</td>
<td>34%</td>
<td>32%</td>
<td>24%</td>
</tr>
</tbody>
</table>

80% of energy cost savings attributed to the energy efficiency projects (lighting & HVAC)
Annual Costs and Savings

- Avoided cost increases in value as grid energy prices rise, projected at 3.5% per year
- Debt service schedule adjusted to track with energy price escalation
- NPV of energy savings: $350,000

<table>
<thead>
<tr>
<th>Recurring Year 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual savings</td>
<td>$98,000 (value increases with inflation)</td>
</tr>
<tr>
<td>Annual PACE bond assessment</td>
<td>~$101,000 (adjusts periodically through bond term)</td>
</tr>
</tbody>
</table>
Cost Allocation

- Johnson Controls solution considered the whole building regardless of tenant
- Measures affect the whole building; i.e. improvements to central HVAC system benefit all tenant spaces
- PACE financing costs will be allocated pro rata to all subtenants including Port of San Francisco based on building square footage per existing leases.

<table>
<thead>
<tr>
<th></th>
<th>Total for Pier 1</th>
<th>Bay 1 Prologis</th>
<th>Bay 1A Prologis</th>
<th>Bay 2 Subtenant #1</th>
<th>Bay 3 Subtenant #2</th>
<th>Bay 3A Subtenant #3</th>
<th>Bay 4 Subtenant #4</th>
<th>Bay 5 Subtenant #5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square footage</td>
<td>151,606</td>
<td>40,163</td>
<td>11,096</td>
<td>18,685</td>
<td>13,159</td>
<td>14,343</td>
<td>52,304</td>
<td>1,856</td>
</tr>
<tr>
<td>Percentage</td>
<td>100%</td>
<td>26.5%</td>
<td>7.3%</td>
<td>12.3%</td>
<td>8.7%</td>
<td>9.5%</td>
<td>34.5%</td>
<td>1.2%</td>
</tr>
</tbody>
</table>
A 200kW solar array produces brief energy surpluses, primarily on weekends when building is not actively used. Value of these surpluses est.: $400/yr
Team

- Owner: Prologis
- General Contractor: Johnson Controls Inc.
- Bond purchaser: Clean Fund
- City and County of San Francisco
  - SF Environment
  - Controller’s Office of Public Finance
  - Port of San Francisco
  - San Francisco Public Utilities Commission
- Bond Counsel: Jones Hall
- Financial Advisor: Stifel
- Special Tax Administrator: Goodwin Consulting Group
- Fiscal Agent: US Bank
- Technical Consultant: kW Engineering
- Program Design: Renewable Funding
Getting Across the Finish Line

• Owner’s “EE Champion” is key to move things forward
• City program staff can play an important role:
  o Outreach and education, marketing
  o Provide credibility to all participants
  o Help resolve “localized” policy issues (e.g. Port/Prologis relationship; SFPUC net metering of excess solar electricity; interdepartmental operations)
• Program flexibility (open market, Mello-Roos) helped this specific deal
• At this early stage of program implementation, consider using other available tools which can help transaction.
  • QECB introduced some complexity, but offered multiple benefits (lower borrowing costs, set a hard deadline to close the transaction)
• Teamwork needed!
• It’s all about examples, case studies, and success stories…
Questions?

Rich Chien
richard.chien@sfgov.org
(415) 355-3761
Clean Energy Finance and Investment Authority

C-PACE:
A financing tool for building owners
Energy Challenge in Connecticut

High Cost
CT has THE highest cost for electricity in the "lower 48"

Old, Energy Inefficient Building Stock
CT has some of the oldest and most energy inefficient building stock

Need for "Cleaner / Cheaper" Energy Sources
Programs that will diversify our energy mix into renewable/clean power

"More Reliable" Grid
5 major storms in 2 years with unacceptable outages
Who is CEFIA?

Help ensure Connecticut’s energy security and community prosperity by realizing its environmental and economic opportunities through clean energy finance and investments.

Support the Governor’s and legislature’s energy strategy to achieve cleaner, cheaper and more reliable sources of energy while creating jobs and supporting local economic development.
Connecticut’s “Green Bank”

…transitioning programs away from government-funded grants, rebates, and other subsidies, and towards deploying private capital

…CEFIA was established in 2011 to develop programs that will leverage private sector capital to create long-term, sustainable financing for energy efficiency and clean energy to support residential, commercial, and industrial sector implementation of energy efficiency and clean energy measures.
Property Assessed Clean Energy

- An innovative financing structure that enables commercial, industrial, and multi-family property owners to access financing for qualified energy upgrades and repay through a benefit assessment on their property tax.

- Private capital provides 100% upfront, low-cost, long-term funding
- Repayment through property taxes
- A senior PACE lien is put on the property and stays regardless of ownership
Connecticut Special Session
Public Act 12-2 (June 2012)

- Commercial, industrial & multi-family property
- Requires the consent of the existing mortgage lender
- Requires SIR>1; permanently affixed
- Enables municipalities to opt-in
- Enables CEFIA to administer a statewide program
CEFIA’s Role in C-PACE

**Design Program**
- Publish Guidelines November 2012
- Onboard Municipalities
- Website launched (www.c-pace.com)

**Administer Program**
- Technical Underwriting
- Marketing & Outreach
- Work with Existing Mortgage Lenders

**Attract Private Capital**
- Qualify Capital Providers
- Offer Credit Enhancement tools (as needed)
- Provide capital (as needed)
- Develop warehouse / bonding authority (Q2 2013)
CEFIA’s Role in C-PACE

**Design Program**
- Publish Guidelines November 2012
- Onboard Municipalities
- Website launched (www.c-pace.com)

**Administer Program**
- Technical Underwriting
- Marketing & Outreach
- Work with Existing Mortgage Lenders

**Attract Private Capital**
- Qualify Capital Providers
- Offer Credit Enhancement tools (as needed)
- Provide capital (as needed)
- Develop warehouse / bonding authority (Q2 2013)
Municipalities Opted into C-PACE

- Beacon Falls
- Bridgeport
- Durham
- Hartford
- Middletown
- Norwalk
- Old Saybrook
- Simsbury
- Southbury
- Stamford
- Stratford
- West Hartford
- Westport
- Wilton
- Windham

30% C&I Market
Customers Apply Into C-PACE
Contractor Registration

1. TERMS AND CONDITIONS

CEFIA will comply with Conn. Gen. Stat. Sections 4a-60 and 4a-60a and CEFIA is subject to the requirements outlined in Sections 16-245n of the Conn. Gen. Stat. EC has read the Terms and Conditions of this RFQ and agrees to comply with these state contracting obligations. Further, CEFIA is a public agency for purposes of the Connecticut Freedom of Information Act (FOIA). This RFQ and any files or documents associated with the RFQ will be considered a public record and will be subject to disclosure under FOIA except for information falling within one of the exemptions in Conn. Gen. Stat. Sections §1-210(b) and §16-245n(d). EC has read the requirements in this RFQ concerning FOIA and confidential material. The full RFQ can be found here.

☐ Yes. I agree that I have read and understand all Terms and Conditions of this RFQ.

2. COMPANY INFORMATION

* Company Name

...
Contractor & Customer Matchmaking
Contractor & Customer Matchmaking

Metro Tower
One Station Place

LEED system: LEED CS 2.0
Version: Registered
Level: Not Applicable
Date: 2007-01-02
Owner Types: Profit Org.
LEED Owner Types: Profit Org.

Owner: BBF, LLC
Status: Under Construction
Square Footage: 350,000 sq ft
Floor Count: 17

Landlord: Malkin Properties, LLC
Architecture Firm: Cook and Fox Architects
Website: malkinproperties.com/properties/office/metro-tower/
CEFIA’s Role in C-PACE

**Design Program**
- Publish Guidelines November 2012
- Onboard Municipalities
- Website launched (www.c-pace.com)

**Administer Program**
- Technical Underwriting
- Marketing & Outreach
- Work with Existing Mortgage Lenders

**Attract Private Capital**
- Qualify Capital Providers
- Offer Credit Enhancement tools (as needed)
- Provide capital (as needed)
- Develop warehouse / bonding authority (Q2 2013)
C-PACE Partners do Technical Underwriting

**Technical Expertise:**
Celtic Energy
- Glastonbury, CT
- $1bn of energy-related projects
- Experience with large commercial end-users, utilities, and government

**Program Expertise:**
Buonicore Partners
- Milford, CT
- Modeled Energy Profile of CT
- Nationwide PACE experience

**Real Estate Expertise:**
Sustainable Real Estate Solutions
- Trumbull, CT
- Benchmarking Database
- Industry leader in building energy performance assessment

**3rd Party Administrator:**
Buonicore Partners
Determine project eligibility

Anything that saves energy from baseline

- High efficiency lighting
- HVAC upgrades
- New automated building and HVAC controls
- Variable speed drives (VSDs) on motors fans and pumps
- High efficiency chillers, boilers, and furnaces
- High efficiency hot water heating systems

... as long as it isn’t going anywhere

- Combustion and burner upgrades
- Fuel switching
- Water conservation
- Heat recovery and steam traps
- Building enclosure/envelope improvements
- BMS
- Renewable energy systems
M&V: Data Management Platform

- Full Assessment & Fast Track project data are entered & tracked in CEFIA’s Data Management Platform (CDMP)
  - CDMP is powered by SRS’s cloud-based software platform
  - CDMP facilitates key project data & analytics management across the entire project life cycle (project development through M&V)
M&V: Data Management Platform

The Challenge
- Multiple interdependent stakeholders have divergent interests

The Solution
- C-PACE’s transparent, unbiased technical & financial underwriting:
  - align interests
  - remove barriers
  - close deals!
M&V: Data Management Platform

Costs and Savings:
- Estimated Required Investment (unleveraged): $1,992,976
- Estimated Annual Savings:
  - Projected: $21,547 avg./month
  - Return on Investment (ROI):
    - Simple Payback Term (years): 7.71
    - True Payback Term (years): 7.33
    - Savings to Investment Ratio (unleveraged): 2.06
- Total Cash Flows (unleveraged):
  - Total Cash Flows (leveraged):

Finance Scenario:
- Estimated Required Investment (100% leveraged): $0
- Amount Financed:
  - Estimated Annual Debt Service: $195,411
  - Estimated First Year Benefit: $16,284
  - Excess Annual Cash Flow (first year): $0

Financial Analytics:
- Asset Value Impact from ECMs:
  - @ 6.50% CAP rate: $3,977,899
  - @ 7.50% CAP rate: $3,447,512
  - @ 8.50% CAP rate: $3,041,922
- Asset Value Impact less Required Investment:
  - @ 6.50% CAP rate: $1,984,923
  - @ 7.50% CAP rate: $1,454,536
  - @ 8.50% CAP rate: $1,040,946
- Internal Rate of Return (unleveraged IRR):
  - 11.5%
- Internal Rate of Return (leveraged IRR): N/A
- Net Present Value (unleveraged NPV): $470,296
- Net Present Value (leveraged NPV): $790,653
- Time to Positive Cash Flow (leveraged): Immediate
CEFIA’s Role in C-PACE

**Design Program**
- Publish Guidelines November 2012
- Onboard Municipalities
- Website launched (www.c-pace.com)

**Administer Program**
- Technical Underwriting
- Marketing & Outreach
- Work with Existing Mortgage Lenders

**Attract Private Capital**
- Qualify Capital Providers
- Offer Credit Enhancement tools (as needed)
- Provide capital (as needed)
- Develop warehouse / bonding authority (Q2 2013)
Capital Partners

Qualified Capital Providers
- CEFIA qualified 8 capital providers through a RFI.
- “Lending tree” model

Owner Arranged Financing
- Property owner is free to choose their capital provider from the private market. There is no government financing required.

Construction and Term Financing from CEFIA
- CEFIA authorized $20M short term facility for construction and term financing
Marketing & Outreach

<table>
<thead>
<tr>
<th>Sector</th>
<th>Total SF</th>
<th>Total Bldgs</th>
<th>Average Age*</th>
<th>Average Size (SF)</th>
<th>Total Unique Owners**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>53 M</td>
<td>310</td>
<td>1983</td>
<td>172,000</td>
<td>190+</td>
</tr>
<tr>
<td>Class B</td>
<td>68 M</td>
<td>2,215</td>
<td>1964</td>
<td>31,000</td>
<td>1,720+</td>
</tr>
<tr>
<td>Class C</td>
<td>48 M</td>
<td>6,105</td>
<td>1933</td>
<td>8,000</td>
<td>5,030+</td>
</tr>
<tr>
<td>Industrial</td>
<td>282 M</td>
<td>7,465</td>
<td>1965</td>
<td>38,000</td>
<td>5,475+</td>
</tr>
<tr>
<td>Retail</td>
<td>198 M</td>
<td>18,000</td>
<td>1951</td>
<td>11,000</td>
<td>12,760+</td>
</tr>
<tr>
<td>Hospitality</td>
<td>21 M</td>
<td>370</td>
<td>1952</td>
<td>57,000</td>
<td>315+</td>
</tr>
</tbody>
</table>

* Average age is true building age, and does not address major rehabilitation
** Represents the buildings for which data was available, which in all cases was the vast majority but not all based on the use of 4+o. For instance, data was available for 1070 of the 2915 Class A Office buildings

Source: CoStar May 2012
Most identified opportunities are located in primary markets in southwest CT (I-95) and along I-91.
Genevieve Sherman, Manager C-PACE
Clean Energy Finance and Investment Authority
860.257.2889
genevieve.sherman@ctcleanenergy.com
www.c-pace.com
Clean Energy Project Financing | Energy Security

Clean Energy Financial Consulting

EutecticsLLC.com
Eutectics Consulting

We are a mission-oriented for-profit business, connecting businesses, contractors, and investors to move clean energy projects from concept to reality.
Clean Energy “Micro”-Project Finance Tools:

Energy Efficiency:
1. Green Loan
2. Equipment Leasing
3. St. Paul Port Authority RLF
4. PACE

Solar PV / Renewable Energy:
1. SolarNote
2. PACE
3. SolarEquity Lease*
History in Minnesota:
- PACE legislation enacted in 2010
- City of Edina, a 1st-ring suburb of Minneapolis, established the Edina Emerald Energy (PACE) Program in early 2012 for a solar PV project.
- First community-bank funded project in Aug. 2012.
Minnesota PACE legislation:

- Added building-scale energy improvements to existing special assessment statute (§ 429.101).
- Limited to 10 year bonds, but 20-year extension likely in 2013.
- No requirement of “lender consent.”
Minnesota PACE ‘programs’: 
- Edina Emerald Energy Program is a stand-alone program.
- Other cities balked at a stand-alone program.
- New partnership is emerging, with a 3\textsuperscript{rd} party PACE administrator, and cities joined via Joint Powers Agmt.
1. Apply for PACE loan.
1. Apply for PACE loan.

2. City issues special assessment.
1. Apply for PACE loan.

2. City issues special assessment.

3. City sells bond.
Ex. 1: Restaurant upgrade

**LED lights and hood fan controls**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL COST:</td>
<td>$50,622</td>
</tr>
<tr>
<td>Xcel efficiency rebate</td>
<td>$11,314</td>
</tr>
<tr>
<td>TOTAL PACE LOAN</td>
<td>$39,308</td>
</tr>
<tr>
<td>TOTAL DOWN</td>
<td>$0</td>
</tr>
<tr>
<td>PACE loan repayment</td>
<td>$9,334</td>
</tr>
<tr>
<td>Energy and operations savings</td>
<td>$15,296</td>
</tr>
<tr>
<td></td>
<td><em>first year, adjust upwards 2.25% annually</em></td>
</tr>
<tr>
<td>TOTAL SAVED / YRS 1-5</td>
<td>$6,383</td>
</tr>
<tr>
<td>TOTAL SAVED / YR 6+</td>
<td>$17,096</td>
</tr>
</tbody>
</table>
Restaurant upgrade

City of Edina EEEP loan for LED lights and hood fan controls

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost</td>
<td>$50,622</td>
</tr>
<tr>
<td>Xcel efficiency rebate</td>
<td>11,314</td>
</tr>
<tr>
<td>Total PACE loan</td>
<td>$39,308</td>
</tr>
<tr>
<td>Total Down</td>
<td>$0</td>
</tr>
<tr>
<td>PACE loan repayment</td>
<td>9,334</td>
</tr>
<tr>
<td>Energy and operations savings</td>
<td>15,296</td>
</tr>
<tr>
<td><em>first year, adjust upwards 2.25% annually</em></td>
<td></td>
</tr>
<tr>
<td>Total Saved / Yrs 1-5</td>
<td>$6,383</td>
</tr>
<tr>
<td>Total Saved / Yr 6+</td>
<td>$17,096</td>
</tr>
</tbody>
</table>
Ex. 2: 20kW Solar PV

Minnesota-made solar PV system

(w/o state incentives)

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL COST</td>
<td>$90,000</td>
</tr>
<tr>
<td>Cost per watt</td>
<td>$4.50</td>
</tr>
<tr>
<td>Federal Investor Tax Credit</td>
<td>27,000</td>
</tr>
<tr>
<td>Net Cost</td>
<td>63,000</td>
</tr>
<tr>
<td>Financing costs</td>
<td>2,090</td>
</tr>
<tr>
<td>TOTAL PACE LOAN</td>
<td>$65,090</td>
</tr>
<tr>
<td>TOTAL DOWN</td>
<td>$0</td>
</tr>
<tr>
<td>PACE loan repayment</td>
<td>9,160</td>
</tr>
<tr>
<td>Energy and tax savings</td>
<td>6,871</td>
</tr>
<tr>
<td>TOTAL COST / YRS 1-10</td>
<td>$2,289</td>
</tr>
<tr>
<td>TOTAL SAVINGS / YR 11+</td>
<td>$2,324</td>
</tr>
</tbody>
</table>
Ex. 2: 20kW Solar PV

Minnesota-made solar PV system
(w/o state incentives)

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL COST</td>
<td>$90,000</td>
</tr>
<tr>
<td>Cost per watt</td>
<td>$4.50</td>
</tr>
<tr>
<td>Federal Investor Tax Credit</td>
<td>27,000</td>
</tr>
<tr>
<td>Net Cost</td>
<td>63,000</td>
</tr>
<tr>
<td>Financing costs</td>
<td>2,090</td>
</tr>
<tr>
<td>TOTAL PACE LOAN</td>
<td>$65,090</td>
</tr>
<tr>
<td>TOTAL DOWN</td>
<td>$0</td>
</tr>
<tr>
<td>PACE loan repayment</td>
<td>9,160</td>
</tr>
<tr>
<td>Energy and tax savings</td>
<td>6,871</td>
</tr>
<tr>
<td><strong>TOTAL COST / YRS 1-10</strong></td>
<td><strong>$2,289</strong></td>
</tr>
<tr>
<td><strong>TOTAL SAVINGS / YR 11+</strong></td>
<td><strong>$2,324</strong></td>
</tr>
</tbody>
</table>
Ex. 3: Corp. HQ

Deep retrofit w/ new HVAC, lighting, controls and more

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL COST:</td>
<td>$969,235</td>
</tr>
<tr>
<td>Federal Efficiency Tax Credit</td>
<td>151,200</td>
</tr>
<tr>
<td>Xcel/Centerpoint Rebate</td>
<td>80,000</td>
</tr>
<tr>
<td>Net Cost</td>
<td>738,035</td>
</tr>
<tr>
<td>Eutectics fee</td>
<td>11,070</td>
</tr>
<tr>
<td>TOTAL PACE LOAN</td>
<td>$749,125</td>
</tr>
<tr>
<td>TOTAL DOWN</td>
<td>$0</td>
</tr>
<tr>
<td>PACE loan repayment</td>
<td>109,032</td>
</tr>
<tr>
<td>Energy savings</td>
<td>128,275</td>
</tr>
<tr>
<td>first year, adjust upwards 2% annually</td>
<td></td>
</tr>
<tr>
<td>TOTAL SAVINGS / YRS 1-10</td>
<td>$19,242</td>
</tr>
<tr>
<td>TOTAL SAVINGS / YR 11</td>
<td>$156,367</td>
</tr>
</tbody>
</table>
Ex. 3: Corp. HQ

Deep retrofit w/ new HVAC, lighting, controls and more

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost</td>
<td>$969,235</td>
</tr>
<tr>
<td>Federal Efficiency Tax Credit</td>
<td>151,200</td>
</tr>
<tr>
<td>Xcel/Centerpoint Rebate</td>
<td>80,000</td>
</tr>
<tr>
<td>Net Cost</td>
<td>738,035</td>
</tr>
<tr>
<td>Eutectics fee</td>
<td>11,070</td>
</tr>
<tr>
<td>Total PACE Loan</td>
<td>$749,125</td>
</tr>
<tr>
<td>Total Down</td>
<td>$0</td>
</tr>
<tr>
<td>PACE loan repayment</td>
<td>109,032</td>
</tr>
<tr>
<td>Energy savings</td>
<td>128,275</td>
</tr>
<tr>
<td>First year, adjust upwards 2% annually</td>
<td></td>
</tr>
<tr>
<td>Total Savings / yrs 1 - 10</td>
<td>$19,242</td>
</tr>
<tr>
<td>Total Savings / yr 11</td>
<td>$156,367</td>
</tr>
</tbody>
</table>
Property Assessed. Clean Energy.

Minnesota PACE funding:
- “PACE in a box” tool kit from Edina will be used as PACE scales up.
- First EEEP privately-placed, taxable revenue bond was purchased by CleanFund at 7%.
- Bremer Bank, a state-chartered community bank, purchased at 5.5%.
Property Assessed. Clean Energy.

Minnesota PACE ‘state-wide’: 
- Cities sign a Joint Power Agmt.
- Third-party partner responsible for: technical review; underwriting; origination; bond issuance; debt service, and debt service reserve.
- Cities issue special assessment, and pass on payments to Third Party.
Minnesota PACE ‘state-wide’:
- Bond rates expected between 2% and 4%, depending on service territory and scale of project
- Third-party may add 0.5% - 1.0% for admin. costs.
- MUST be project based – no “pre-funded” PACE loan pool.
Questions & Next Steps

• **Resources** on Solution Center: [http://www1.eere.energy.gov/wip/solutioncenter/](http://www1.eere.energy.gov/wip/solutioncenter/)
  - Today’s presentation will be posted & *Commercial PACE materials* live now [http://www4.eere.energy.gov/wip/solutioncenter/finance_guide/content/commercial_property_assessed_clean_energy_financing](http://www4.eere.energy.gov/wip/solutioncenter/finance_guide/content/commercial_property_assessed_clean_energy_financing)
  - Also featured are *DOE’s Clean Energy Finance Guide* & other finance resources and improved portal for finance resources coming later this year

• All **peer exchange & trainings** can be found on Events Calendar: [http://www1.eere.energy.gov/wip/solutioncenter/wip_events.html](http://www1.eere.energy.gov/wip/solutioncenter/wip_events.html)
  - National peer exchange *Local Trends in Clean Energy Finance, March 27th*
  - Additional national webinars, including – *Guidelines for Developing a State ESPC Program (March 26th)* and *Financing Energy Upgrades for K-12 School Districts (April 11th)*
  - To find out more about the *Better Buildings Project Team for Financing Strategies*, a long-term small-group peer exchange opportunity, email us at TechnicalAssistanceProgram@ee.doe.gov

• To apply for **one-on-one assistance** and **peer matching** (and to stay up-to-date on all of the latest TAP offerings by signing up for our newsletter) email us at TechnicalAssistanceProgram@ee.doe.gov
Thank you to our speakers & to all of you for joining us today!

DOE’s Technical Assistance Program welcomes your questions and feedback at TechnicalAssistanceProgram@ee.doe.gov