

Financing Energy and Sustainability Investments: The Role of C-PACE Financing

Organized by Drexel University's LeBow College of Business and Philadelphia Energy Authority (PEA)

THURSDAY, OCT. 12, 2023

GHall 220/221 (2nd floor)
LeBow College of Business
Drexel University
3220 Market Street
Philadelphia, PA 19104



CONFERENCE CO-CHAIRS

Lisa Shulock, Philadelphia Energy Authority
George Tsetsekos, PhD, Drexel's LeBow College of Business



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Agenda

- 8:30–9:00 **BREAKFAST AND REGISTRATION**
Sponsored by PECO, An Exelon Company
- 9:00–9:10 **WELCOME**
Vibhas Madan, PhD, Dean and R. John Chapel Jr. Dean’s Chair, LeBow College of Business, Drexel University
Emily Schapira, President and CEO, Philadelphia Energy Authority
- 9:10–10:30 **SESSION I: C-PACE as Vehicle for Financing Sustainable and Efficient CRE Investments**
Sponsored by Holland & Knight LLC
Ethan Elser, Executive Vice President, PACE Equity
Kelly Sanders, Vice President of Programs, Sustainable Energy Fund
Jeanne Fields, Vice President, Fulton Bank
Carter Murdoch, Practice Professor in Real Estate, Drexel University
- 10:30–10:45 **BREAK**
Sponsored by PECO, An Exelon Company
- 10:45–12:15 **SESSION II: C-PACE Mechanics and Case Study**
Sponsored by Power Green Clean Energy Finance
Stephen Arrivello, Managing Director, PACE Equity
Shelah Wallace, Senior Director, Nuveen Green Capital
Ben Pressman, PE, Senior Mechanical Engineer, Practical Energy Solutions
Lisa Shulock, Director, Commercial Programs, Philadelphia Energy Authority
Jeremy Terr, Owner, Argo Property Group
Marcy Hart, Partner, Holland & Knight
- 12:15–1:10 **LUNCH**
Sponsored by Nuveen and Commercial PACE Finance
- 1:10–2:25 **SESSION III: Financial Incentives, Alternative Energy Credits and Inflation Reduction Act (IRA)**
Sponsored by The Risk Management Center of Drexel’s LeBow College of Business
Maddi Arnott, Trade Ally Account Manager, PECO
Jason Campbell, Vice President, ESG Finance, Blue Delta Energy, LLC
Jacob Goldman, Vice President, Energy Tax Savers
- 2:25–2:30 **CONCLUDING COMMENTS**
George Tsetsekos, PhD, Francis Professor of Finance, Drexel University

Speaker Bios

MADDI ARNOTT serves as Trade Ally Account Manager for the PECO Ways to Save Program. She assists PECO Trade Allies with securing incentives for their PECO commercial customers.

STEPHEN ARRIVELLO is a Philadelphia-based C-PACE lender whose background includes capital markets, commercial lending and real estate development. He has provided debt, equity and now C-PACE funding for commercial real estate projects nationwide since 2011. He is also the founder and executive director of the nonprofit Community Preservation Alliance, which seeks to remove blight from Philadelphia and other communities throughout Pennsylvania.

JASON CAMPBELL is vice president, ESG Finance at Blue Delta Energy, an asset manager in the clean energy markets. Jason previously worked across the clean energy and climate tech sectors in addition to launching an investment platform with the World Bank for large-scale sustainable urbanization projects.

ETHAN ELSER is the EVP and principal of PACE Equity. In his role, he oversees all of PACE Equity's transaction execution from term sheet to closing, serves on the investment committee and manages the firm's policy. PACE Equity is the leading development project CPACE funder in the country, providing its clients a turnkey CPACE experience and pioneering the use of CPACE for new construction and complex forms of financing. Ethan has been with PACE Equity since 2015 and greatly enjoys spreading the word on CPACE to audiences like this!

JEANNE M. FIELDS is vice president, commercial community development lending officer, Fulton Bank. As a community development lender, Jeanne provides financing for affordable housing and economic development projects serving low- to moderate-income communities utilizing various tax credit and tax advantaged programs. Jeanne has been actively involved in community and economic development activities in greater Philadelphia throughout her 35+ year banking career.

JACOB GOLDMAN is vice president of Energy Tax Savers. The firm specializes in advising clients how to apply tax laws to make building energy investments more profitable. Experts in applying EPA's 179D Rules, Energy Tax Savers help clients achieve federal tax incentives aimed at making energy efficient investment as economically viable as possible.

MARCY HART is a real estate attorney in Holland & Knight's Philadelphia office who focuses on real estate, business and corporate law matters. A seasoned transactional attorney with more than 35 years of experience in real estate and corporate finance, Ms. Hart uses her extensive in-house and law firm background to solve her clients' complex issues and challenges. She implements business and practical-minded strategies with respect to real estate acquisitions, dispositions, financing and capitalization.

CARTER MURDOCH, PHD Post-completion of his PhD in Economics at Drexel in 1999, Murdoch was managing director/director/principal economist at the National Association of Realtors, SVP of Bank America Home Loans, SVP and head of global shared services for Anywhere Real Estate (brands include Coldwell Banker, Century 21, Better Homes & Gardens, ERA and Sotheby's Real Estate), SVP and head of purchase for Freedom Mortgage, and EVP/head of retail lending at Arc Home Loans before returning in 2022 to his passion to teach at Drexel.

BEN PRESSMAN has 13 years of experience in mechanical engineering. His responsibilities include development and project management of building energy assessments, hourly energy simulations for schematic design as well as accreditation programs such as LEED and NJCEP's Pay for Performance, and mechanical design and implementation of energy efficient renovations to commercial and municipal buildings. He has a deep understanding of building modeling software and methodology, energy auditing techniques, and HVAC system operation and design as well as ground-level experience with instrument design, CAD modeling and post-graduate engineering research. He also has experience developing strategic sustainability plans for both municipalities and commercial clients, especially concerning long-term renovation strategies to building mechanical systems that support sustainability goals such as renewable energy and fossil fuel reduction. He holds a bachelor's degree and master's degree in mechanical engineering from Johns Hopkins University and is a licensed professional engineer as well as a qualified tune-up specialist for the City of Philadelphia's Building Energy Performance Program.

SHELAH WALLACE is senior director, Originations, covering NJ, PA and DE for Nuveen Green Capital and is responsible for financing over \$140mm in CPACE loans since joining their team in 2021. Prior to joining Nuveen Green Capital, Shelah had various lending roles including commercial real estate lending specialist for Capitol Bank, VP commercial real estate loan officer for Bancorp Bank, and senior investment analyst for PGIM Real Estate Finance. Additionally, Shelah spent many years working as an advisor to commercial real estate developers, aiding in structuring their JV partnerships, and helping raise debt and equity. Shelah received a bachelor of science degree in Economics from the Wharton Undergraduate program at the University of Pennsylvania with a concentration in Real Estate.

Continued on page 4 »

Speaker Bios (continued)

LISA SHULOCK is director of commercial programs for the Philadelphia Energy Authority (PEA). PEA is the C-PACE Program Administrator for Philadelphia. Lisa has managed the C-PACE program since 2020. She also leads PEA's commercial solar initiative. She is an experienced program director with expertise in sustainability and clean energy. Her previous roles include program consultant to Indigenized Energy, research project manager at Penn State, and sustainability consultant for several design and engineering firms. She is an accredited LEED AP O+M. Lisa was elected to the Green Building United Board of Directors in 2019 and currently serves as Chair. Lisa has her MBA from Yale University and bachelor's degree from the University of Vermont.

JEREMY TERR is a partner at Argo Property Group where he oversees a portfolio of multifamily, mixed use and commercial projects. Mr. Terr is certified as a project management professional and leading professional in ethics and compliance and holds an MBA in International Management from Thunderbird. Prior to his role with Argo, Jeremy held the role of director of global risk management in a top tier global pharma company and continues his risk management role pro bono for a Donor Advised Fund group.

GEORGE TSETSEKOS, PHD is the Francis Professor of Finance at Drexel's LeBow College of Business and the director of the Risk Management Center. He was the dean of LeBow College of Business (2002-2012) and served as VP of academic administration at Drexel (1997-2002). He teaches MBA courses in Corporate Finance, Investments and International Finance and his research focus is on capital structure and investments. He serves on several boards and among others he is the chairman of REVL Capital Group.



PROGRAM COMMITTEE

Stephen Arrivello | *PACE Equity*
Jacob Goldman | *Energy Tax Savers*
Michael Greenle | *Lindy Institute, Drexel University*
Marcy Hart | *Holand & Knight*
John Kolesnik | *KEEA*
Rick Moseley | *Power Green Capital*
Carter Murdoch | *Drexel University*
Dimitri Papatheoharis | *Commercial PACE Finance*
Lisa Shukock* | *Philadelphia Energy Authority*
Kelly Sanders | *Sustainable Energy Fund*
Paul Spiegel | *SSM Group*
George Tsetsekos* | *Drexel University*
Christopher Valle | *DNV*
Shelah Wallace | *Nuveen Green Capital*
Jeaneen Zappa | *KEEA*

**Program Co-Chair*

What is PACE financing?

PROPERTY ASSESSED CLEAN ENERGY (PACE)



Public-Private
Partnership



Goal – Create a mechanism for more sustainable buildings

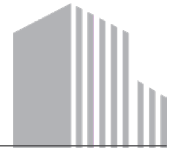
Role – Facilitate the creation of the assessment and ensure program compliance

Goal – Enable sustainable projects and generate a profit

Role – Source projects and provide funding and project development/engineering



What is CPACE financing?



C-PACE BASICS

Public / private partnership
legislated by states

Funding for energy, water,
renewable energy, and resiliency
improvements

Repayment made through
(transferable) property tax
assessment

Can be combined with complex
structures such as NMTC, HTC, TIF,
ground leases



BENEFITS

1 Boost Investor ROI by replacing equity or mezzanine

2 Maintain ownership control with no outside equity

3 Reduce personal risk with non-recourse funding

4 Reduces WACC of a project

Key C-PACE Financing Characteristics



Generally 20-to-30-year terms with matching
amortization



Low-cost, fixed rate financing with up to 30%
loan-to-values



Fills a gap or need for additional funding in a
wide variety of scenarios



Secured by property and non-recourse to the
borrower even after a sale to a third party



Each jurisdiction has different requirements for
funding, these can vary greatly by
state/city/county



Non-acceleration, even in the event of a
missed assessment payment

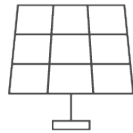


Eligible Improvements*

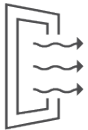
OUR ENGINEERS CAN OPTIMIZE YOUR FUNDING POTENTIAL



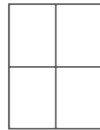
HVAC
EQUIPMENT
& CONTROLS



SOLAR
PV



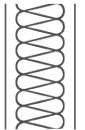
INDOOR
AIR QUALITY



WINDOWS



SEISMIC & RESILIENCY



INSULATION & ENVELOPE



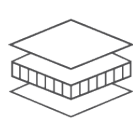
INDOOR
& **OUTDOOR**
LIGHTING



PLUMBING



**ELEVATOR/
ESCALATOR**



ROOFING

MAXIMIZE YOUR FUNDING

- When you work with us, you get our Engineering Team too. We know how to maximize your funding.
- Improvement measures with a quantifiable utility, water or renewable impact are eligible for funding.

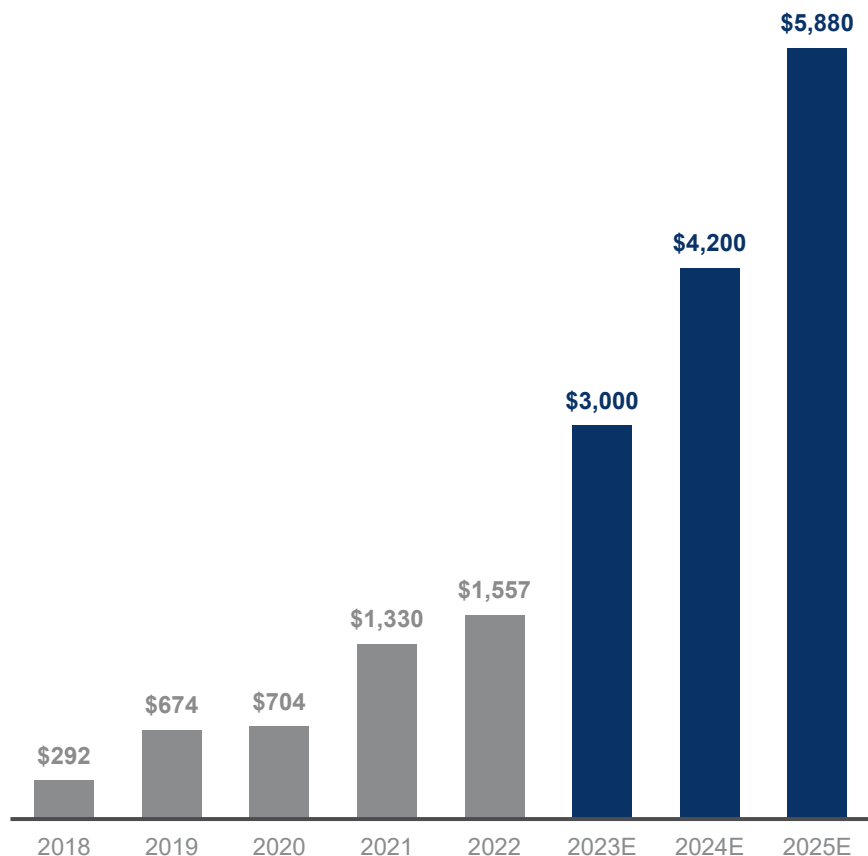
*This is not an exhaustive list; every state has unique options for eligibility. Seismic and wind resiliency only available in certain states.

CSPACE Growth



C-PACE Funding by Year (\$ in MM)

Annual C-PACE funding is expected to reach \$6BN by 2025



Growth Drivers

✓ Expanding C-PACE Availability

- The number of jurisdictions with C-PACE enabling legislation has grown from 7 to 32 states plus the District of Columbia from 2015 to 2023. Key new markets include Boston, Chicago, New York City, Las Vegas and Philadelphia

✓ Local Energy Efficiency Requirements Driving Greater Penetration

- Regulatory directives such as Local Law 97 drive growth in demand for energy efficiency upgrades across major markets

✓ CRE Market Volatility Increases Attractiveness of C-PACE

- Volatility in the commercial real estate market opens a new opportunity for C-PACE as banks reduce their lending

✓ Growing Understanding and Acceptance of Product

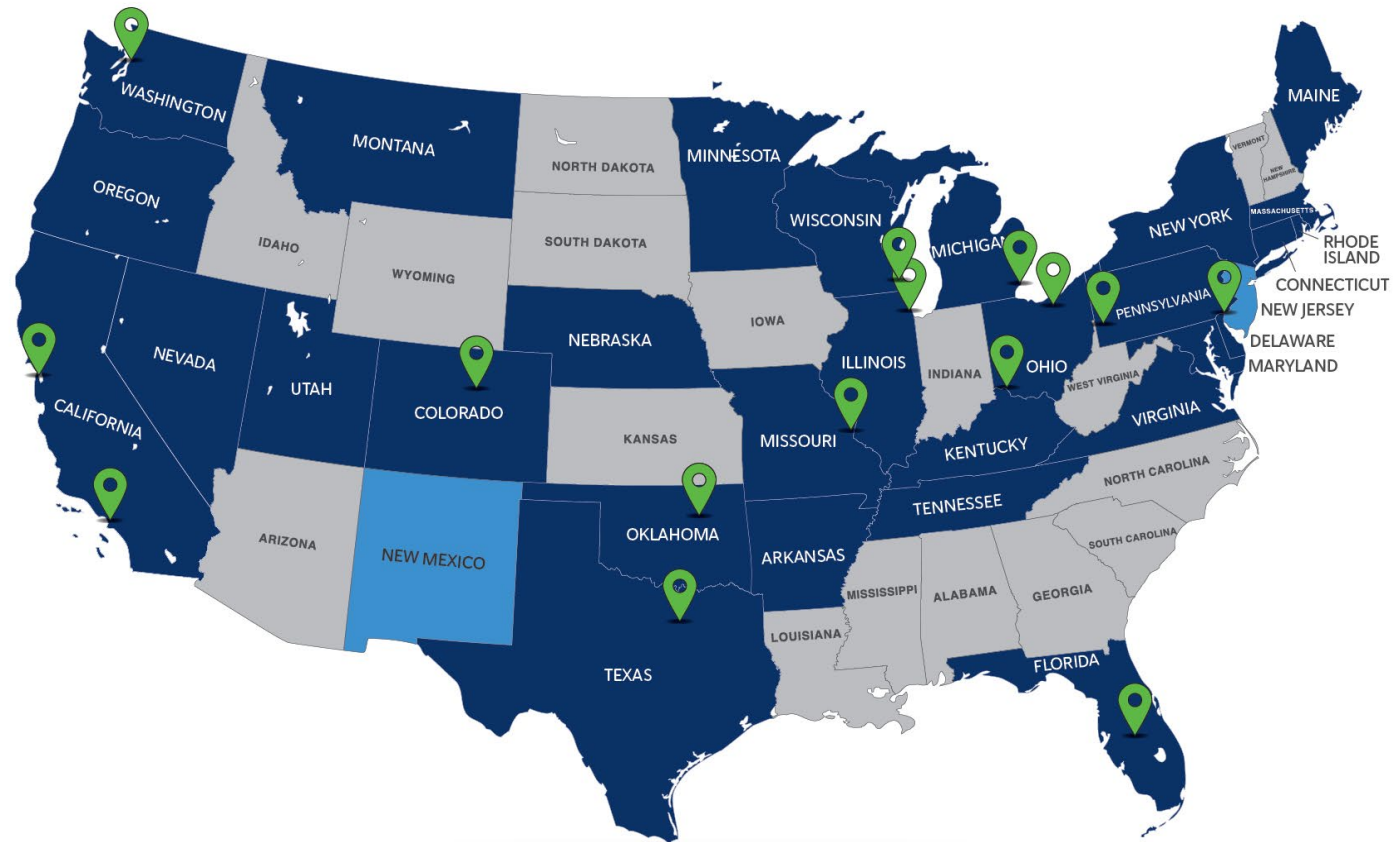
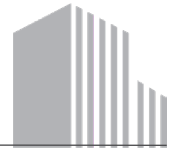
- Acceptance of C-PACE continues to grow amongst both lenders and developers

✓ Cost Effective

- C-PACE financing is lower cost than senior debt while property enhancements and features result in lower operational costs



Where is CPACE available?



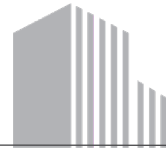
 PACE Equity Managing Director

 Funding Available

 Funding Likely Available in 2023

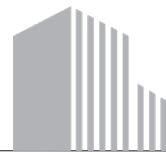
 No Funding Available

Current Trends – Why are People Turning to CPACE Capital?



- Challenging lending environment
- Gap Filling Capital for Equity/Debt
- Funding to Ensure Project Sustainability Goals are Met
- Cost Overrun Funding
- Financing for ESG/Carbon Mandates
- Interest Rate Hedging
- Bridge to Stabilization





Introducing... the next generation of PACE

An innovation of PACE Equity



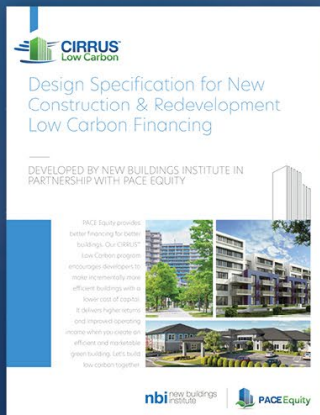
PACEEquity



WHAT IS THE CIRRUS LOW CARBON PROGRAM?

1

Design
specification
for energy
efficiency



2

Lower
rates
from
PACE Equity



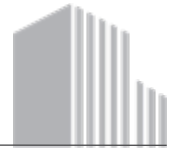
3

Marketing &
promotion
package
including
building plaque



CIRRUS Low Carbon design specification is simple to use

9



Mandatory Measures: ALL are required



ASHRAE 90.1-2016 Baseline

Building Envelope Improvement

HVAC Improvement

Efficient Water Heating Equipment and
Plumbing Fixtures (WaterSense®)

Efficient Interior Lighting and Controls

Efficient Exterior Lighting and Controls

Efficient Appliances (EnergyStar®)

Solar Readiness

Additional Efficiency Options: TWO are required



High Performance Envelope

High Performance Fenestration

Reduced Window to Wall Ratio

Reduced Thermal Bridging

Air Barrier Continuity

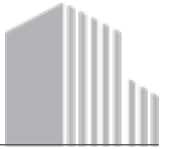
High Performance HVAC

High Performance Hot Water Heating

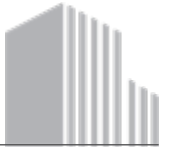
Enhanced Interior Lighting Controls

Advanced Metering and Energy Monitoring

Comparing CIRRUS Low Carbon to LEED®



- 1 Significant **rate reduction**
- 2 Verified early so you can market the property as **low carbon**
- 3 **No costs** for application, participation or verification



Here are the results so far

ACROSS ALL CIRRUS LOW CARBON ANALYSES WITH VARIETY OF ASSET CLASSES & LOCAL CODES

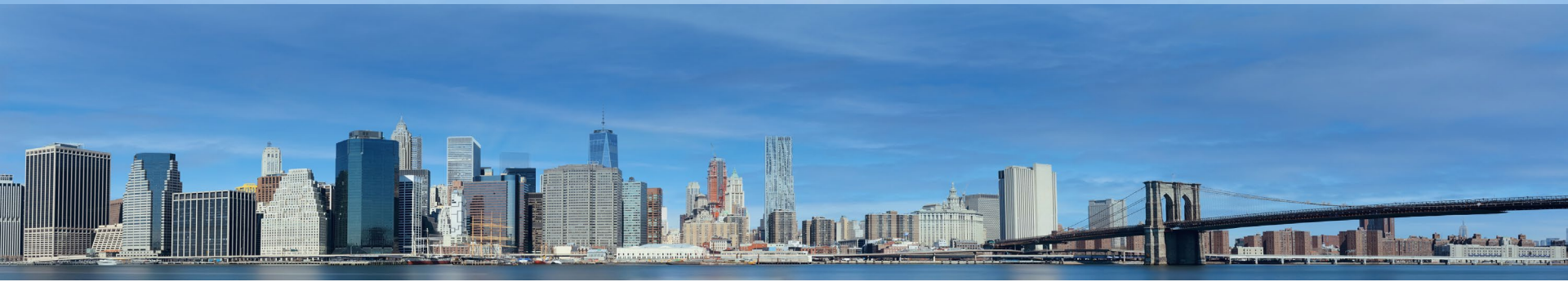
Average additional
cost to meet
CIRRUS Low Carbon

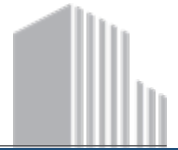
0.21%

OF HARD COST BUDGET

Average ratio of
financial benefits to
additional costs

12 : 1





CIRRUS Low Carbon Business Case:

Colman Yards – Multifamily Redevelopment

- Incremental Costs: \$88,000 (0.15% hard costs)
- Net Financial Benefits: **\$1.2 Million**
 - Reduced Interest: \$880K
 - Incremental Energy Savings: \$138K
 - Improved Property Value: \$185K
- Benefit to Cost: **14:1**
- Measures Updated: HVAC Equip, Controls/Occupancy Sensors, Solar Readiness
- Carbon saved over life of funding: 20,783 Metric Tons

Local Code: ASHRAE 90.1 - 2019

\$11.0 MILLION



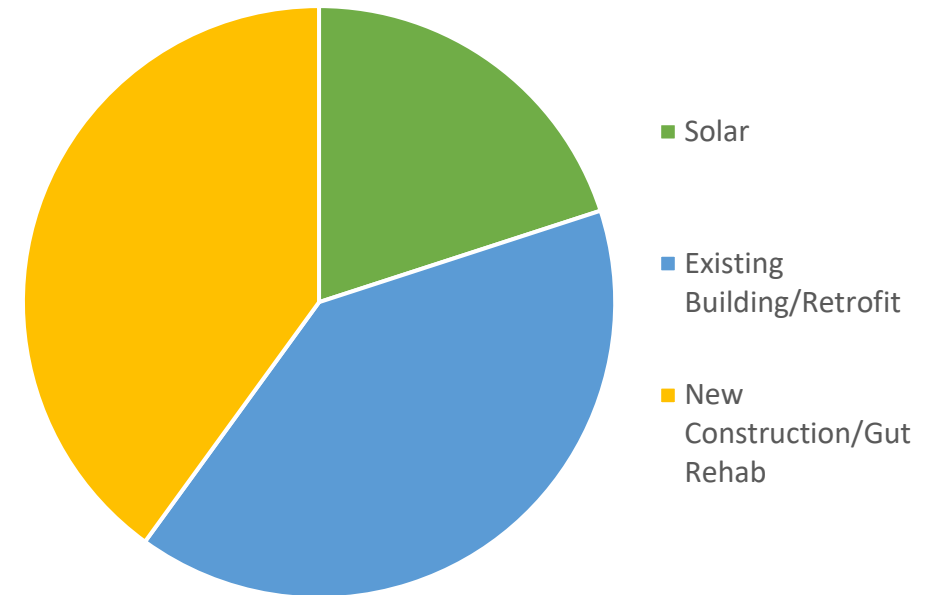
**Total PA C-PACE
Projects** **25**

Total PA C-PACE **\$219,427,337**

PA Counties

Allegheny
Lehigh
Montgomery
Northampton
Philadelphia

Project Type



Pennsylvania C-PACE Senior Lenders

- 100 Mile REIT, Inc
- Access Point Financial LLC (APF)
- Andrew Federal Credit Union
- Berkshire Bank
- Central National Bank
- Citizens Bank
- Forbright Bank
- Fulton Bank
- Lincoln Financial
- MCB Bank
- Meridian Bank
- M&T
- Ocean First Bank NA
- PCCP Credit
- PIDC
- PNC Bank
- Somerset Trust Company
- Torchlight Investors LLC
- Tri State Capital
- Valley National Bank
- Washington Capital Management
- WSFS

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Financing Energy and Sustainability Investments

The Role of C-PACE Financing

Fulton Bank

October 12, 2023

C-PACE Senior Lender Overview

- Why did Fulton Bank consent to C-PACE?
- How did Fulton Bank become comfortable with C-PACE?

C-PACE Senior Lender Overview

Lender Concerns

- Lien Priority
- Collateral Value
- Cash Flow / Debt Coverage
- Loan Sizing

Mitigating Factors

- C-PACE assessments do not accelerate
- No restriction on Senior Lender's foreclosure rights
- C-PACE Assessment Escrow
- Appraisal incorporating C-PACE impacts
- DCR calculation and options

Factors Not Underwritten

- Increase in property value
- Energy efficiency boost to NOI
- Increased occupancy due to lower energy costs
- Increased rental rates due to lower energy costs

Financing Energy and Sustainability Investments: The Role of C-PACE Financing

Carter W. Murdoch, PhD
Adjunct Professor of Finance/Real Estate
Drexel University
October 12, 2023



C-PACE Programs

C-PACE programs are generally geared toward the following:

- **Energy Efficiency** – HVAC and mechanical upgrades, energy-efficient lighting systems, insulation, etc.
- **Renewable Energy** – Solar panels, fuel cells, EV stations, etc.
- **Resiliency** – Stormwater management; fire, seismic, and hurricane measures; etc.

Pros/Cons of C-PACE Financing

BENEFITS OF C-PACE FINANCING	CONCERNS OF C-PACE FINANCING
Environmental Benefits	Lender Approval/Pushback
Limited Capital Requirement	Limits Sale Options
Improved Cash Flow	Property-Specific Financing
Long-Term, Non-Recourse Financing	Limited Availability
Lower Risk/Lower Cost to Finance	
Transferability	
Landlord/Tenant Benefits	



Lender Approval/PushBack

C-PACE assessments can also limit refinance options due to these senior liens. The Federal Housing Finance Agency (FHFA) has directed Fannie Mae and Freddie Mac not to purchase or refinance mortgages with C-PACE liens.



May Limit Sale Options

Properties that have C-PACE assessments attached to them can be more difficult to sell, as the new owner has to agree to pay the additional assessments.



Property Specific Financing

C-PACE loans are structured uniquely for individual properties and require cost/savings analysis specific to that property, making it difficult to utilize for a portfolio strategy.

- Many states and programs require a demonstration of savings above the upfront cost of improvements in the application and review process, known as the Savings to Investment Ratio (SIR). To qualify for C-PACE financing, a specific SIR may be required by that state or program.



Limited Availability

While C-PACE financing is becoming more prevalent, this financing can only be utilized in locations with PACE-enabling legislation. This includes statewide enactment as well as the participation of the local municipality.

- [35 states and Washington, D.C.](#), have enacted PACE legislation
- [Conduct due diligence into local or state program](#) to understand which improvements apply and how the process varies from state to state or local municipality to local municipality.



ECM Surveys and C-PACE Applications for the City of Philadelphia Energy Authority

PRACTICAL ENERGY SOLUTIONS
a Division of Spotts, Stevens and McCoy
practicalenergy.net | ssmgroup.com





PHILADELPHIA C-PACE

Eligible C-PACE Projects (§4.2)

- Energy and Water Projects
 - Energy Efficiency and Conservation Measures (ECMs)
 - Renewable Energy Measures
 - Water Conservation Measures
 - Calculations of expected energy/water/financial savings
- Indoor Air Quality Projects
 - Emerging guidance from ASHRAE regarding IAQ technologies
 - New construction
 - Design to meet specific performance thresholds
 - Adhere to accepted standards
 - Existing buildings
 - Filtration and air cleaning measures
 - Electrification of fossil fuel systems
- Resiliency Projects
 - Flood protection
 - Stormwater management
 - Electrical upgrades, generator connections
 - Passive House standard





PHILADELPHIA C-PACE

Who Can Complete the Survey?

- Energy and Water Projects
 - Qualified Engineering Professional
 - PE
 - ASHRAE – BEAP, HPBD
 - AEE – CEA, CEM, CMVP
 - ICP – Quality Assurance Assessor, Project Developer
 - Passive House - CPHC
- Indoor Air Quality Projects
 - Professional designer/engineer with documented IAQ experience
 - PE
 - RESET AP, WELL AP
 - IAQ Certified Industrial Hygienist
 - Passive House – CPHC
 - Certified Indoor Air Quality Professional (CIAQP)
- Resiliency Projects
 - PE or Architect licensed in PA





What Should the Survey Include? (§4.3)

- Energy and Water Projects
 - Written narrative including baseline conditions and detailed ECM descriptions
 - Total energy and cost savings, capital cost, and estimated useful life of each ECM
 - Generally-accepted engineering calculations or a whole-building energy model
 - Demonstrate each ECM exceeds code or meets code with tradeoffs
- Indoor Air Quality Projects
 - Document compliance with accepted standards
- Resiliency Projects
 - Baseline resiliency requirements
 - Proposed resiliency measures and incremental benefits