Maryland Energy Administration

FY21 Resilient Maryland Program

Informational Webinar Session

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Agenda

- Energy Resilience 101
- Types of DER Systems
- FY21 Resilient Maryland Program
- Additional MEA Capital Support Programs
- EmPOWER Utility Incentives
- C-PACE Financing
- Q & A

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Energy Resilience 101

What is it?
Why is everyone talking about it?

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General Overview

- Energy Resilience is a broad term with many definitions
- General definition is *the ability for a facility, campus, community, or utility-scale energy system to quickly recover from an outage situation and continue providing power to connected loads, either seamlessly or with minimal downtime*
- Energy efficiency, distributed generation, communication, and control system technologies all play a role – known as Distributed Energy Resources or "DERs"
- Achieving energy resilience on the community, campus, and facility levels usually means implementing a system of DER technologies capable of operating independently of the grid

Resilience Value Proposition

GRID THREATS
severe storms cyberattacks
high summer
frigid winter temps

POTENTIAL SITES
businesses
health care
higher learning campuses
government facilities
multi-family housing

RISING TECH DEPLOYMENT
distributed energy resources (DERs)
PV
storage
CHP
grid-interactive solutions

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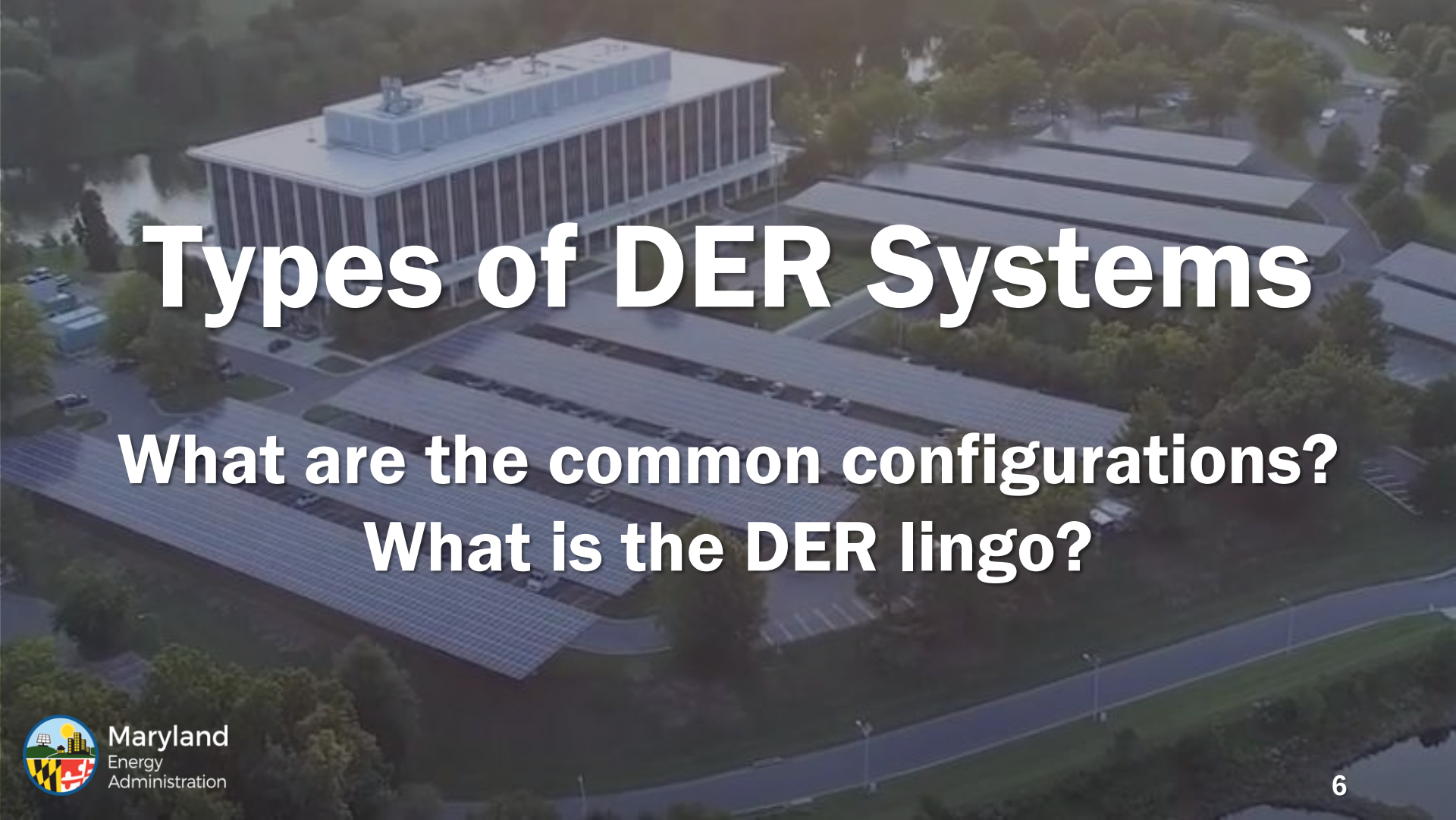

Types of DER Systems

What are the common configurations?
What is the DER lingo?

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Types of DER Systems

- Many different configurations, but generally four (4) main system types (also used by Resilient Maryland)

- Community/Campus Microgrid
- Resilient Facility Power System
- Advanced CHP System
- Community Resiliency Hub

Community/Campus Microgrid

- Microgrid is a combination of multiple DERs to provide clean, efficient, resilient energy to multiple facilities
- Includes distributed generation (DG) technologies such as solar PV systems, combined heat and power (CHP), wind turbines, etc.
- Includes energy storage technologies such as battery energy storage systems (BESS), thermal storage systems, etc.
- Incorporates facility energy efficiency technologies to minimize capacity of needed DG and maximize value of energy consumed, which may or may not be grid-interactive to respond to demand conditions on the grid
- Integrates all technologies through a control system that manages microgrid operation and integration of grid power to meet sustainability, efficiency, affordability, and resilience goals

Resilient Facility Power System

- A Resilient Facility Power System (RFPS) is a combination of multiple DERs to provide clean, efficient, resilient energy to a *single* facility – it can be thought of as a "single building microgrid"
- Includes the same technologies as community and campus microgrids – DG, storage, efficiency, and controls.
- The control system manages all DERs in the same way that they are managed in a community/campus microgrid; can be programmed to meet sustainability, efficiency, affordability, and resilience goals

Advanced CHP System

- An Advanced Combined Heat and Power (CHP) system is a CHP system that is able to restart after a grid outage (black start) and provide power to connected loads continuously (islanding capability)
- Advanced CHP systems are installed primarily for energy resilience reasons, vs. efficiency and economic reasons in CHP systems that do not have black start and islanding capability
- Efficiency and economics are still important in Advanced CHP systems, but the energy resilience attribute is the primary driver on the decision to implement

Community Resiliency Hub

- A Community Resiliency Hub is a location designed to provide conditioned shelter and access to energy to power essential electronic devices such as personal cell phones, laptops, essential medical equipment (such as dialysis and CPAP machines); refrigeration services for temperature-sensitive medications, milk for nursing mothers, and food; and to provide a safe area for individuals to congregate until proper emergency services can arrive. It is not intended to be an emergency shelter.
- Examples include community centers, schools, government centers, libraries, etc.
- Energy resilience comes from the implementation of a DER system – typically solar PV and BESS, but can include other technologies where appropriate

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Planning & Design Funds for DER Projects

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Maryland's Holistic Approach to Energy Resilience:

Resilient Maryland

MEA's grantees, applicants, and the energy industry stakeholders and influencers we have worked and partnered with note that surmounting the initial planning & design hurdle is typically the "make or break" point.

Organizational decision-makers and capital providers need proof of concept through vetted designs and modeled performance, savings, and ROI to provide buy-in

This step can be costly to adopters, who often don't have adequate access to the capital necessary to complete this phase. Provides grants for DER system feasibility analysis, engineering, and design to help get projects to "shovel-ready"

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Resilient Maryland Program Operation

Four Areas of Interest (AOIs)

- AOI 1: Community/Campus Microgrid Planning
- AOI 2: Resilient Facility Power System Planning
- AOI 3: Advanced CHP Planning & Design
- AOI 4: Resiliency Hub Planning & Design

Grantees will use funds to complete a set of final project deliverables, which typically include:

- Detailed Feasibility Report
- Preliminary Engineering & Designs
- 20-Year Pro Forma Financial Model
- Greenhouse Gas Reduction Report
- Implementation Barriers Report

Eligible Entities

Businesses	Nonprofits	Critical Infrastructure	LMI Communities
Business Development Districts	Regional Planning Organizations	Colleges & Universities	Public & Private Schools
Multifamily Housing	Utilities	Agricultural & Food Processors	Government

...and others!

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Eligibility Requirements

- Project site must be located within Maryland
- Applicant must be in good standing with the Maryland State Department of Assessments and Taxation
- Project cannot have received a prior Resilient Maryland award
- Project must propose the installation of a DER system as defined by Program AOIs on one or more facilities
- Must include commitment to form a Project Planning Committee
- Coal and oil-fueled systems are prohibited
- Must complete planning and design project within one (1) year

Incentive Amounts

- Funds are awarded based on project complexity, scope, scale, and Applicant match
- Award amounts are subject to change based upon funding availability

Area of Interest	Maximum Award per Project
AOI 1: Community/Campus Microgrid	$100,000
AOI 2: Resilient Facility Power System	$25,000
AOI 3: Advanced CHP	$10,000
AOI 4: Community Resiliency Hub	$10,000 per hub

How to Apply

- Visit the MEA Resilient Maryland Webpage[1] and review all information
- Download and review the FY21 Resilient Maryland Funding Opportunity Announcement (FOA) (contains all terms, conditions, requirements, and restrictions of the FY21 program – think of it as the "master control document")
- Download and complete the FY21 Resilient Maryland Application Form
- The Applicant must sign – contractors/developers cannot sign on behalf
- Prepare the Project Proposal according to the directions provided by the FOA
- Gather all necessary supplemental documents (refer to FOA)
- Submit Application Package via email to RMP.MEA@Maryland.gov by no later than 11:59 P.M. EST, January 29, 2021
- MEA can make alternative submission arrangements if necessary. Please contact Program Manager Brandon Bowser at BrandonW.Bowser@Maryland.gov.

Proposal Evaluation

- Proposals will be competitively reviewed and awarded by the MEA Resilient Maryland Review Panel
- Panel will consist if MEA and external individuals with diverse backgrounds – energy management, engineering, financial, emergency management, among others
- Only those which best meet the requirements of the Evaluation Criteria will be selected, subject to funding availability

Evaluation Criteria

Criterion	Description
Value Proposition	Clear explanation of project with strong case for enhanced value to organization and/or community
Greenhouse Gas Reduction	Project optimizes the use of clean energy technologies to minimize greenhouse gas emissions
Energy Savings	Project aims to incorporate energy efficiency upgrades, and/or incorporates those installed within the last five (5) years to minimize consumption
Energy Resilience	Project maximizes energy resilience capability. Projects that aim to power higher percentages of connected loads for longer periods most favorable
Benefit to LMI Marylanders	Preference is given to projects which aim to primarily benefit LMI Marylanders either directly or indirectly
Applicant Contribution	Applicant must at minimum demonstrate commitment to project success through a contribution. E.g. donated work hours, matching funds, etc.

FY20 Resilient Maryland Response

25 unique project proposals

Applicants demographic: government, agricultural, low-to-moderate income (LMI), multifamily housing, food processors, universities, essential infrastructure, businesses, and nonprofits

14 Projects awarded for a combined total of $1.05 million of state investment

Grantees will be prepped for equipment procurement and system installation

Lessons Learned - replicable and scalable DER system models + insights into common project barriers

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FY20 Spotlight Grants

Frostburg State University - $100,000

To develop a campus-scale microgrid to bolster campus energy resilience, further sustainability goals, and provide students with real world job training. This project will help displaced workers transition to the clean energy industry.

Smart Electric Power Alliance - $99,725

A collaboration with Baltimore Gas & Electric Company, City of Annapolis and Gabel Associates to plan and design a community-scale microgrid for the Newtowne Twenty multifamily housing community. This community revitalization effort will deliver a clean energy, sustainable microgrid solution that will provide lasting economic benefits to most vulnerable populations.

Groundswell - $300,000

Working in concert with the city of Baltimore this grant will fund the design of multiple community resiliency hubs throughout the city's most vulnerable communities. Hubs provide a centralized, trusted community location where community members can access reliable power for their essential devices, continue to receive information as emergency situations develop, store medications sensitive to temperature, and safely congregate until proper emergency response services arrive.

MEA Capital Support Programs

Incentives for DER System Equipment & Installation

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Distributed Generation Incentives

- Resiliency Hub Grant Program[2]
- Combined Heat and Power Grant Program[3]
- Commercial Clean Energy Rebate Program[4]
- Parking Lot Solar PV with EV Charger Grant Program[5]

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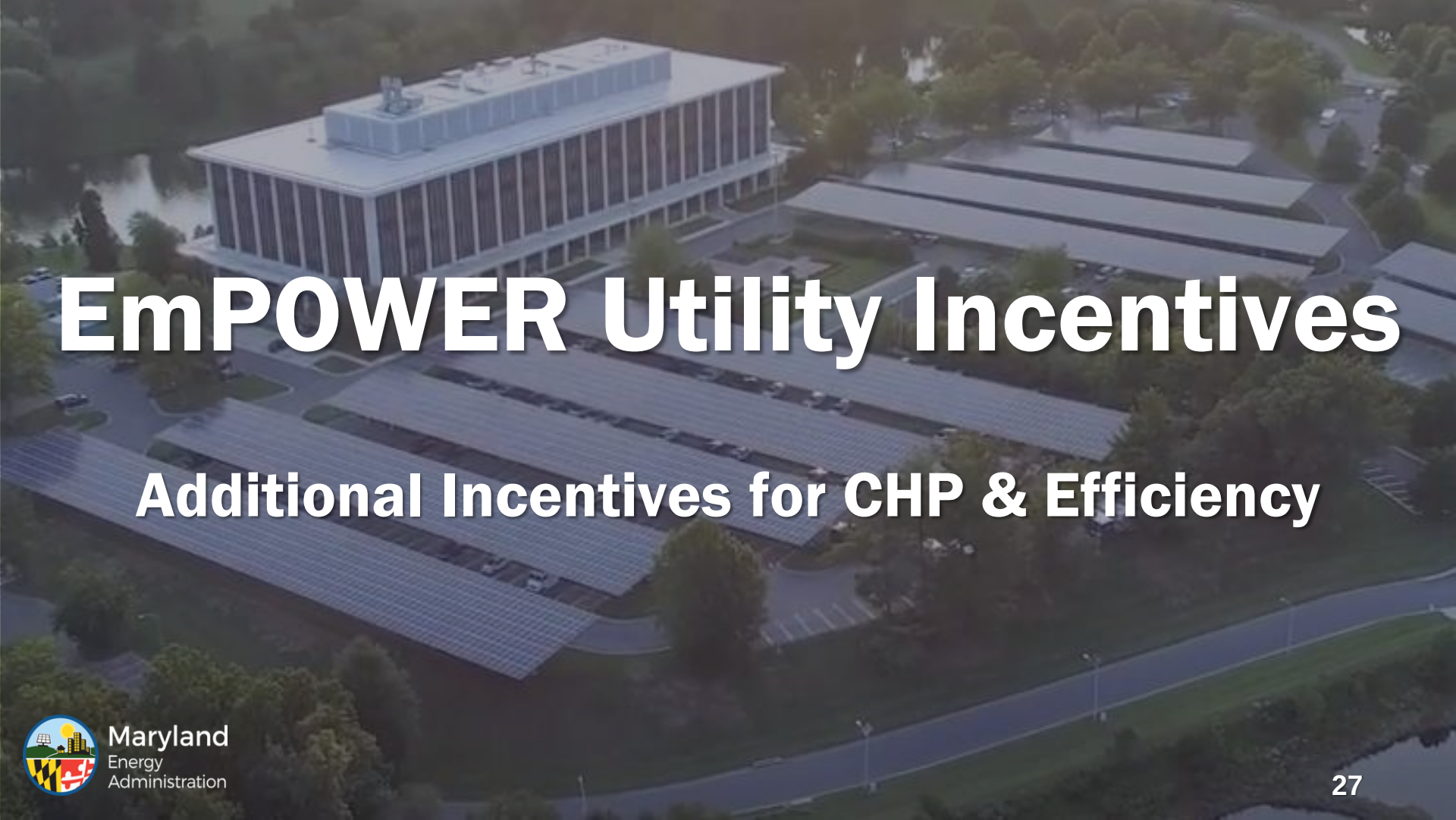
Energy Efficiency and Storage Incentives

- Commercial, Industrial & Agricultural Grant Program[6]
- Data Center Energy Efficiency Grant Program[7]
- Low-to-Moderate Income Energy Efficiency Grant Program[8]
- Energy Storage Tax Credit[9]

Jane E. Lawton Conservation Loan Program

- MEA provides a low-cost financing program (1% APR, 0% for State and local government)
- Can be used for energy conservation projects which reduce greenhouse gas emissions
- E.g. energy efficiency upgrades, CHP
- Stackable with MEA grants and other incentives (e.g. utility)
- Flexible terms, up to 13 years
- Learn more on the MEA Lawton Loan Program webpage[10]



EmPOWER Utility Incentives

Additional Incentives for CHP & Efficiency

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Overview

- Utilities provide incentives for CHP and energy efficiency measures through their EmPOWER programs
- EmPOWER was enacted in 2008 to introduce year-over-year efficiency requirements for utilities in Maryland
- Utilities achieve this by incentivizing customers to install measures to improve their energy efficiency, CHP included
- These incentives can be stacked with MEA incentives, minimizing out-of-pocket cost
- Large incentives, potentially up to $2 million

Links to Utility Incentives

- Five EmPOWER-participating utilities in Maryland

- BGE: CHP Incentives[11] & Efficiency Incentives[12]
- PEPCO: CHP Incentives[13] & Efficiency Incentives[14]
- Potomac-Edison: CHP Incentives[15] & Efficiency Incentives[16]
- SMECO: CHP Incentives[17] & Efficiency Incentives[18]
- Delmarva Power & Light: CHP Incentives[19] & Efficiency Incentives[20]

C-PACE Financing

Low-cost and low-risk private financing

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C-PACE Financing

- Projects may benefit from C-PACE: Commercial Property Assessed Clean Energy financing
- C-PACE is a form of third-party financing which is assessed on the property and repaid through property tax over a 20-year period
- Financing stays with the property, not the Borrower
- C-PACE financing available in 18 of Maryland's 24 counties and Baltimore City, with two additional counties in the process of establishing C-PACE
- Competitive interest rates
- Contact Maryland C-PACE[21] to learn more


Questions?
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Hyperlinks in Presentation

[1]https://energy.maryland.gov/business/Pages/ResilientMaryland.aspx
[2]https://energy.maryland.gov/Pages/Resiliency-Hub.aspx
[3]https://energy.maryland.gov/business/Pages/MEACHP.aspx
[4]https://energy.maryland.gov/business/Pages/Incentives/CleanEnergyGrants.aspx
[5]https://energy.maryland.gov/business/Pages/incentives/PVEVprogram.aspx
[6]https://energy.maryland.gov/business/Pages/incentives/empowermdcigp.aspx
[7]https://energy.maryland.gov/business/Pages/incentives/DCEEG.aspx
[8]https://energy.maryland.gov/govt/Pages/CleanEnergyLMI.aspx
[9]https://energy.maryland.gov/business/Pages/EnergyStorage.aspx
[10]https://energy.maryland.gov/govt/Pages/janeelawton.aspx
[11]https://www.bgesmartenergy.com/business/business-programs/chp
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[13]https://cienergyefficiency.pepco.com/combinedHeat.aspx
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[20]https://cienergyefficiency.delmarva.com/Default.aspx#incentives
[21]https://md-pace.com/