

C-PACE Financing and Resilience

MWCOG Built Environment and Energy Advisory Committee (BEEAC)

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Virginia Department of Mines, Minerals and Energy (DMME)



What is Commercial PACE?

Commercial Property Assessed Clean Energy (C-PACE) is a tax-assessment based financing mechanism for commercial property owners to fund energy efficiency, renewable energy, and water conservation projects with low upfront costs.



100% financing.
Funds hard and
soft costs.



Improves building
stock + decreases
operating costs.



Market-based.
Uses private
financing.



Spurs economic
development +
creates local jobs.

Who is the Mid-Atlantic PACE Alliance?

The Mid-Atlantic PACE Alliance (MAPA) is a partnership between stakeholders in Virginia, Maryland and the District of Columbia, created to accelerate Commercial PACE (C-PACE) programs and project financing in the MDV region.



MAPA is a collaboration between the Virginia Department of Mines, Minerals and Energy (DMME), the District of Columbia Department of Energy and Environment (DOEE), and the Maryland Clean Energy Center (MCEC) and other industry and not-for-profit partners. The Mid-Atlantic PACE Alliance is supported by grant funding from the U.S. Department of Energy.

Which measures can be financed with C-PACE?



HVAC system upgrades



High-efficiency lighting



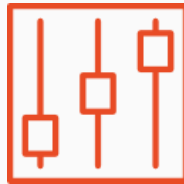
Solar energy equipment



Water conservation & hot water systems



High-efficiency boilers and furnaces, heating ventilation



Building energy management and controls



Building envelope improvements



Cogeneration, energy storage and more!

What types of buildings can use C-PACE?



Commercial



Industrial



Multifamily
(5+ units)



Agricultural



Faith &
Nonprofit

THE POWER OF C-PACE



Social Equity

C-PACE has been used to preserve affordable housing, rehabilitate community centers and places of worship, expand access to clean energy for family farms, and improve school buildings.



Job Creation

C-PACE has infused over \$1 billion investment into local economies and created over 16,000 jobs.



Resource Conservation

C-PACE funds energy efficiency, water conservation, and renewable energy measures that reduce fossil fuel consumption and result in improvements to air, soil, and water quality.

C-PACE Mid-Atlantic Market Expansion

The screenshot shows a web browser window with the URL `pacealliance.org/mapamap`. The browser's address bar and tabs are visible at the top. The website's navigation bar includes links for Home, What is C-PACE?, Where is C-PACE?, Resources, Project Map (highlighted), News, Events, and More. Social media icons for LinkedIn and Twitter are also present.

The main content area features a map titled "Mid-Atlantic PACE Alliance project data map" with a sub-note: "This map was created by a user. Learn how to create your own." The map shows the Mid-Atlantic region, including parts of Virginia, West Virginia, Maryland, Delaware, and Pennsylvania. A legend on the right side of the map provides the following information:

- jurisdiction has C-PACE enabling legislation (light blue square)
- jurisdiction does not yet have C-PACE legislation (light green square)
- multi-family housing (red house icon)
- large commercial building (red shopping cart icon)
- small commercial building (red storefront icon)
- social services (red person icon)
- office building (red office building icon)
- medical building (red H icon)
- sporting & recreation (red person with gear icon)
- school (red school icon)
- brewery / tavern / restaurant (red bar icon)
- church (red cross icon)

The map shows that jurisdictions in Maryland, Delaware, and parts of Virginia and Pennsylvania have C-PACE enabling legislation. Various project types are marked with red icons on the map, primarily in the Washington, D.C. area and surrounding regions.

Map data ©2020 Google Terms 20 mi

12:11 PM 9/16/2020

2019: Resilience added to Virginia's C-PACE Code (§15.2-958.3)

*“The kinds of renewable energy production and distribution facilities, energy usage efficiency improvements, **resiliency improvements**, or water usage efficiency improvements for which loans may be offered. **Resiliency improvements may include mitigation of flooding or the impacts of flooding or stormwater management improvements with a preference for natural or nature-based features and living shorelines”***



Examples: Resilience Measures

Electricity and Lighting	→ Relocate or protect critical electrical circuitry
Energy Storage & Generation	→ Provide backup power for critical systems
Elevators	→ Provide backup power source
Envelope and Structure	→ Dry and wetproof building
Envelope and Structure	→ Design with non combustible cladding & insulation
Envelope and Structure	→ Install floating foundations
Envelope and Structure	→ Shutters, impact resistant openings, roof braces
Plumbing	→ Install sewage backflow prevention devices
HVAC	→ Raise equipment, upgrade ventilation systems
Fire suppression	→ Elevate pumps to protect from flooding
Stormwater management	→ Install pervious pavement, blue roofs



Table courtesy of Abby Johnson, Virginia PACE Authority

Holistic (Multiple Benefit) Measure – Green Roof



Photo courtesy of Riverbend Nursery

- ✓ Provides increased roof insulation (energy savings)
- ✓ May extend roof membrane life by blocking UV rays
- ✓ Holds rainwater and slows/reduces runoff (part of comprehensive stormwater management plan)
- ✓ Mitigates heat island effect
- ✓ Pollinator habitat

Resilience and 2018 USBC

Resilience Working Group

Variety of measures proposed with emphasis on flooding/stormwater and wind resistance include:

- ✓ **B1612.2.1-18: Elevation Requirements for All Buildings.** Adjusts all base flood elevation requirements to BFE+2 feet and increases resilience to flood damage.
- ✓ **B1804.8-18: Protection from Local Drainage.** Reduces flood risk adjacent to buildings by requiring additional elevation in some flood areas.
- ✓ **RB35-19: Component and Cladding Load Tables.** Incorporates advanced (2019) wind loading tables to increase resiliency.
- ✓ **RB301.2.1.1-18: Wind Limitations and Wind Design Required.** Special wind region adopts the 2021 cycle changes.
- ✓ **RB200-18: Substantial Damage and Substantial Improvement.** This is primarily to comply with flood regulations and mirrors definitions from the IEBC to the IRC.
- ✓ **A109.3-18: 2015 VCC Engineering Details.** Requires site plans include flood hazard information to improve agency review efficiency.

Content courtesy of Steve Sunderman, Resilient Virginia



Resilience resources

NVRC

<https://www.novaregion.org/1354/Resiliency-Planning>

USGBC RELi standard

<https://www.usgbc.org/resources/reli-20-rating-guidelines-resilient-design-and-construction>

IBHS Fortified Commercial Guidelines

<https://disastersafety.org>

FEMA Risk Management

<https://www.fema.gov/emergency-managers/risk-management>



Next Steps: C-PACE in VA

- HB 654 (2020 VA General Assembly) provides authority to DMME to sponsor a statewide C-PACE program
- Fall/Winter 2020 – Issue solicitation and select program administrator
- Outreach on C-PACE through partnership with AIA Virginia
- Mid-Atlantic PACE Alliance grant concludes 12/31/2020; MAPA incorporated as stand-alone 501c3



Thank you.

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