Better Buildings Webinar Series

We’ll be starting in just a few minutes….

Tell us…

What topics are you interested in for future webinars?

Please send your response to the webinar organizers via the question box.
Finance and Resilience Initiative Part 2: Taking Action to Improve Resilience & Disclose Performance

April 28, 2020
3:00 – 4:00 pm EDT
In case you missed it…

Finance and Resilience Initiative Part 1: Building the Business Case for Resilience

April 21, 2020
3:00 – 4:00 pm EDT

Watch Part 1 on the Better Buildings Solution Center
Joe Indvik
Head of Clean Energy Finance, RE Tech Advisors
Sector Lead, Better Buildings Financial Allies
Agenda

1. Overview of common resilience improvements, financing mechanisms, and disclosure frameworks
2. Introducing the DOE Resilience Roadmap
3. Insights from the field
4. Q&A
Takeaway: Practical tools to help commercial buildings measure, manage, and mitigate climate and resilience risk.
Today’s Presenters

Guy Van Syckle
Hannan Armstrong

Mike Doty
Greenworks Lending

Brenna Walraven
Corporate Sustainability Solutions
Finance and Resilience Initiative

**Need:**
Building owners looking for guidance on where to start on resilience as climate and weather disasters intensify and market pressure increases.

**Goal:**
Bring together experts and emerging best practices to help building owners measure, manage, and mitigate resilience risk. Focus on energy and climate, with other areas considered.

**Activities:**
- Roundtable of industry experts from CRE, finance, and insurance industries
- Develop actionable resources
- Share insights with the market

**Steps Toward Resilience**
- Measure Risk
- Build the Business Case
- Manage Insurance Risk
- Finance & Implement Improvements
- Disclose Resilience Performance
- Create a Resilience Plan

Resilience Roadmap
Resilience Roadmap is Now Live on the Solution Center

Steps to Resilience

1. Building the Financial Business Case for Resilience
   This fact sheet introduces the Resilience Roadmap and reviews key concepts including the challenges of resilience, understanding and measuring risk, and how to quantify and articulate the financial business case for resilience improvements.

2. Managing Insurance Cost and Business Risk
   This fact sheet discusses the role that the insurance industry plays in mitigating resilience risk and offers best practices for building owners to work effectively with insurers.

3. Financing and Implementing Resilience Projects
   This fact sheet discusses implementing resilience improvements across a commercial building portfolio and evaluating financing options that can help overcome upfront costs and other common barriers to resilience.

Available at: https://betterbuildingssolutioncenter.energy.gov/finance-resilience
# Common Resilience Projects

**COMMON RESILIENCE 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: DOE Resilience Roadmap
Energy and Resilience Financing Options

Energy Efficiency and Renewable Energy Financing

Traditional Financing
- Leases
  - Capital Lease
  - Operating Lease
  - Tax-Exempt Lease
  - Solar Lease
- Loans
  - Commercial Loan
  - Below-Market Loan

Specialized Financing
- On-Bill
  - On-Bill Financing (OBF)
  - On-Bill Repayment (OBR)
- Property Assessed Clean Energy (PACE)
  - Commercial PACE
  - Residential PACE (not included in Navigator)
- Energy Services
  - Efficiency-As-A-Service
  - Energy Savings Performance Contract (ESPC)
  - Power Purchase Agreement

COLOR KEY
- ENERGY EFFICIENCY (EE)
- RENEWABLE ENERGY (RE)
- BOTH RE & EE
The Better Buildings Financing Navigator is an online tool that helps public and private organizations find financing solutions for energy efficiency and renewable energy projects.

With the Navigator, you can...

1. **Explore:** Learn the basics of the clean energy 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

Available at: [https://betterbuildingssolutioncenter.energy.gov/financing-navigator](https://betterbuildingssolutioncenter.energy.gov/financing-navigator)
Better Buildings Financial Allies
Resilience Finance Case Studies

Available on the Better Buildings Solution Center: https://betterbuildingssolutioncenter.energy.gov/solutions

• Primer on CPACE + Resilience
• EE&RE + Microgrid Case Study
• $40M Seismic Upgrade for Hospital
• Hurricane-Proofing a Nursing Center

...and more.
Disclosure Frameworks

Final Report
Recommendations of the Task Force on Climate-related Financial Disclosures

June 2017
Creating a Resilience Risk Management Plan

- **What is your overall resilience strategy?**
  - Mission statement & Objectives
  - SWOT Analysis
  - Milestones
  - Governance

- **How will you measure and analyze risk?**
  - Risk exposure, materiality, and vulnerability
  - Data tracking
  - Key performance indicators (KPIs)

- **How will you implement improvements?**
  - Process for identifying and prioritizing upgrades
  - Insurance strategy
  - Service providers and financing options

- **How will you communicate progress?**
  - Public disclosure and investor reporting
  - Tenant engagement
  - Marketing

Source: [DOE Resilience Roadmap](https://www.energy.gov)
Guy Van Syckle
Hannon Armstrong
TAKING ACTION TO IMPROVE RESILIENCE & DISCLOSE PERFORMANCE

DOE BETTER BUILDINGS
FINANCE + RESILIENCE INITIATIVE WEBINAR

Guy Van Syckle, CFA
April 28, 2020
WHO WE ARE

HASI LISTED NYSE
First U.S. public company solely dedicated to investments in climate change solutions

Climate-Positive Investor
~$1 Billion Invested Annually
>$6 Billion Managed Assets

Markets & Asset Classes

- **Behind-The-Meter**
  - Energy Efficiency
  - Distributed Solar
  - Storage

- **Grid-Connected**
  - Solar Land
  - Onshore Wind

- **Sustainable Infrastructure**
  - Clean Water
  - Ecological Restoration
  - Resiliency
Our investments help address a variety of resiliency concerns based upon geography and customer.
ILLUSTRATIVE INVESTMENTS

Energy Efficiency
<$30 million
Public-Private Partnership with the local municipality for new boilers, HVAC and LED lighting resulting in $2 million in annual savings
Clients: Publicly traded energy service companies

C&I Solar
<$50 million
Equity investment in a distributed portfolio of ~200 C&I projects, including high credit quality corporates, such as FedEx and Target
Clients: Solar sponsors

Ecological Restoration
<$20 million
Investments in mitigation credits for wetland and stream restoration projects across four states.
Clients: Environmental development firms

Stormwater Remediation
<$10 million
Four separate projects to slow pollution runoff into downstream waterways across the Chesapeake Bay region
Clients: Environmental development firms
A “FINANCING PROBLEM” IS OFTEN REALLY A..

Hannon Armstrong is currently funding resiliency projects according to the credit criteria used on standard capital projects.
PRIMARY RESILIENCY FINANCING STRUCTURES

- **Bond Issuance**: General Obligation or Revenue Bond (i.e. backed by Stormwater fees)

- **Lease Agreement**: Fixed payment obligation over term of lease

- **Performance Contract or Services Agreement**:
  - Customer only pays engineering firm/financier if certain performance metrics are met
  - Resiliency typically paid for out of energy and operational savings, potential savings just from resiliency (i.e. avoided stormwater fees and reduced insurance costs) insufficient to support financing payments
  - Potentially credit neutral for credit rating agencies if service payment offset by savings

- **Property Assessed Clean Energy**: Assessment on property tax bill to pay for improvements
Paying for Resilience with Energy and Operational Savings

CASE STUDY: Energy Savings Performance Contract at Parris Island Marine Corps Base
CASE STUDY: ESPC AT PARRIS ISLAND MARINE CORPS BASE

- Comprehensive upgrade of lighting, water fixtures and control systems across 200+ facilities and associated $6mn in annual savings subsidized longer payback resiliency measures
- Ameresco is on the hook for installation & performance, US Gov payment is contingent on realized savings/performance
- Ameresco is owed payments by US Gov for the next 25yrs under ESPC, Hannon Armstrong purchased those contract payments to fund the upfront project cost of $90 million
Paying for Required Resilience Improvements Over Time

CASE STUDY: Maryland State Highway Administration Stormwater Management
CASE STUDY: MD STORMWATER MANAGEMENT PROJECTS

- GreenVest executed an $18m “pay for performance” contract with the Maryland State Highway Administration to help the Administration satisfy their storm water permit obligations under the Clean Water Act
- GreenVest will generate stream restoration credits¹ and the Administration will purchase the credits as they are generated over a 7-year period
- Hannon Armstrong funded the design, permitting and construction and will be paid back through GreenVest credit sales

¹) Impervious Acres Treated (IAT) credits to satisfy the Maryland State Highway Administration’s Chesapeake Bay Total Daily Maximum Load (TMDL) and Municipal Sperate Sewer Permit obligations
THANK YOU

Guy Van Syckle
gvansyckle@hannonarmstrong.com
(410) 571-6165

Visit our website at www.hannonarmstrong.com

This presentation is for informational purposes only and does not constitute an offer or solicitation to sell shares or securities, including without limitation in Hannon Armstrong or any related or associated company. Any such offer or solicitation will be made only in accordance with the terms of all applicable securities and other laws. None of the information or analyses presented are intended to form the basis for any investment decision, and no specific recommendations are intended. Accordingly, this presentation does not constitute investment advice or counsel or solicitation for investment in any security and does not constitute or form part of, and should not be construed as, any offer for sale or subscription of, or any invitation to offer to buy or subscribe for, any securities, nor should it or any part of it form the basis of, or be relied on in any connection with, any contract or commitment whatsoever. Hannon Armstrong expressly disclaims any and all responsibility for any direct or consequential loss or damage of any kind whatsoever arising directly or indirectly from, (i) reliance on any information contained in this presentation, (ii) any error, omission or inaccuracy in any such information or (iii) any action resulting therefrom.

Securities are offered by Hannon Armstrong Securities, LLC, a registered broker-dealer, member FINRA and SIPC and subsidiary of Hannon Armstrong Sustainable Infrastructure Capital, Inc.
Mike Doty
Greenworks Lending
C-PACE: Financing for Resiliency Through Economic Instability

Webinar: April 28, 2020
Introduction

Greenworks Lending is a leading provider of Commercial Property Assessed Clean Energy (C-PACE) financing. Led by several of the industry’s founding policy developers and standard-setters, the company was founded in 2015 with the goal of bringing C-PACE financing to building owners and developers across the country. Greenworks has provided financing to hundreds of commercial properties and is active in over 20 states.

The company completed the industry’s first rated securitization in September 2017 and completed a second securitization in December 2018.
C-PACE 101

Commercial Property Assessed Clean Energy (C-PACE):

- Public-private financing through which private lenders finance qualified public benefit improvements in commercial properties

- Eligible measures include energy efficiency, renewable energy, water conservation projects, and seismic & hurricane resiliency

- Fixed-rate financing that self-amortizes over the life of the improvements, typically 20-30 year terms

- Enabled by State law and modeled after long-established public benefit assessments (i.e. utility, downtown renewal)

- Documented by a tri-party financing agreement between borrower, C-PACE lender, and government-appointed administrator

- Administrator places a non-accelerating assessment on the property’s tax parcel, and remits payments to C-PACE lender

- Requires consent from secured lenders; obtained from 250+ lenders

C-PACE is Spreading Across the U.S.

11 Available Markets in 2015

22 Available Markets in 2020
**Powerful Solution**

**Cash Flow**
- 100% financing
- Long payback period, fixed rate
- Covers all hard and soft costs
- Owner keeps ITC and tax benefits

**Flexible & Secure**
- No personal or corporate guarantee
- Transfers on sale
- Costs can be passed through in lease or hospitality structures
- Preserves borrowing capacity

**Easy to Qualify**
- Qualify based on property value
- Funds most energy and water projects
- All standard commercial property types
- Non-accelerating
Most Buildings Qualify

Building Requirements

✓ Commercial, Industrial, Non-Profit, Multi-Family >5 Units
✓ Does NOT work for residential, government
✓ Located within operational PACE municipality
✓ Current on property taxes

Financial Requirements

✓ Financed amount cannot exceed 35% of property value - and 20% for new construction
✓ Total property debt (mortgage + PACE) cannot exceed 95% of property value
✓ Not in bankruptcy
✓ Meets other state statutory requirements

Hotels & Offices
Increase tenant and guest comfort as well as net operating income

Retail
Invest in windows, lighting and more with long-term, low-cost capital

Manufacturing
Offset high energy use with renewables and ensure operations with resiliency measures

Multi-family
Properties with greater efficiency are not only more profitable, but marketable to tenants as well
Project Types

Energy Efficient Upgrades and Deferred Maintenance
Replace HVAC, lighting, windows, roof, etc. or improve seismic or hurricane resiliency to improve property and portfolio value.

New Construction & Gut Rehabs
Improve cash on cash returns; decrease cost of capital; fill equity gaps.

Solar & Renewables
100% financing and 20+ year repayment drives day-one cashflow and maximizes tax equity for owners.
Legislated Resilience Financing

- CA (Seismic and Storm Water)
- CT (Microgrid)
- DC (Flood Protection and Storm Water)
- FL (Wind Resistance and Flood Protection)
- IL (Dupage county all resiliency)
- OR (Seismic and Storm Water)
- UT (Storage, EV, Rain Catchment, Seismic)
- VA (Fairfax Only - Seismic, Hurricane, Stormwater, EV, Non-Diesel Generation)
- WI (Outside Milwaukee Brownfield Redevelopment)
## Resiliency Measures

### All C-PACE States:
- ✔ CHP
- ✔ Storage
- ✔ UV HVAC Disinfection with EE Measures

### Regional Measures
- ✔ Seismic
- ✔ Stormwater
- ✔ EV
- ✔ Hurricane
- ✔ Flood Protection
- ✔ Microgrid
Energy Efficient Upgrades & Deferred Maintenance

Automated Building Controls

HVAC Systems

Boilers, chillers and furnaces

High Efficiency Lighting

Hot Water Heating Systems

Variable Speed Drives

Water Conservation

Resiliency

Building Envelope

- Improve building value by dropping operating expense and improving building equipment

- Preserve capital expenditure using C-PACE financing to replace old equipment

- Tax assessment structure may allow pass-through on NNN leases and room surcharge
New Construction

- Greenworks capital is roughly half the prize of mezz/pref
- Non acceleration means senior lenders will likely find comfort
- Can be fully repaid at anytime with no yield maintenance
- Can fill construction budget gaps due to cost overruns or delays

Increase return on equity:
In this example, ROE improved 46.5% via the replacement of mezzanine debt and reduction in equity

Decrease weighted cost of capital: WACC improves with C-PACE financing, in this case 160bps. The scenario at left yielded an estimated $310k/yr

Permanent financing from day one:
Long-term fixed rate capital that stays with the property from construction through term
C-PACE & Economic Volatility

C-PACE Refinancing Provides Liquidity for Businesses:
Greenworks can reimburse property owners for recently completed C-PACE-eligible projects (up to 1 year in CT) - generating immediate liquidity and freeing up capital for operations and reserves.

C-PACE Helps Complete Capital Stacks:
Greenworks can fill funding gaps in new construction, gut rehab, and retrofit projects - solving issues with construction delay, cost overruns, and lender/investor pullback.

C-PACE Allows 24-Month Repayment Delay for CRE Owners:
Financing is fixed rate, non-recourse, does not include financial covenants, and includes no payments for up to 24 months post-closing. Funding levels up to 35% of property value.
Retroactive Financing

States Allowing Retroactive Financing

- CA (3 years)
- CT (1 year)
- DC (Case by case)
- FL (3 years)
- KY (No limit)
- MD - PG Co. (18 months)
- MI (3 years)
- MO (Case by case)
- MN (1 year)
- NY (Case by case)
- OH (No limit)
- PA (Back to Aug of 2018)
- RI (2 years)
- TX (Case by case)
- WI (30 months)
Wheatfield Gardens

PROPERTY SUMMARY
Wheatfield Gardens is a hybrid greenhouse vertical farm located in Niagara County, NY with a focus on producing leafy green vegetables and high CBD hemp.

OPPORTUNITY
Wheatfield Gardens enlisted the help of C-PACE to finance a 340 kW Combined Heat and Power system. This CHP unit is the base of a microgrid system that supports a unique and patented advanced Controlled Environment Agriculture (CEA) system which facilitates the efficient production of hydroponic lettuce and hemp. By simultaneously controlling heating, cooling, humidity and CO2 in the farm’s 12.5-acre greenhouse, the system will allow them to meet inhouse energy and supplemental CO2 needs and derive energy efficiency benefits.

<table>
<thead>
<tr>
<th>BUSINESS TYPE</th>
<th>BUILDING TYPE</th>
<th>PROJECT TYPE</th>
<th>LOAN SIZE</th>
<th>C-PACE TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRICULTURE</td>
<td>GREENHOUSE</td>
<td>EFFICIENCY</td>
<td>$1,997,581</td>
<td>20 YEARS</td>
</tr>
</tbody>
</table>
Wheatfield Gardens, North Tonawanda, NY

ENERGY EFFICIENT FARMING

“Greenworks’ C-PACE financing has helped us meet our sustainability and productivity goals while also providing upfront capital and long-term savings. A major focus of ours at Wheatfield Gardens is sustainability and it is great to be able to use C-PACE financing to alleviate the financial burden that often comes with investing in more resource-efficient measures like LED lighting and Microgrids.”

- Paal Eifstrum, CEO of Wheatfield Gardens

YEAR ONE SAVINGS

$471,775

SAVINGS OVER PROJECT LIFE

$8,788,261
777 Main Street

PROPERTY SUMMARY
Originally built in the 1960s as the 26-story tall headquarters of Hartford National Bank, 777 Main Street is now certified LEED Platinum, features 285 mixed-income apartments and a commercial space on the ground floor, and is the nation's first C-PACE financed microgrid.

OPPORTUNITY
Planning and installation of a 15KW rooftop solar photovoltaic array to compliment a multi-measure microgrid system that includes everything from a 400KW fuel cell to NEST thermostats in each residence.

<table>
<thead>
<tr>
<th>BUSINESS TYPE</th>
<th>BUILDING TYPE</th>
<th>PROJECT TYPE</th>
<th>LOAN SIZE</th>
<th>C-PACE TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIXED USE DEVELOPMENT</td>
<td>MULTI-FAMILY/RETAIL</td>
<td>MICROGRID, SOLAR; MECHANICAL CONTROLS</td>
<td>$1,000,000</td>
<td>20 YEARS</td>
</tr>
</tbody>
</table>
Advantages

- Greenworks’ best in class underwriting leads to a smooth financing process
- Reputation in industry facilitates mortgage lender consent (required)
- Balance sheet lender
- Transparent, rapid approval process

The Process

- Largest C-PACE provider in the U.S.
- First firm to securitize asset class
- Original state policy authors

Long Term

- Greenworks develops long-term relationships as part of each project, including contractors, owners and other stakeholders
Thank You
Brenna Walraven
Corporate Sustainability Solutions
Taking Action to Improve Resilience + Disclose Performance

Better Buildings Finance + Resilience Initiative
April 28, 2020
Brenna Walraven, BOMA Fellow
Agenda

- How vs. Why
  - Business Case for Resiliency

- Growing Investor Interest (Pressure)

- Alphabet Soup
  - Benchmarking and Disclosure of Climate Related Risks & Opportunities

- Future Expectations
  - Greater Risk Management and Transparency

RESILIENCE

[ri-zil-yuhns]

the power to be able to recover readily from adversity or challenge
Moody’s Warns Cities to Address Climate Risk or Face Downgrades

U.S. 2019 Billion-Dollar Weather and Climate Disasters

Disaster zones
Total number of natural disasters* reported per country, 1995-2015

Source: UNSDR

*Hydrological, climatological and meteorological
How + Why for Commercial Real Estate + Resilience

- Failing to Prepare is Preparing to Fail
- Includes Business Continuity
  - For the Building & Support Teams
  - For Building Tenants
- Be Neighborly
- Embrace the Community
  - First Responders
  - City & County Agencies
  - Sustainability & Resiliency Offices

won’t you be my neighbor?
**Business Case is the Why**

- **Save more than you spend**
  - financial drivers are real

- **Enhance brand**
  - be known as good corporate citizen
  - win-win solutions on saving costs and enhancing value

- **Reduced risk will increasingly be priced into real estate**
  - Sustainability – also means measuring, monitoring, and managing
  - Resiliency adaptations

- **Sustainability is increasingly viewed as a proxy for good management and risk reduction**
Growing Investor Interest (Pressure)
Market Context for Growing Investor Interest in ESG

- Evidence of market shifts
- Increasing Climate Related Legislative + Regulatory Requirements
  - Energy Benchmarking & Disclosure, Local Law 92, etc.
- Security Exchange Commission (SEC)
  - SASB, TCFD, GRESB
- Investors are inquiring
- Appraisals including Sustainability
- Growth of Certifications
- Corporate campaigns for social causes
- Demographics are shifting
  - More people care, particularly young people
Why Investors are Increasingly Focused on Climate Change

35% of REIT properties are exposed to climate hazards
- per GeoPhy and 427 Analysis

Larry Fink, BlackRock CEO Letter to Investors
- “Research from a wide range of organizations on the socioeconomic implications of physical climate risk is deepening our understanding of how climate risk will impact both our physical world and the global system that finances economic growth.”
- “Our investment conviction is that sustainability and climate-integrated portfolios can provide better risk-adjusted returns to investors.”
Types of Climate Risk + Their Potential Impact on Real Estate

PG&E plans power outages starting Wednesday; they could affect Palo Alto too
Quarter-million people across dozens of Bay Area cities at risk of losing electricity; agencies urge people to plan ahead

The highlighted communities in this map provided by PG&E face power shutoffs as part of the utility company's efforts to ensure its electrical equipment doesn't spark a wildfire. Image courtesy PG&E.
Why do Investors Increasingly Care?

How a focus on ESG, and specifically Resiliency, can Impact Value

Accretive Value Drivers
- Increased Occupancy
- Increased Tenant/Resident Retention
- Shorter Lease-up and Down Time
- Lower Operating Expenses
- More Desirable Spaces (light, air)
- Potential for Rent Premiums
- Higher NOI’s
- Value Creation

Defensive Value Protectors

Decreased...
- Regulatory Compliance Risk
- Functional Obsolescence Risk
- Climate Risk: Flood/Wind/Fire/Drought
- Insurance Premium Risk
- Carbon + Resource Expense Risk
- Reputational Risk
- Resilience Risk: Recovery/Business Interruption Losses
- Down Cycle Valuation Risk
Alphabet Soup
Benchmarking and Disclosure of Climate Related Risks + Opportunities

- Overview of SASB
- Overview of GRESB
- Overview of TCFD
SEC requires disclosure on anything that an investor would see as the potential to have a material impact on financial performance of a company

- SASB has guidelines around materiality and disclosure
- Public REIT’s will increasingly need to disclose and set strategy to deal with material impacts
  - Part of Strategic Planning
  - Annual Reporting
  - Annual Sustainability/ESG Report
  - Recurring Materiality Assessments
GRESB Overview

- Global Real Estate Sustainability Benchmark
- Over USD 4.5 trillion in Real Asset Value \(^1\)
- Only reporting framework specific to real estate
- GRESB investor members represent USD 22 trillion in institutional capital \(^1\)
- Measured against 3 main components

1. GRESB 2019 Results: Sustainable Real Assets
2. Development Component: if applicable/suitable for entities involved in new construction and/or major renovation projects or with on-going or completed projects during the reporting period.
TCFD has identified the following types of climate risks and opportunities:

- **Climate-Related Risks:**
  - Transition to a low-carbon economy
  - Physical risks for climate change related weather event
    - Fire, flood, hurricane, tornados, polar vortexes, earthquake

- **Climate-Related Opportunities:**
  - Resource Efficiency
  - Energy Source
  - Products and Services – like better buildings
  - Markets

- **Resilience**
  - How do we better prepare for and recover from weather related events
Future Expectations for Greater Risk Management + Transparency
Traditional Insurable Loss Calculations

- Traditional insurable loss calculations
- 1. Lost market share
- 2. Missed growth opportunities
- 3. Negative investor sentiment

THE MAJORITY OF LOSS IS PREVENTABLE
Future Expectations for Greater Risk Management and Transparency

https://www.economist.com/international/2017/11/02/climate-change-lawsuits
"Tomorrow’s World”: Megatrends Impacting Real Estate Investment in Next 15 Years

**TECH REVOLUTION**
Interaction between technology megatrends (i.e. AI, automation, IoT etc.) and real estate. Enables cost effective reductions in environmental impact. Also brings risk of obsolescence and falling behind.

**INVESTORS AWARE**
Carbon bubble bursts and carbon risk will affect capital allocation. Investors may over compensate initially. European funds & Real Estate initially structurally buffered.

**KEEPING LIGHTS ON AND GREEN**
Governments focused on grid electricity and heat decarbonisation. Energy consumption reduces but peak demand increases – time of use dictates cost. Tightening building regulations & zero carbon buildings.

**DATA OVERDRIVE**
Major growth in data availability resulting in broader understanding. Buildings assessed on operations, occupants link performance with productivity, investors scrutinize funds.

**CLIMATE CHANGE BITES**
Increasing impacts of climate change & social & economic consequences of global climate change trends i.e. mass migrations from affected regions. Buildings must be resilient and flexible to handle changes.
Thank You
BETTER BUILDINGS

Better Buildings is an initiative of the U.S. Department of Energy (DOE) designed to improve the lives of the American people by driving leadership in energy innovation. Through Better Buildings, DOE partners with leaders in the public and private sectors to make the nation’s homes, commercial buildings and industrial plants more energy efficient by accelerating investment and sharing of successful best practices.

Stay connected and informed: subscribe here.

JUNE 8-11
2020 SUMMIT

ICYMI!
Q & A
2019-2020 Better Buildings Webinar Series

- **BACK BY POPULAR DEMAND:** THE BEST OF THE 2019 BETTER BUILDINGS SUMMIT
  Tue, Sep 17, 2019 | 3:00 - 4:00 PM ET

- **GETTING TO 100%:** OVERCOMING BARRIERS TO TENANT DATA COLLECTION
  Tue, Oct 1, 2019 | 3:00 - 4:00 PM ET

- **ENERGY EFFICIENCY AND RENEWABLE ENERGY IN SMALL AND RURAL K-12 SCHOOLS**
  Tue, Oct 22, 2019 | 3:00 - 4:00 PM ET

- **HOW BUILDINGS OF ALL SHAPES AND SIZES ARE BECOMING ZERO ENERGY USERS**
  Tue, Dec 3, 2019 | 3:00 - 4:00 PM ET

- **BEST OF THE BETTERS:** THE 2019 BETTER PROJECT AND BETTER PRACTICE PRESENTATIONS
  Tue, Jan 7, 2020 | 3:00 - 4:00 PM ET

- **RETHINKING LEASING:** SPOTLIGHT ON THE 2019 GREEN LEASE LEADERS
  Tue, Nov 12, 2019 | 3:00 - 4:00 PM ET

- **SAVE MONEY AND BUILD RESILIENCE WITH DISTRIBUTED ENERGY TECHNOLOGIES**
  Tue, Feb 4, 2020 | 3:00 - 4:00 PM ET

- **BUILDING VALUE:** HOW ENERGY EFFICIENCY IMPACTS MORTGAGES AND MORE
  Tue, Mar 3, 2020 | 3:00 - 4:00 PM ET

- **FINANCE + RESILIENCE:** a two-part miniseries
  **PART 1:** BUILDING THE FINANCIAL BUSINESS CASE FOR RESILIENCE
  Tue, Apr 21, 2020 | 3:00 - 4:00 PM ET

  **PART 2:** TAKING ACTION TO IMPROVE RESILIENCE & DISCLOSE PERFORMANCE
  Tue, Apr 28, 2020 | 3:00 - 4:00 PM ET

- **GET SMART (LABS):** RESULTS FROM THE SMART LABS ACCELERATOR
  Tue, May 12, 2020 | 3:00 - 4:00 PM ET

- **On-Demand Webinars**
For the past three years, 18 Better Buildings partners have been working through the Smart Labs Accelerator to reduce their energy intensity in their laboratory buildings through the development of a Smart Labs Program. This webinar will highlight best practices for developing a Smart Labs Program and feature results from Accelerator participants.
Additional Resources

Finance and Resilience Roadmap:
https://betterbuildingssolutioncenter.energy.gov/finance-resilience

Better Buildings Financing Navigator:
https://betterbuildingssolutioncenter.energy.gov/financing-navigator
Better Buildings®
U.S. Department of Energy

JUNE 8–11
2020 SUMMIT
A Virtual Leadership Symposium

Learn more and register: betterbuildingssolutioncenter.energy.gov/summit
Additional Questions?

Please Contact Us

Follow us on Twitter @BetterBldgsDOE

Better Buildings Solution Center https://betterbuildingssolutioncenter.energy.gov/

General Inquiries gtw@retechadvisors.com

Program Support ksanderson@retechadvisors.com

Mike Doty
Greenworks Lending
mdoty@greenworkslending.com

Guy Van Syckle
Hannon Armstrong
gvansyckle@hannonarmstrong.com

Brenna Walraven
Corporate Sustainability Solutions
brenna@css-strategies.com

Joe Indvik
RE Tech Advisors
jindvik@retechadvisors.com