Better Buildings® CHALLENGE
U.S. DEPARTMENT OF ENERGY

Using CPACE Financing to Improve Efficiency and Resiliency in Buildings

May 30, 2018

U.S. DEPARTMENT OF ENERGY

Takeaway:

Understand how you can use CPACE financing to improve resiliency and energy performance in buildings

In the next hour, we'll cover…

1. Summary of Commercial PACE
2. Why CPACE for Resiliency Projects?
3. Successful Case Studies

Today's presenters

Name	Title	Organization
Joe Indvik	Senior Consultant	RE Tech Advisors
Andrew Zech	Chief Business Development Officer	Greenworks Lending
Michele Pitale	Managing Director	Counterpointe Sustainable Real Estate
Will Clark	VP, Originations	CleanFund

Commercial PACE Overview

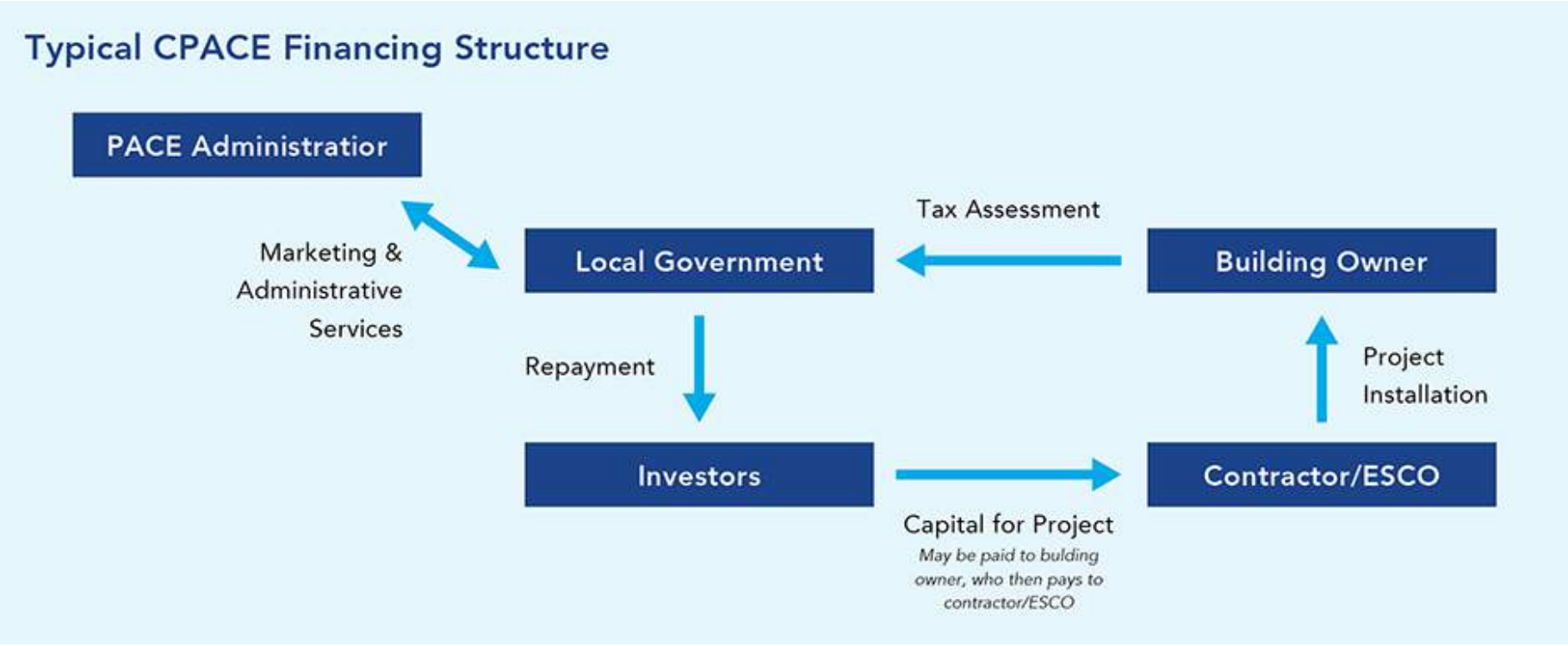
What is Commercial PACE?

Specialized financing mechanism for energy efficiency, renewable energy, water conservation, and more.

1. 100% upfront financing
2. Customer repays via assessment on property tax bill
3. Long 10-20 year terms
4. Transferable upon sale of building

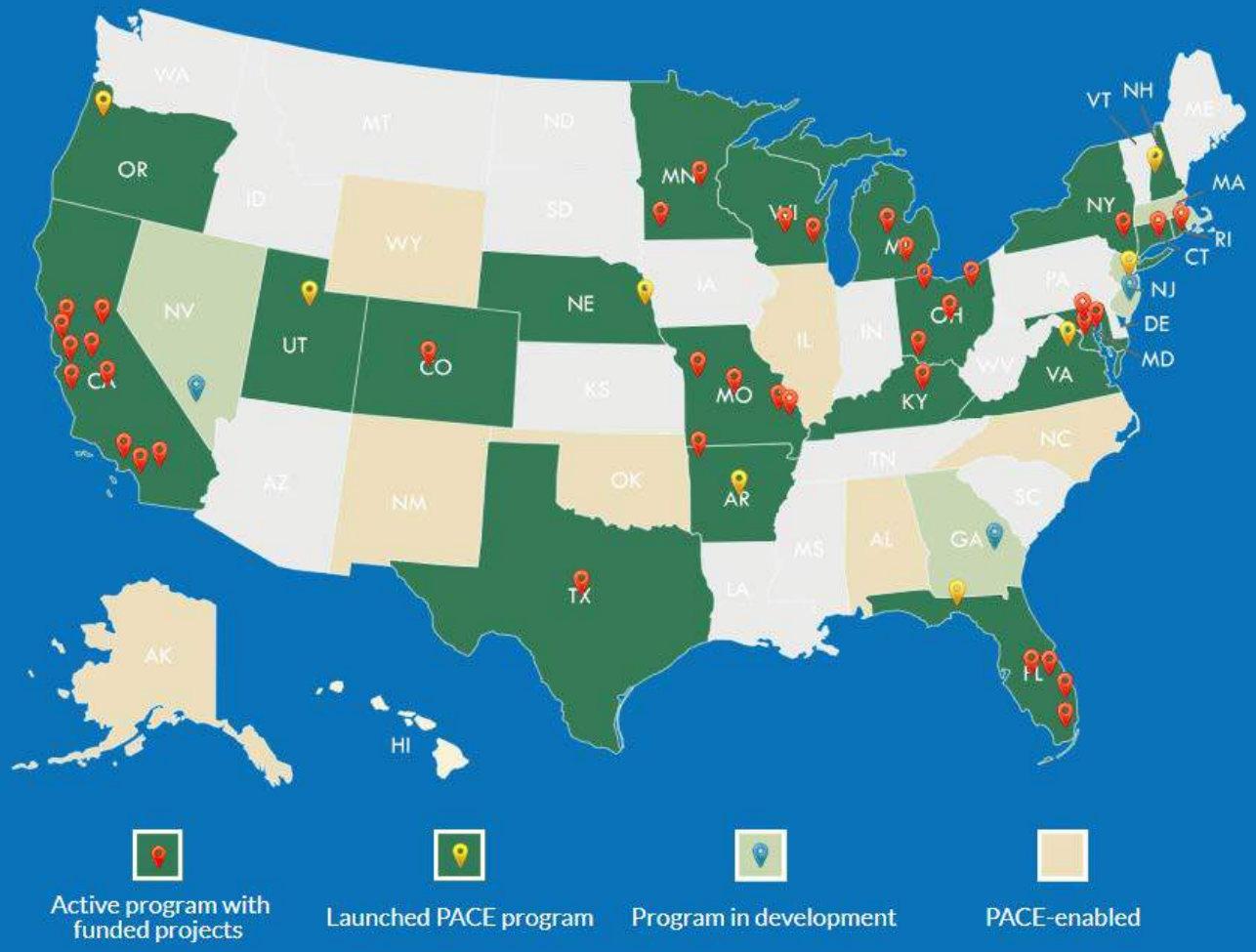
Source: Better Buildings Financing Navigator

How does it work?



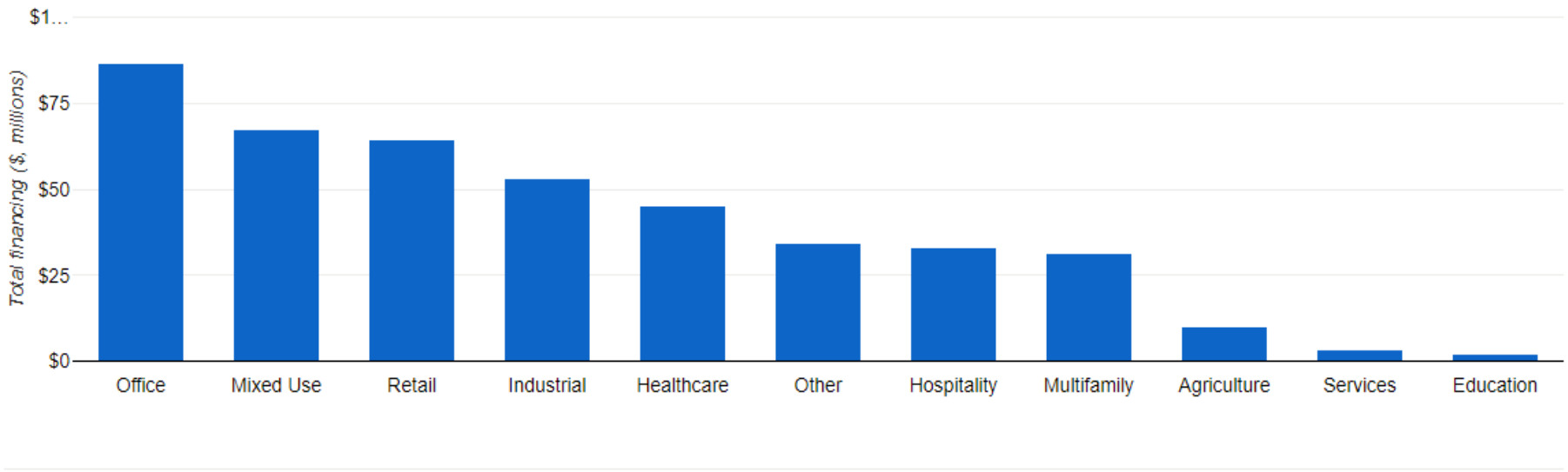
Source: Better Buildings Financing Navigator

33 states + DC have PACE-enabling legislation
20 states + DC have programs in place
$590 million financed with CPACE across 1,445 projects



Source: PACENation (http://pacenation.us/pace-programs/commercial)

CPACE Dollars Funded by Building Type



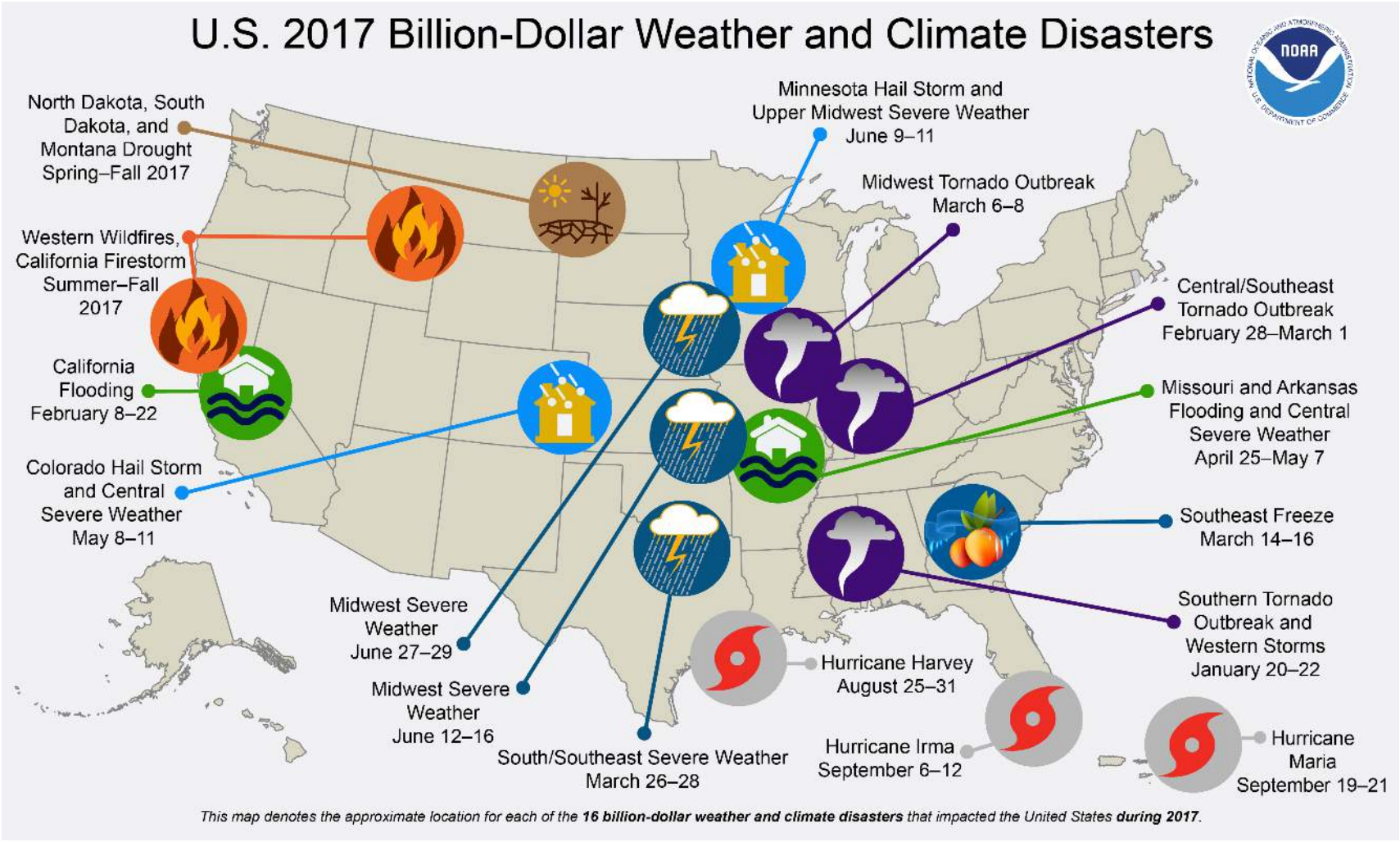
Source: PACENation (http://pacenation.us/pace-market-data/)

Typical Measures Funded by CPACE

Source: Rachel Davis, Petros PACE Finance

CPACE and Resiliency

$300 billion natural disaster damages in 2017



Source: https://www.ncdc.noaa.gov/billions/

What do we mean by resiliency?

COMMON RESILIENCY PROJECTS

Energy Supply
- Renewable energy
- Combined heat and power (CHP)
- Battery storage
- Backup generation
- Microgrid
- Electric vehicle charging

Resource Conservation
- Efficient lighting and HVAC
- Water efficiency measures
- Building envelope improvements

Structure Hardening
- Seismic retrofits
- Wind-resistant roofs and windows
- Flood mitigation

Ensure building systems continue operating

Reduce energy and water demand; increase operating time on backups

Mitigate property damage, injury, and system outages

Source: Better Buildings CPACE for Resiliency Toolkit

Advantages of CPACE for Resiliency

1. **100% Financing:** CPACE can finance all hard and soft costs of qualified resiliency measures

2. **Long Terms:** CPACE can provide long financing terms to smooth out cashflow impact of resiliency

3. **Transferable:** CPACE is connected to the building, not to the individual borrower

CPACE for Resiliency Toolkit

Better Buildings Commercial PACE Financing for Resiliency

BETTER BUILDINGS CHALLENGE

Commercial property assessed clean energy (CPACE) financing can be used to fund resiliency improvements that make buildings more resistant to natural disasters and other threats. Many of these projects have an energy component (e.g. energy efficiency, distributed generation, microgrid), but others do not (e.g. seismic retrofits, wind hardening). Current market trends point toward growing use of CPACE financing for resiliency, with the recent completion of several flagship projects including a $40 million seismic retrofit in California and the first-ever use of CPACE financing for a microgrid in Connecticut. At the same time, CPACE policies and programs are becoming more widespread across the United States. As of March 2018, 33 states plus the District of Columbia have passed legislation enabling PACE, and 20 states plus D.C. have active CPACE programs.

This fact sheet provides an overview for building owners, operators, and occupants that may want to take advantage of CPACE financing to improve resiliency in their facilities. It is part of the Better Buildings CPACE for Resiliency Toolkit.

The Challenges of Resiliency

In 2017, the U.S. experienced an historic number of weather and climate disasters. These events included droughts, floods, freezes, severe storms, tropical cyclones, and wildfires. According to the National Oceanic and Atmospheric Association, the cumulative cost of these disasters exceeded $300 billion, setting a new national record.

Impacts from weather, climate, and other disasters can often be mitigated by improving building resiliency. Resiliency is defined as "the ability to resist being affected by an event…or to return to an acceptable level of performance in an acceptable period of time after being affected by an event," such as a deliberate attack or naturally occurring threats like hurricanes, floods, droughts, earthquakes, fires, and other disasters.

In the case of buildings, resiliency projects typically take the form of retrofits that improve the envelope, structure, or systems of a building. Because energy is one of the more vulnerable aspects of building operation, these improvements often aim to make building energy systems more robust, independent, and/or efficient.

Resiliency projects can be divided into three categories, shown in the box. **Energy Supply** projects help ensure that critical building systems can continue operating during a grid or fuel supply interruption. **Resource Conservation** projects reduce the energy and water demands of a building, increasing the amount of time it can operate on backup power and reducing the impact of disruptions. **Structure Hardening** projects mitigate property damage, injury, and system outages in the event of disaster.

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Resource Conservation
- Efficient lighting and HVAC
- Water efficiency measures
- Building envelope improvements

Structure Hardening
- Seismic retrofits
- Wind-resistant roofs and windows
- Flood mitigation

Resiliency is a critical aspect of risk management that building owners, operators, and occupants need to consider—particularly those located in areas prone to natural disasters. However, resiliency improvements can be difficult to fund and implement. They often come with a high upfront capital cost. While some projects, like energy efficiency retrofits, generate immediate financial returns in the form of energy savings or improved building performance, many do not. Therefore, the benefits of these projects may not be reflected in current cashflows, even if they do provide long-term value by preventing disaster losses and increasing occupant security. Commercial PACE financing can help overcome this challenge by providing long-term financing attached to the property.

Learn more at energy.gov/betterbuildings

ENERGY

Market and Policy Trends

Case Studies

Your Next Steps

Learn more at energy.gov/betterbuildings

ENERGY

- Overview fact sheet
- Introductory webinars
- Case Study: Microgrid in Mixed-Use Building (Greenworks Lending)
- Case Study: Seton Medical Center Seismic Retrofits (CleanFund)
- Case Study: Southern Oaks Rehab and Nursing Center Hurricane-Proofing (CounterpointeSRE)
- Additional resources to be added

https://betterbuildingssolutioncenter.energy.gov/toolkits/commercial-pace-financing-resiliency

Case studies

777 Main St. Greenworks Lending

Project in brief:

- Developed by award-winning socially and environmentally conscious developer *Becker and Becker*
- Transformed former Hartford National Bank headquarters into a mixed use building with residential (285 units), office, dining, and retail.
- Attained LEED Platinum Certification
- **Resiliency project attracted key anchor retail tenant with resiliency requirements**
- PACE funding through Greenworks Lending
- Project partners included Eversource, Doosan, Encon, Fairfield County Bank, Ridgefield Bank, Capital Region Development Authority

777 Main St. Greenworks Lending

Selected Project Elements:

- **Resiliency:** microgrid consisting of Doosan fuel cell, solar array, and "island capable" control system
- **Efficiency:** LED lighting, low flow fixtures, energy and heat recovery systems, smart thermostats (Nest)
- **EV Charging Stations**

C-PACE Financial Impact:

- Reduced cost of capital (half the cost of mezz or equity)
- Reduced annual payment (20 year term)
- Increased leverage
- Increased return on equity
- Energy-related operating savings

Take-Away: Historic bank building renovated into LEED platinum mixed-use facility. Developer used C-PACE to lower average cost of capital in stack.

777 Main St. Greenworks Lending

Operating Savings from Onsite Clean Energy Generation:
(owner reporting)

Annual Energy Cost Savings	Fuel Cell	Solar	Combined
Power produced (kwh)	3,404,123	142,387	3,546,510
Avoided Electric Cost	$578,701	$24,206	$602,907
Submetering Income	$172,210	$7,175	$179,385
Avoided Thermal Cost	$87,210	0	$87,210
Fuel Cell Natural Gas Cost	-$129,575	0	-$129,575
Total Energy Cost Savings	$708,546	$31,381	$739,927

777 Main St. Greenworks Lending

For more on the 777 Main St. Greenworks Lending Case, please visit:

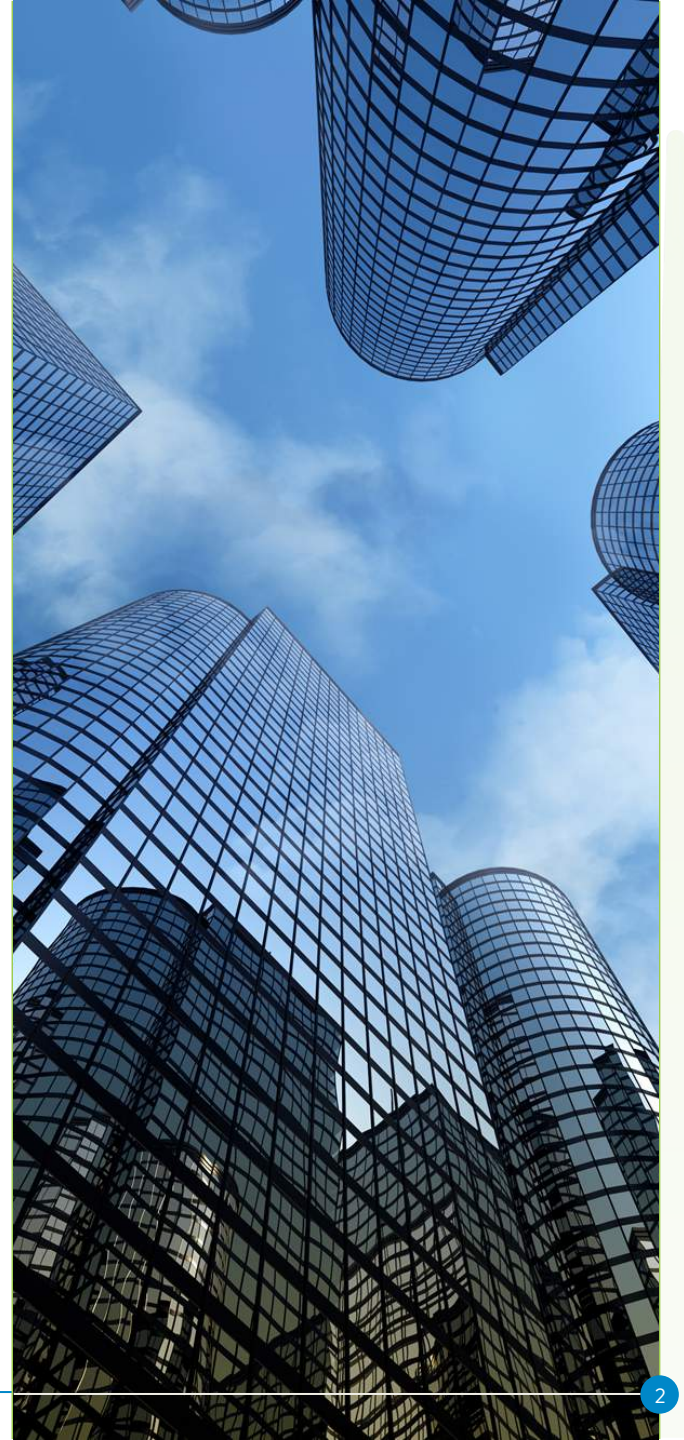
HANNON ARMSTRONG
INVESTING IN THE FUTURE OF ENERGY℠
COUNTERPOINTESRE™
A Hannon Armstrong Partner

The CounterpointeSRE /Hannon Armstrong Partnership

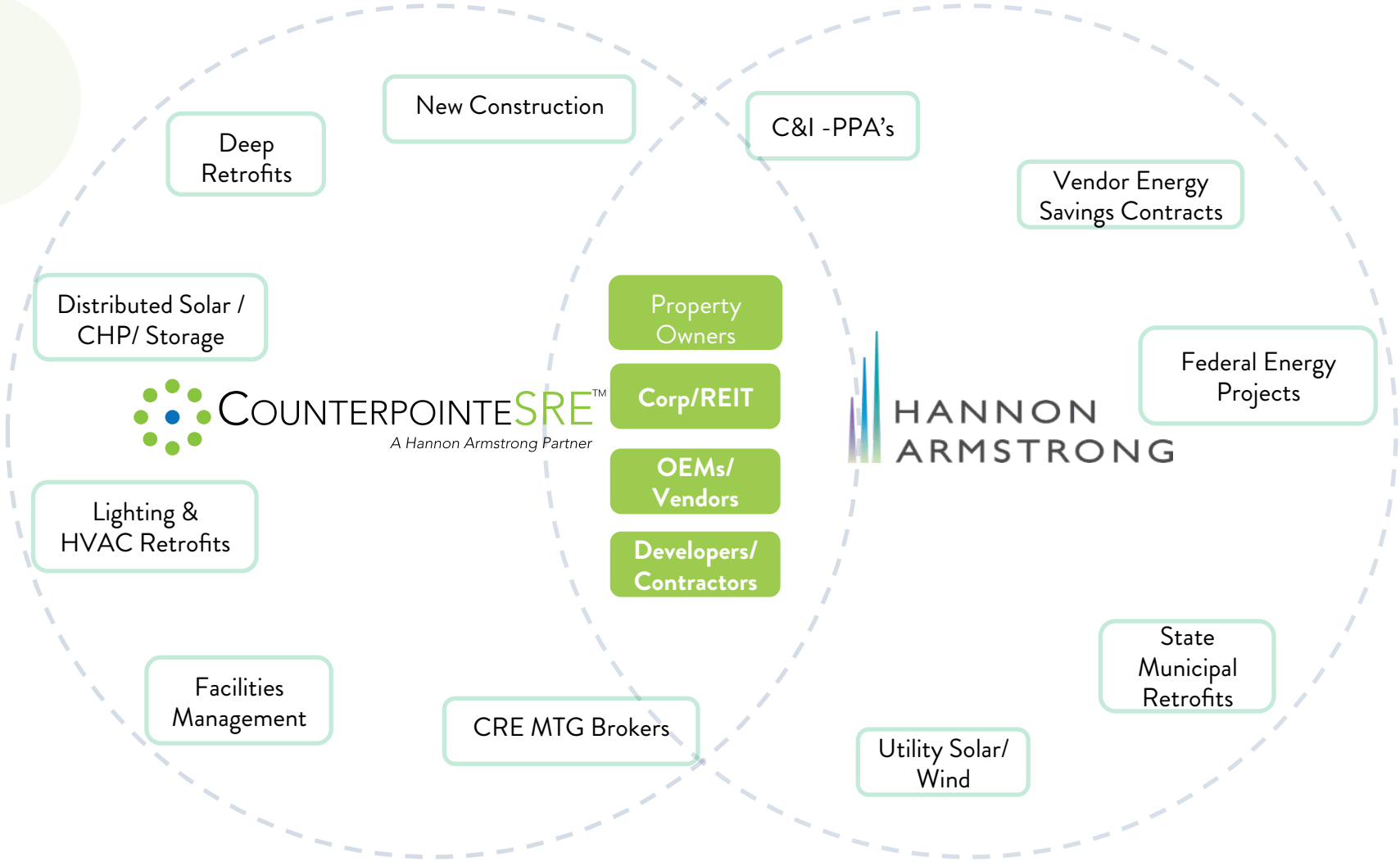
HASI (NYSE: HASI) is a publicly traded REIT and has been a leading investor in the sustainable infrastructure markets for over 35 years with over $4.6 billion of managed assets across debt and equity investments, including transactions sizes up to $250 million.

Principal investors target approx. $ 1 billion in transactions annually.

Counterpointe Sustainable Real Estate, one of the pioneers in PACE financing, is staffed with commercial real estate financing professionals with decades of experience at some of the leading financial services firms such as Merrill Lynch, Deutsche Bank, Standard & Poor's, Moody's, Guggenheim, GMAC. CounterpointeSRE utilizes its expertise and resources to provide a nationwide funding platform for commercial real estate improvements.



Positioned at the convergence of real estate and sustainability finance.



PACE Program Administration

- Counterpointe Energy Solutions administers PACE Programs in the largest, active jurisdictions of the PACE industry. As a Program Administrator, Counterpointe provides engagement, oversight, and servicing to the applicable public agencies through a public private partnership.

COUNTERPOINTEENERGY™ *Solutions*

California
California Statewide Communities Development Agency (CSCDA)

CSCDA OPEN PACE
PROPERTY ASSESSED CLEAN ENERGY

Florida
Florida PACE Funding Agency (FPFA)

Florida PACE Funding Agency

New Jersey
Hudson, Passaic, Union, Middlesex

PASSAIC COUNTY NEW JERSEY

HUDSON COUNTY IMPROVEMENT AUTHORITY

UCIA UNION COUNTY IMPROVEMENT AUTHORITY

Middlesex County Improvement Authority

CounterpointeSRE is a capital provider up to $100mm per project in active PACE programs nationwide.

Utilizing PACE to Improve Resiliency

- Ideally suited to support both Property Owners and City Planning Initiatives

Earthquakes

Water Shortage

Wind

Stormwater, Extreme Rainfall, and Heat Waves

Power-CHP units, generators, renewable energy, microgrids

Winter Weather

Coastal Flooding

CounterpointeENERGY™ Solutions

CSCDA Open PACE – Property Assessed Clean Energy

Florida PACE Funding Agency

Hudson County Improvement Authority

Passaic County, New Jersey

UCIA Union County Improvement Authority

Middlesex County Improvement Authority

Pace for Seismic Strengthening

- In 2015, San Francisco partnered with Counterpointe Energy Solutions to provide PACE financing for its city-sponsored Soft Story Retrofit Program for mandatory soft story retrofits.

ESIP

COUNTERPOINTEENERGY™ *Solutions*

Other California municipalities have since established mandatory seismic retrofit programs.

California state law was enacted to allow PACE financing for commercial seismic improvements throughout the state as of January 1, 2017.

PACE for Seismic Strengthening

	Multifamily (condo)	**Transaction** San Francisco Mandatory Soft Story Retrofit Program	Property Assessed Clean Energy Financing $100K 30 yrs
	Multifamily	**Transaction** Los Angeles Soft-Story Retrofit Program	Property Assessed Clean Energy Financing $200K 30 yrs
	Multifamily	**Transaction** Los Angeles Soft-Story Retrofit Program	Property Assessed Clean Energy Financing $100K 30 yrs
	Mixed Use	**Transaction** San Francisco Mandatory Soft Story Retrofit Program	Property Assessed Clean Energy Financing $1 MM 20 yrs

PACE for Extreme Rainfall, Heat Wave, and Storm Water Management

CounterpointeSRE Green Roof Program -Resiliency Benefits

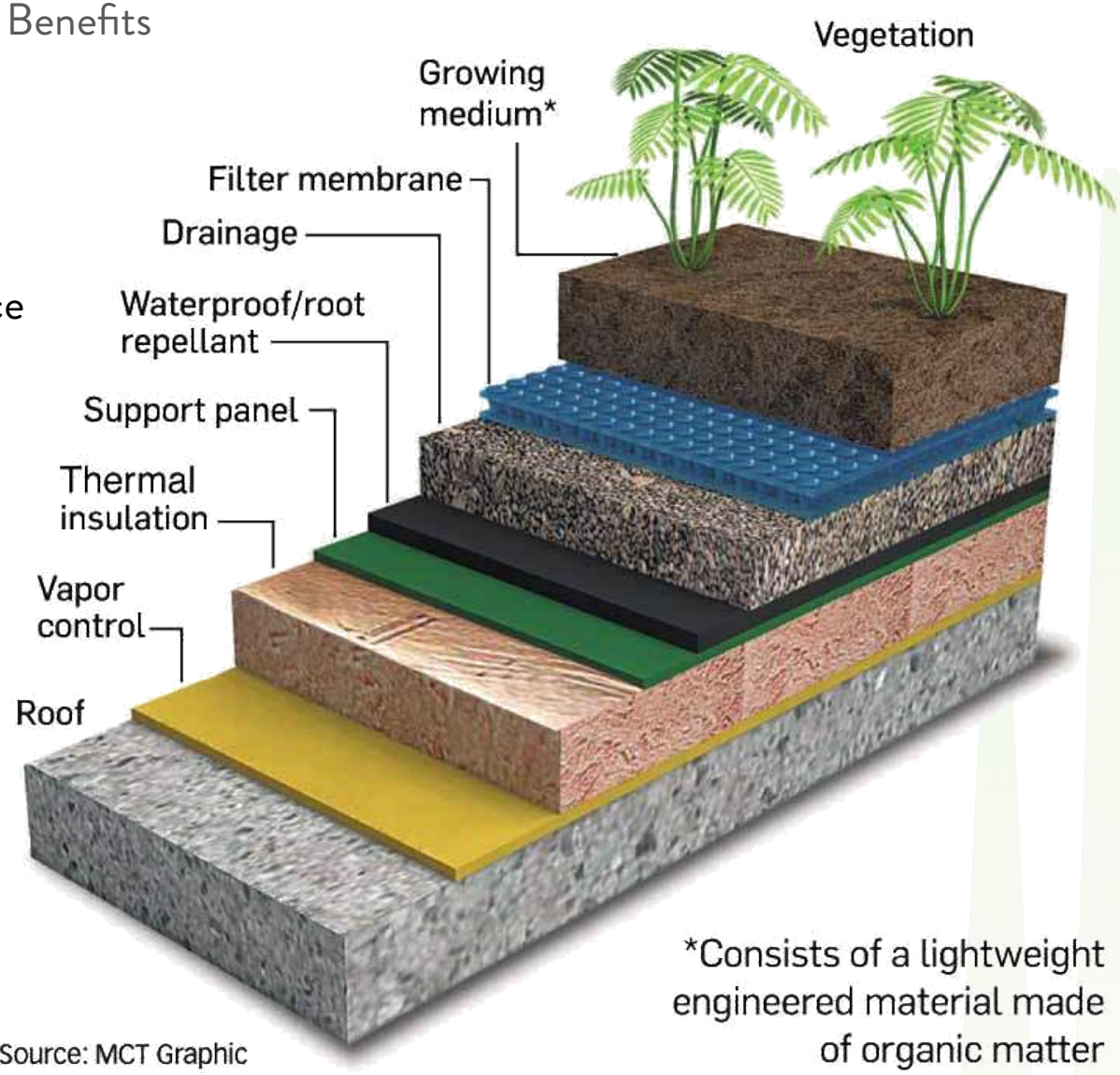
Storm Water Management

Low Impact Development-Mitigates Lost Green Space

Modulates Ambient Temp- Urban Heat Island Effect

Filters Air, Dust, Toxins and Water Run0ff

Habitat



Source: MCT Graphic

*Consists of a lightweight engineered material made of organic matter

PACE for Hurricane Preparedness

Wind, Storm Surge, Power Outages and Flooding

FLORIDA PACE FUNDING ACT

- Wind Resistant Shingles
- Creating Secondary Water Barrier
- Strengthen Roof Deck Attachment
- Reinforced roof-to-wall connections
- Gable-end bracing
- Storm Shutters or Opening Protections

<u>Assessment Breakdown:</u>

Q1 2018 Florida PACE assessments for Wind Zone (140mph) areas

69% Impact Windows & Doors
29% Wind Resistant Roofing
2% Storm Shutters

PACE for Resiliency-Wind Resistant Improvements

Retail

Transaction

Various energy retrofits and wind resistant upgrades including Barrel-vault skylights and roofing for Washington Prime Mall Portfolio in Florida

Property Assessed Clean Energy Financing $12.8 mm

Retail

Transaction

Various energy retrofits and various wind resistant upgrades for multiple Simon Malls in Florida

Property Assessed Clean Energy Financing $15.7 mm

Retail

Transaction

Impact Windows and Doors conforming to Miami-Dade County Standards installed in specialty shopping center

Property Assessed Clean Energy Financing $ 390K

CASE STUDY

Hurricane Preparedness – Skilled Nursing Facility

Southern Oaks Rehabilitation and Nursing Center, Pensacola, FL

The Challenge:

Built in 1978, the original roof and 267 windows required replacement and significant upgrade to conform with Wind Speed Maps and updated Florida Building Code for Public Assembly Buildings. With its current mortgage maturing in 2 years, Southern Oaks sought a way to upgrade the facility without refinancing or using equity capital.

The Solution:

Structural retrofit utilizing C-PACE financing for EnergyStar impact windows, upgraded roofing, water barrier and concrete fasteners. In addition, owner upgraded elevator to improve energy efficiency.

The Result:

- Increased safety for patients and staff
- Reduced insurance premiums due to 'hurricane –proofing' upgrades
- Decreased energy usage from energy efficient windows, elevator and upgraded roof insulation
- Owner preserves capital with no out-of-pocket costs

25 year fixed rate PACE financing
$527,860
Impact Windows up to 200mph
Wind Resistant Roofing > 140mph

Contact Information

Michele Pitale, M.D.

Counterpointe Sustainable Real Estate

(855) 431-4400

mlp@CounterpointeSRE.com

HASI
LISTED
NYSE

HASI Investor Relations

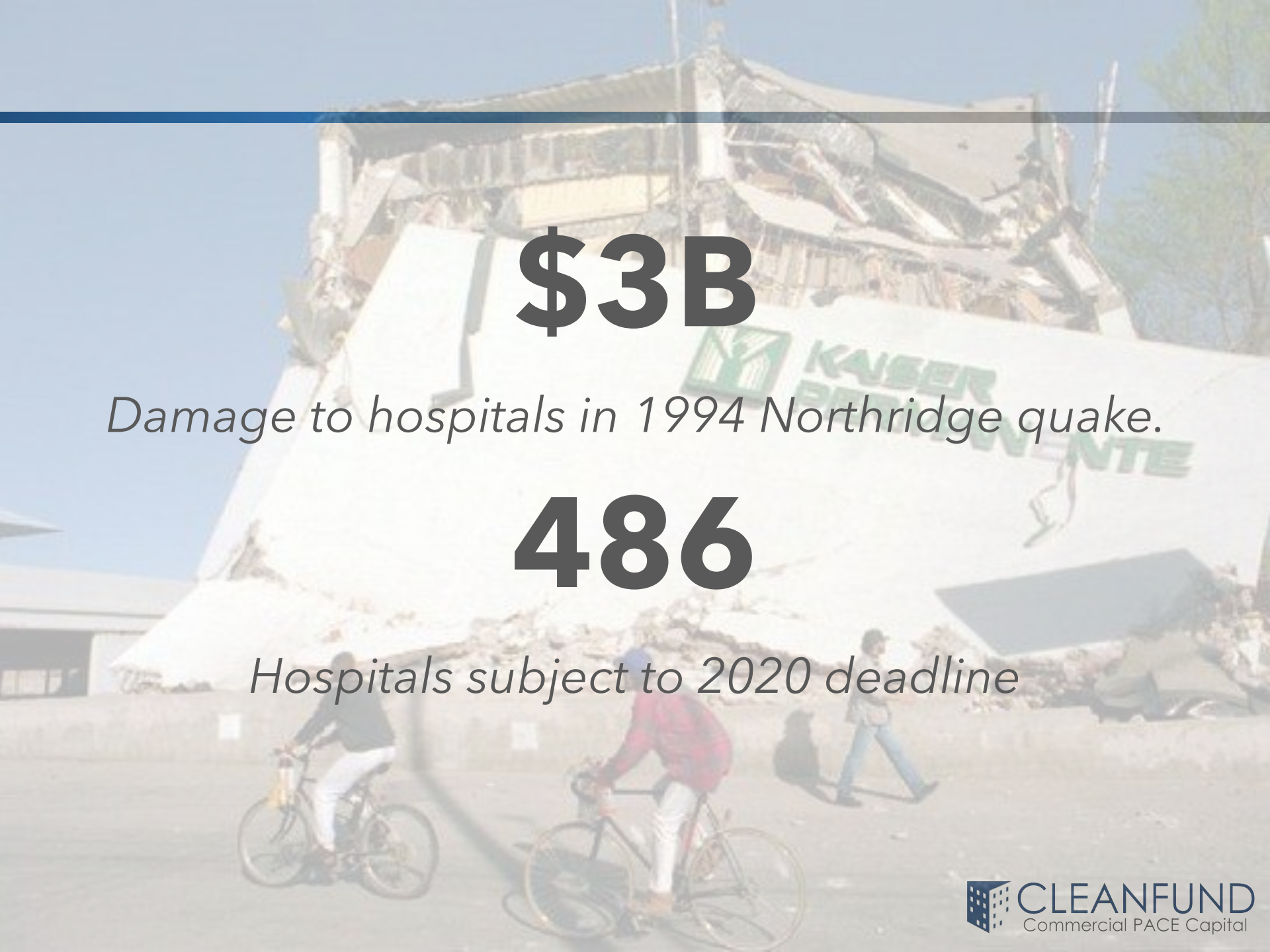
www.hannonarmstrong.com

410-571-6189

CleanFund and Seton-Verity Hospital

C-PACE for Resiliency

CLEANFUND
Commercial PACE Capital



$3B

Damage to hospitals in 1994 Northridge quake.

486

Hospitals subject to 2020 deadline

CLEANFUND
Commercial PACE Capital

Seton Medical

Built 1963

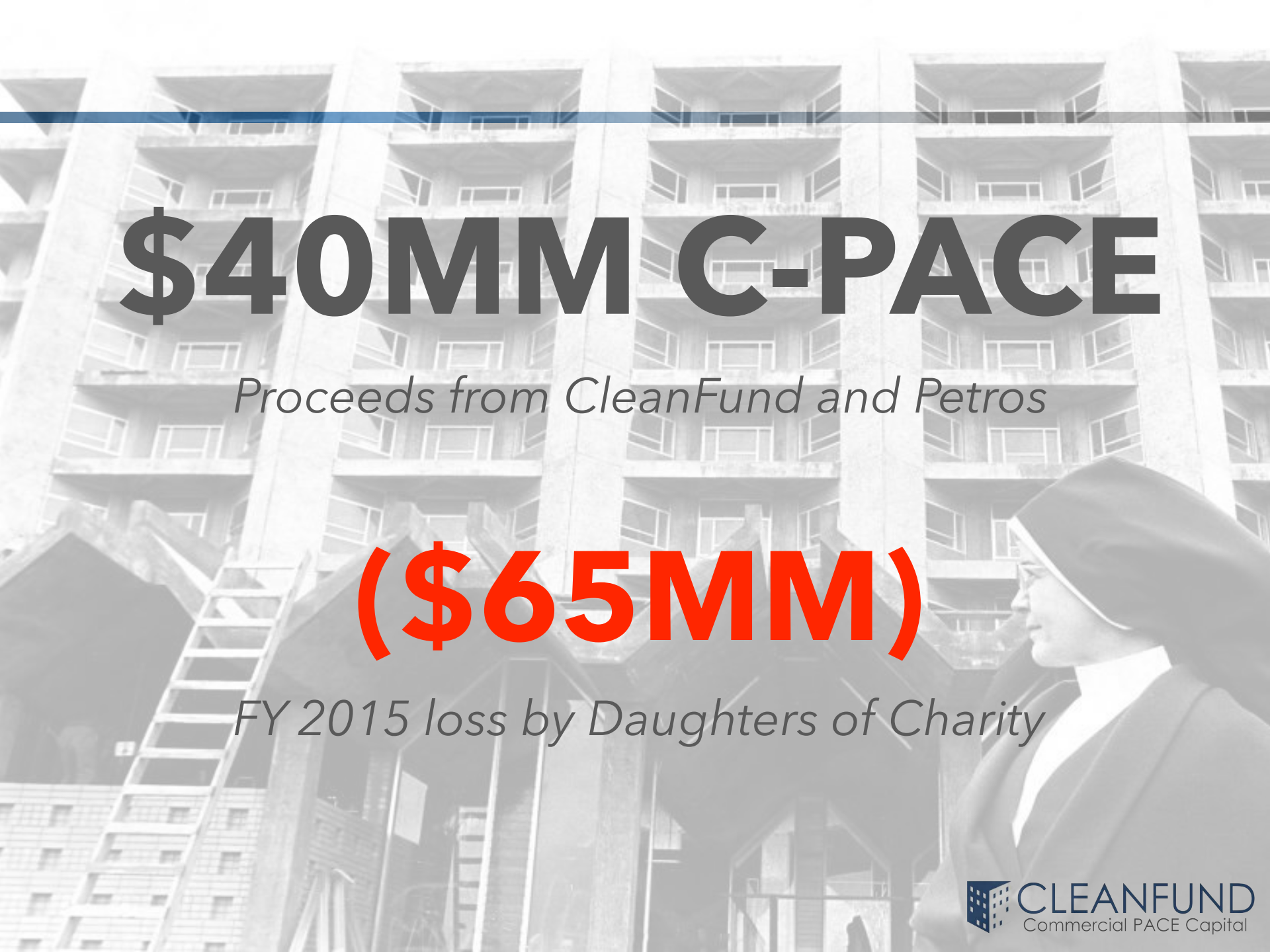
1,907

Largest employer in Daly City, CA

24,435

Annual emergency visits

CLEANFUND
Commercial PACE Capital



$40MM C-PACE

Proceeds from CleanFund and Petros

($65MM)

FY 2015 loss by Daughters of Charity

CLEANFUND
Commercial PACE Capital

1963 Tower and Wing

216,155 sf

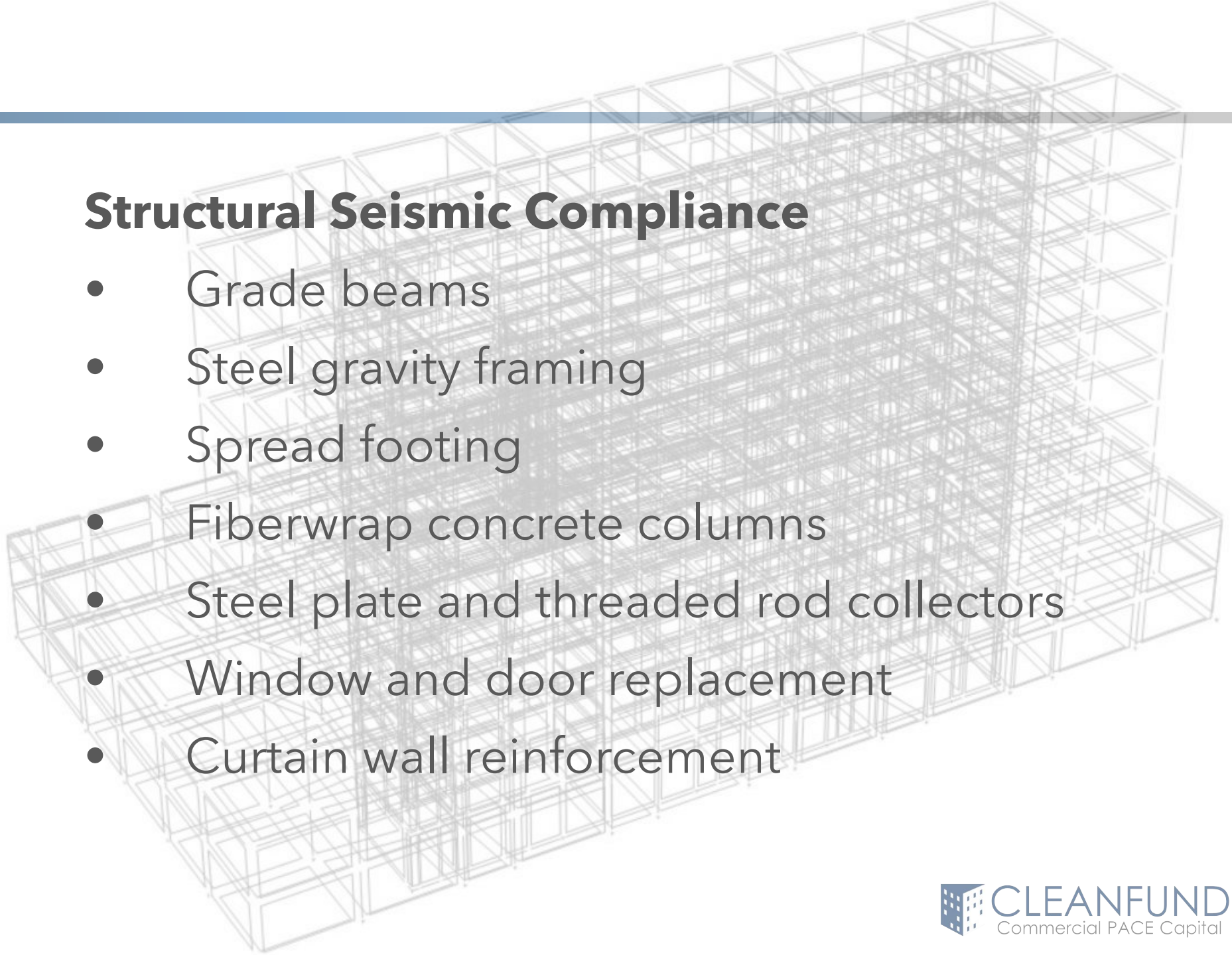
1978 Expansion

109,922 sf

1978 “Pod” Expansion

29,000 sf

CLEANFUND
Commercial PACE Capital



Structural Seismic Compliance

- Grade beams
- Steel gravity framing
- Spread footing
- Fiberwrap concrete columns
- Steel plate and threaded rod collectors
- Window and door replacement
- Curtain wall reinforcement

CLEANFUND
Commercial PACE Capital

Non-Structural Seismic Compliance

- Communication systems
- Emergency power
- Bulk medical gas
- Fire alarms and emergency lighting
- Suspended ceilings
- Hospital equipment
- Fire sprinklers
- Above ceiling utilities

CLEANFUND
Commercial PACE Capital

C-PACE Eligible Improvements

- Structural seismic upgrades
- Non-structural seismic improvements
- Windows and door replacement
- Mechanical upgrades
- Water efficiency repairs
- Engineering and architectural work

CLEANFUND
Commercial PACE Capital

SETON MEDICAL CENTER

C-PACE for Resiliency

Will Clark, VP of Originations
www.cleanfund.com

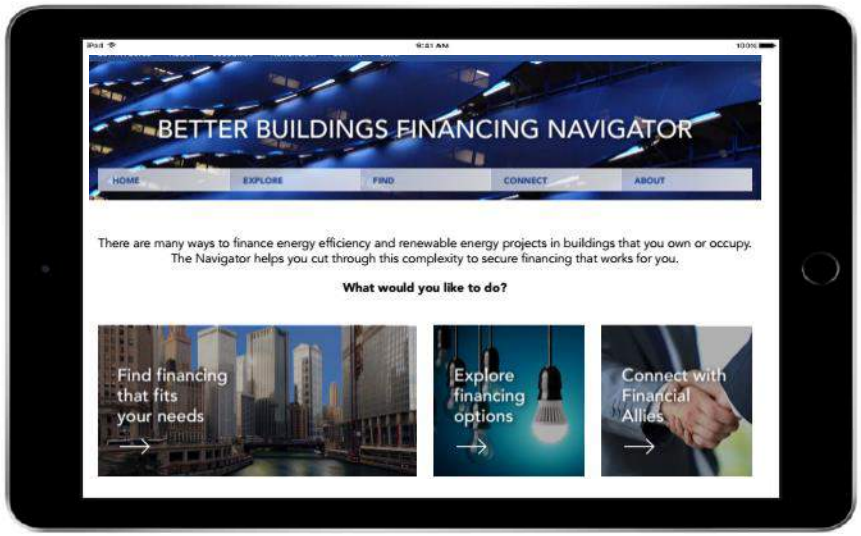
CLEANFUND
Commercial PACE Capital

Next Steps
&
Additional Resources

http://pacenation.us/pace-programs/

The Better Buildings Financing Navigator

The Navigator is an online tool that helps public and private organizations find financing solutions for EE&RE projects.



With the Navigator, you can…

1. **Explore:** Learn the basics of the EE&RE financing market
2. **Find:** Answer a few simple questions to see which financing options might be a fit for your project
3. **Connect:** Speak to Better Buildings Financial Allies who may be able to finance your project

Now available at: https://betterbuildingssolutioncenter.energy.gov/financing-navigator

- **2018 Energy Exchange and Better Buildings Summit**
- August 21st-23rd in Cleveland, OH
- Registration is open! Early bird registration ends June 15th
- Highlights include:
  - Panel sessions and technical trainings (earn CEUs)
  - Peer-to-peer discussions
  - Ask-an-Expert/FEMP Lounge
  - Networking opportunities
  - Pre- and post-conference workshops
  - Better Buildings Partner sessions
  - Building Tours

For more information and to register:
2018energyexchange.com

CPACE for Resiliency Toolkit

Better Buildings Commercial PACE Financing for Resiliency

BETTER BUILDINGS CHALLENGE

Commercial property assessed clean energy (CPACE) financing can be used to fund resiliency improvements that make buildings more resistant to natural disasters and other threats. Many of these projects have an energy component (e.g. energy efficiency, distributed generation, microgrid), but others do not (e.g. seismic retrofits, wind hardening). Current market trends point toward growing use of CPACE financing for resiliency, with the recent completion of several flagship projects including a $40 million seismic retrofit in California and the first-ever use of CPACE financing for a microgrid in Connecticut. At the same time, CPACE policies and programs are becoming more widespread across the United States. As of March 2018, 33 states plus the District of Columbia have passed legislation enabling PACE, and 20 states plus D.C. have active CPACE programs.

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Learn more at energy.gov/betterbuildings

ENERGY

Market and Policy Trends

Case Studies

Your Next Steps

Do you want to move forward with … operate, or occupy? Consider the …

1. Confirm that applicable … PACENation to look up …
2. Speak with financing provi… find a list of PACE financi… Financing Navigator.
3. Learn more about CPACE… CPACE fact sheet.

Learn more at energy.gov/betterbuildings

ENERGY

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