MARYLAND
CLEAN ENERGY CENTER

MCEC Overview for Maryland Agricultural Commission

APR 10, 2024

What is a Green Bank and what does it do?

Green Banks use public funding to crowd-in private capital for targeted investment of capital to achieve environmental goals and desired outcomes.

Green Banks can invest in underserved communities and assist consumers without the profit motive characteristic of traditional capital providers.

Green Banks can mitigate risk to entice capital providers who might not otherwise invest, and secure lower interest rates and advantageous terms for consumers to help achieve climate justice.

Green Banks act as a bridge between government, industry, utility, and academia to facilitate partnerships for desirable outcomes.

What is MCEC and what does it do?

Quasi-governmental instrumentality of State that serves as a statewide Green Bank

Mission to increase clean energy jobs, drive commercialization of climate related technological innovations, and enable equitable adoption of clean energy products and services to reduce greenhouse gas emissions

Facilitates access to capital and operates financing programs using leveraged or direct investment

Provides specialized procurement and technical support to facilitate project implementation

Supports climate tech commercialization

Offers outreach & education programs and events to stimulate markets and enable climate justice

MCEC is Building the Maryland Advanced Energy Economy!

Climate Mitigation & Adaptation Strategies

	STRATEGIES					
	ENERGY	BUILDINGS	TRANSPORTATION	AG/ FORESTRY	WASTE	CROSS CUTTING
AUDIENCES	RE GENERATION, TRANSMISSION; COST REDUCTION & RESILIENCE	EE, WEATHERIZATION, DEMAND MANAGEMENT, STORAGE, HVAC and ELECTRIFICATION MEASURES or TECHNOLOGIES to MEET BEPS REGS by 2025	ZERO EMISSION VEHICLES & INFRASTRUCTURE, HYDROGEN FUEL , SUSTAINABLE AVIATION FUELS	ENERGY FROM WASTE AND RENEWABLE BIOMASS SOURCES THAT MEET OR EXCEED MD GHG EMISSIONS REGULATIONS, CARBON SEQUESTRATION. ALTERNATIVE SOURCES FOR FOSSIL FUEL USES LIKE FERTILZER, DIESEL and PROPANE DISPLACEMENT.	SOURCE REDUCTION & REUSE; CHP STEAM; METHANE CAPTURE; ENERGY FROM SOLID & LIQUID WASTE SOURCES THAT MEET OR EXCEED MD GHG EMISSIONS REGULATIONS	WORKFORCE SKILLS TRAINING & ON THE JOB EXPERIENCE; CAPACITY BUILDING; OUTREACH & EDUCATION; PLANNING & ASSESSMENT
CONSUMER						
SMALL BUS/ COMMERCIAL						
INDUSTRIAL/ MANUFACTURING						
PRODUCERS/ DISTRIBUTORS						
MUNICIPAL/ INSTITUTIONAL						
NGOS						
ENTREPRENEURS						

Centralized Third-Party

Procurement & Technical Assistance

Grant Writing Support

Master Service Agreements with Contractors for:

- Owners Representation
- Infrastructure as a Service (IaaS) – Building Assessment, Improvement & Operations
- Energy as a Service (EaaS) / Energy Performance Contracting (EPC)
- Project Technical Support: Feasibility, Engineering, Design & Development
- Climate Action Strategy Planning
- Energy Procurement

PTAS Benefits

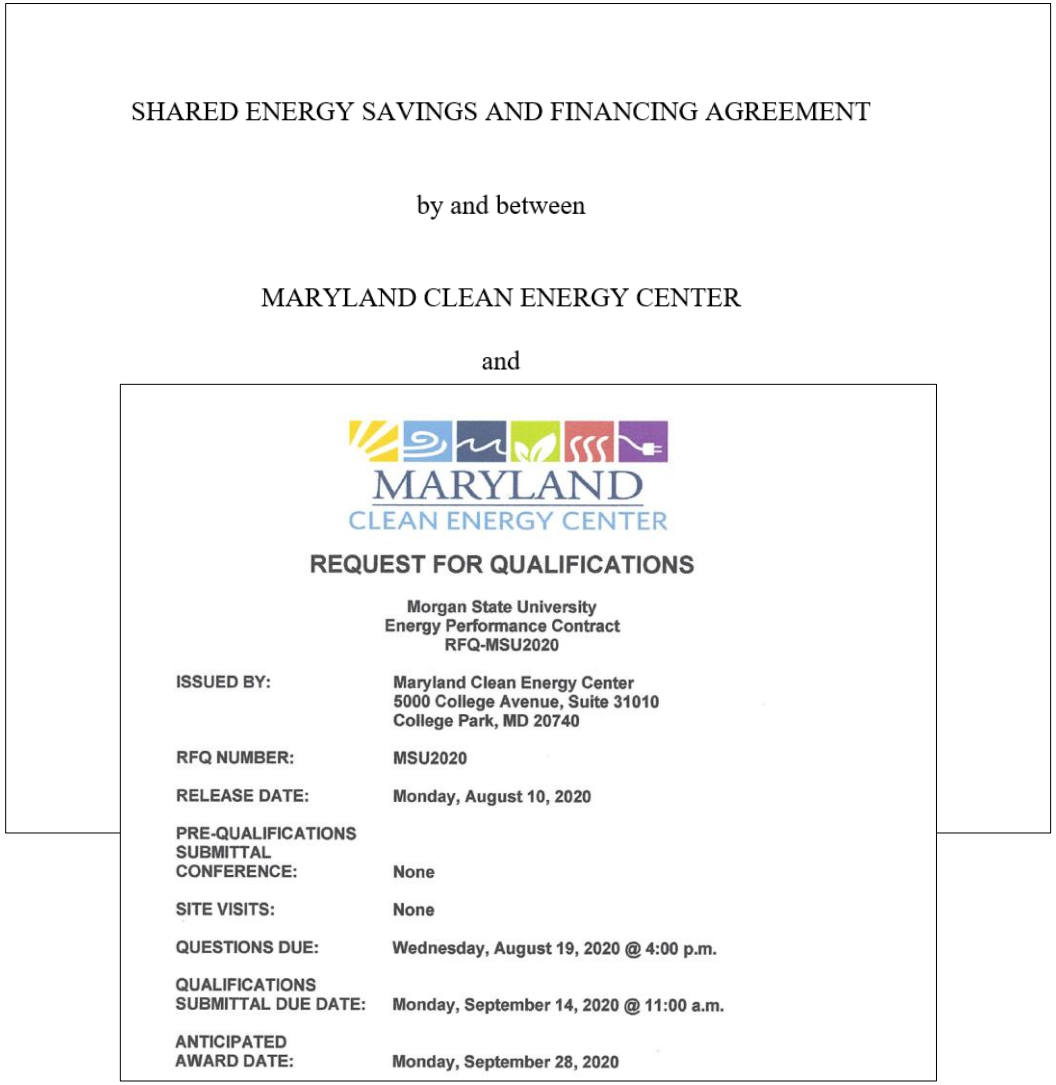
- Added PROJECT MANAGEMENT Capacity
- EXPEDITED outcomes
- Centralized PROCUREMENT ASSISTANCE
- Third Party OWNER'S REP SERVICES
- AFFORDABLE Fee for Service

MASTER SERVICES AGREEMENT

THIS MASTER SERVICES AGREEMENT is made this _____ day of _____, (_____), by and between _____, a _____ ("Vendor") and the **MARYLAND CLEAN ENERGY CENTER**, a body politic and corporate and a public instrumentality of the State of Maryland ("MCEC").

Recitals

1. MCEC provides procurement and technical support services to its clients through Memorandum of Understanding agreements, including, but not limited to, the services described in this Agreement.



SHARED ENERGY SAVINGS AND FINANCING AGREEMENT

by and between

MARYLAND CLEAN ENERGY CENTER

and

MARYLAND
CLEAN ENERGY CENTER

REQUEST FOR QUALIFICATIONS

Morgan State University
Energy Performance Contract
RFQ-MSU2020

ISSUED BY:	**Maryland Clean Energy Center** **5000 College Avenue, Suite 31010** **College Park, MD 20740**
RFQ NUMBER:	**MSU2020**
RELEASE DATE:	**Monday, August 10, 2020**
PRE-QUALIFICATIONS SUBMITTAL CONFERENCE:	**None**
SITE VISITS:	**None**
QUESTIONS DUE:	**Wednesday, August 19, 2020 @ 4:00 p.m.**
QUALIFICATIONS SUBMITTAL DUE DATE:	**Monday, September 14, 2020 @ 11:00 a.m.**
ANTICIPATED AWARD DATE:	**Monday, September 28, 2020**

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providing financial solutions

Affordable Energy Project Financing Case Study

Morgan State University

As part of a comprehensive campus-wide master energy and sustainability plan, MSU completed an Energy Performance Contract debt financing to fund the installation of energy efficiency equipment around the University.

The energy savings measures are being implemented through agreements among MSU, MCEC and Siemens Industry, and will significantly reduce energy consumption, increase operational efficiency, and address selected deferred maintenance projects.

The MCAP Shared Energy Savings transaction model was used to facilitate third-party ownership of the project by MCEC and attract cost effective tax-exempt capital, supported by an Energy Performance Contract where the ESCO guarantees the energy, operation, and maintenance savings.

Photo courtesy of Morgan State University

Loan Amount	$10,343,339
Loan Term	15 Years
Interest Rate	2.8898 %
Avg Annual Savings (Energy, O&M)	$268,126
Avg Annual Debt Service	$903,564
Lender	Siemens Financial Services
ESCO	Siemens Industry, Inc.

Energy Conservation Measures

- **Interior, Exterior and Stadium Lighting**
- **Demand Flow**
- **Water Conservation Fixtures**
- **Duct Cleaning and Sealing**
- **Steam Trap Replacement**
- **Boiler Upgrades**
- **Steam and Condensate Pipe Insulation**

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Affordable Energy Project Financing Case Study

University of Maryland Baltimore County

University of Maryland Baltimore County needed to make energy-saving improvements to facilities, upfront capital to make upgrades, and find a solution that would not adversely impact their debt profile.

The MCAP Shared Energy Savings transaction model was used to facilitate third party ownership of the project by MCEC and attract cost effective tax-exempt capital supported by an Energy Performance Contract where the ESCO guarantees the energy, operation, and maintenance savings.

MCEC entered into a loan agreement with the Lender to provide 100% of the capital for the project. Cost savings delivered to date have been beyond projections.

Tax-Exempt Loan Amount* *Project cost financed 100%*	$5,107,855
Loan Term	10 Years
Interest Rate	3.45 %
Annual Energy Savings	$693,007 (Guaranteed)
Avg Annual Debt Service	$613,000
Utility Rebates	$629,190
Lender	Suntrust Bank
ESCO	Noresco

**A short-term Taxable Note of $294,625 was also used for project development.*

Photo by Marlayna Demond for UMBC

Project Scope

- Lighting
- Equipment Controls for Demand Control Ventilation
- Water Irrigation Upgrades

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Affordable Energy Project Financing Case Study

University of Maryland, College Park

UMCP needed to make energy-saving facility improvements, find low cost project capital and structure project financing to optimize various University capital needs with existing funding alternatives.

The MCAP Shared Energy Savings transaction model was used to facilitate third party ownership of the project by MCEC and attract cost effective tax-exempt capital supported by an Energy Performance Contract where the ESCO guarantees the energy, operation, and maintenance savings.

Total Project Capital	$21,500,773
Loan Amount	$18,300,773
Loan Term	14.5 Years
Interest Rate (Adjusted to 3.0% as a result of Federal Tax Reform)	2.60 %
Avg Annual Savings (Energy, O&M)	$1,760,000
Avg Annual Debt Service	$1,667,000
Lender	BankUnited / Bridge Funding Group
ESCO	Constellation NewEnergy Inc.

Project Scope

- Replaced AHU (air handling unit) & transformer
- Improved building envelope
- Optimized chiller plant
- Upgraded HVAC, energy recovery, lighting & controls, ventilation controls, and water conservation

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Convenient Access to Qualified Service Providers

Infrastructure as a Service Master Service Agreement

- Ameresco, Inc
- American Microgrid Solutions, LLC
- Green Generation Investors, LLC
- NextEra Energy Solutions, LLC (NES)
- NORESCO
- Schneider Electric Buildings Americas, Inc
- Siemens Industry, Inc
- Southland Industries
- Sustainability Partners
- The Efficiency Network

Siemens Industry, Inc. was selected through the MCEC managed procurement to engage in a “riderable” service contract for **Electric Vehicle (EV) Infrastructure Assessment**, enabling other MCEC clients under Memorandum of Understanding (MOU) to utilize the same contract terms – pricing and scope of services, through a similar contract with the selected vendor.

Over $198M in leveraged financing since 2009

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CLEAN ENERGY Advantage

Lending initiative sponsored by the Maryland Public Service Commission to provide affordable financing for energy efficiency home improvements to all Maryland residents, regardless of income.

EmPOWER MARYLAND

The CEA Loan Pilot Program is administered, in partnership, by the Maryland Clean Energy Center and the Montgomery County Green Bank and authorized by the Maryland Public Service Commission (PSC) to fund the program. EmPOWER Maryland programs are funded by a charge on your energy bill. EmPOWER programs can help you reduce your energy consumption and save you money.

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Montgomery County GreenBank
Your partner for clean energy

bge AN EXELON COMPANY

delmarva power AN EXELON COMPANY

pepco AN EXELON COMPANY

PotomacEdison A FirstEnergy Company

SMECO Southern Maryland Electric Cooperative

Washington Gas A WGL Company

Affordable Fixed Rate Financing for Maryland Home Energy Improvements

CLEAN ENERGY Advantage

0% INTEREST FOR THE FIRST 24 MONTHS

If you are considering home energy efficiency improvements, such as replacing heat or air conditioning systems, water heating systems, windows and doors, whole home insulation, and weatherproofing – the Clean Energy Advantage (CEA) Loan Program can help by providing affordable project financing, regardless of income level.

- Following first 24 months, low fixed interest rates (0.5% below market rates) for the remainder of the loan term
- Loan* amounts from $3,000 to $35,000
- Choose from 3, 5 or 10 year loan terms
- Loans combined with utility rebates and can include other state and federal incentives
- Rapid pre-approval

FOR FULL PROGRAM DETAILS → cealoan.org/for-customers

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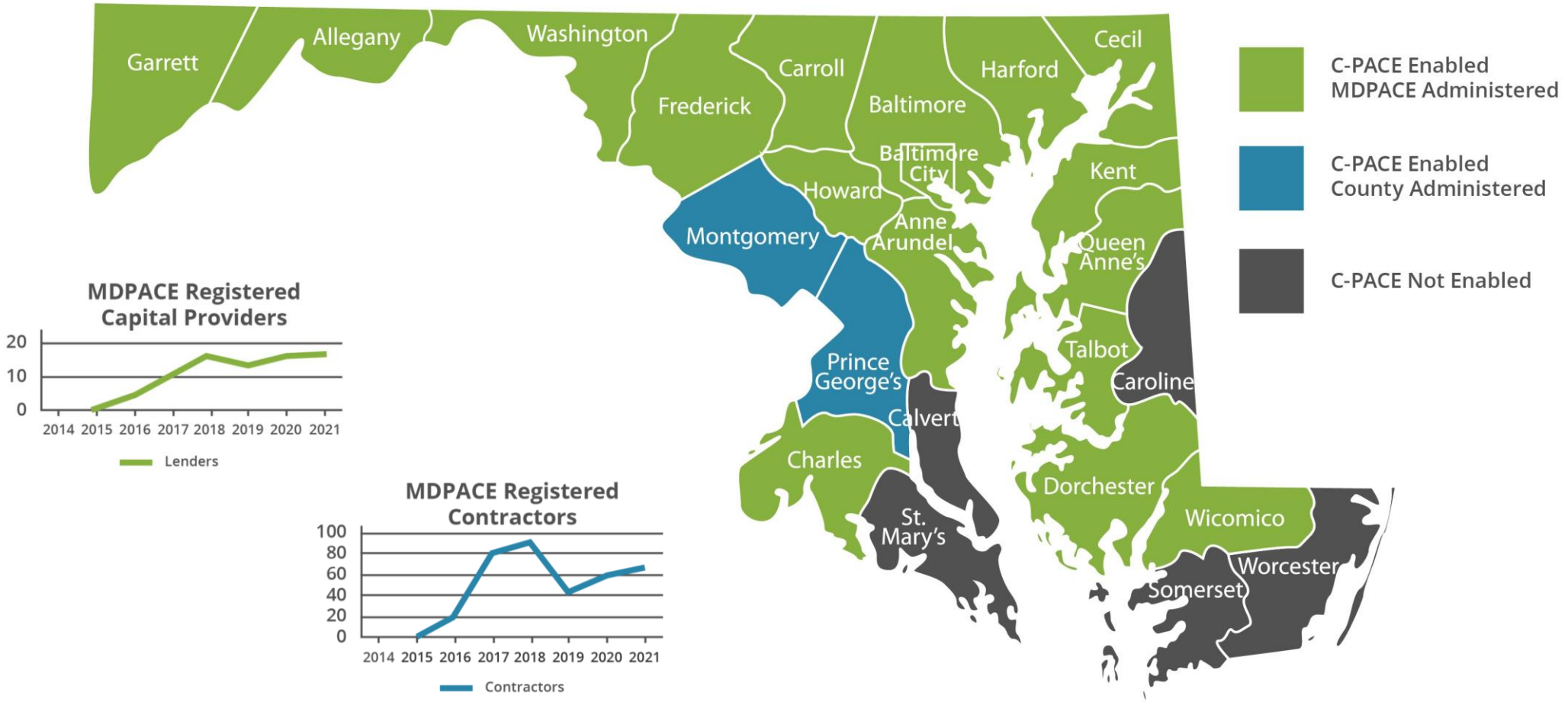
$124.2 million in transactions

(Over $134.3 million statewide)



$41.5 million in pipeline activity

MD PACE
Property Assessed Clean Energy Loans

CASE STUDY:

FINISHING TOUCH

A CHESTERTOWN SHOP

PROJECT OVERVIEW

PROPERTY TYPE:
Small Commercial Retail

INSTALLED MEASURES:
High Efficiency Windows, HVAC System

$134,408
Approved PACE Financing

20 Years
Term

Greenworks Lending
Lender

Havetech
Project Partner

THE CHALLENGE:

The Finishing Touch, a custom frame and print boutique in downtown Chestertown, MD, had air conditioners and windows that dated back to 1978. These outdated HVAC systems were inefficient and expensive to operate.

THE SOLUTION:

The Chestertown retail shop worked with MD-PACE to deploy $134,408 of C-PACE financing toward HVAC upgrades, and the replacement of more than 1,000 square feet of low R-value glass. The retrofits improved the building's overall energy efficiency, year-round. The building is expected to save approximately $7,000 in the first year, and $300,704 in lifetime savings.

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MD PACE
Property Assessed Clean Energy Loans

CASE STUDY:

NET-ZERO AGRICULTURE

C-PACE IMPROVEMENTS HELP TO DELIVER SOLAR SOLUTION FOR CHARLES COUNTY FARM

PROJECT OVERVIEW

PROPERTY TYPE:
Agricultural

INSTALLED MEASURES:
Roofing upgrades to permit installation of a solar array

$206,838
Approved PACE Financing

20 Years
Loan Term

Greenworks Lending
Lender

Energy Select, LLC
Partner

THE CHALLENGE:

Serenity Farm is located on over 200 acres on the banks of the upper Patuxent River in Charles County. Annual utility payments for the farm consumed profits without hope of creating further value. With ample space available, a renewable energy system seemed a prime solution. However, additional costs beset the farm owner in attempting to install a sizable solar array.

THE SOLUTION:

The owners of Serenity Farms, desiring a solar installation but lacking a durable platform on which to mount it, used C-PACE to finance improvements to increase the strength and suitability of one of their property's roofs. This cost would have necessitated additional personal capital investment, but was instead covered by C-PACE financing, and the savings generated from the solar installation easily offset the loan payments.

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Energy Performance Contracting (EPC)

Source: https://www.energy.gov/femp/about-federal-energy-savings-performance-contracts

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Innovation in Clean Energy & Agriculture

MARYLAND ENERGY INNOVATION ACCELERATOR

MEIA focuses on early-stage technology commercialization in partnership with Maryland-based businesses, universities and labs to support Maryland's Clean Energy and Climate Goals.

Aquatic Circle LLC

Aquatic Circle has designed a nature-based water filter with limited maintenance, for use in aquaculture.

BrightWave

BrightWave has developed and patented an innovative microalgae photobioreactor (PBR) that will serve as the cornerstone of industrial scale cultivation and decarbonization projects.

InventWood®

InventWood® is an innovator of advanced wood materials, addressing climate change while providing material technologies with better performance, lower costs, and greater sustainability over commonly used alternatives.

MCEC Grant Writing & Management Resources

- Fee-for-service grant search assistance
- Fee-for-service grant writing and advising
- Convene application partners
- Access to public/private partners
- Grant administration capabilities
- Access to state government grant eligibility as an instrumentality of state

REAP Eligible Projects

Energy Efficiency Improvements

- High efficiency heating, ventilation and air conditioning systems (HVAC)
- Insulation
- Lighting
- Cooling or refrigeration units
- Doors and windows
- Electric, solar or gravity pumps for sprinkler pivots
- Switching from a diesel to electric irrigation motor
- Replacement of energy-inefficient equipment

Renewable Energy Systems

- Biomass (e.g. biodiesel and ethanol, anaerobic digesters, and solid fuels)
- Geothermal for electric generation or direct use
- Hydropower below 30 megawatts
- Hydrogen
- Small and large wind generation
- Small and large solar generation
- Ocean (tidal, current, thermal) generation

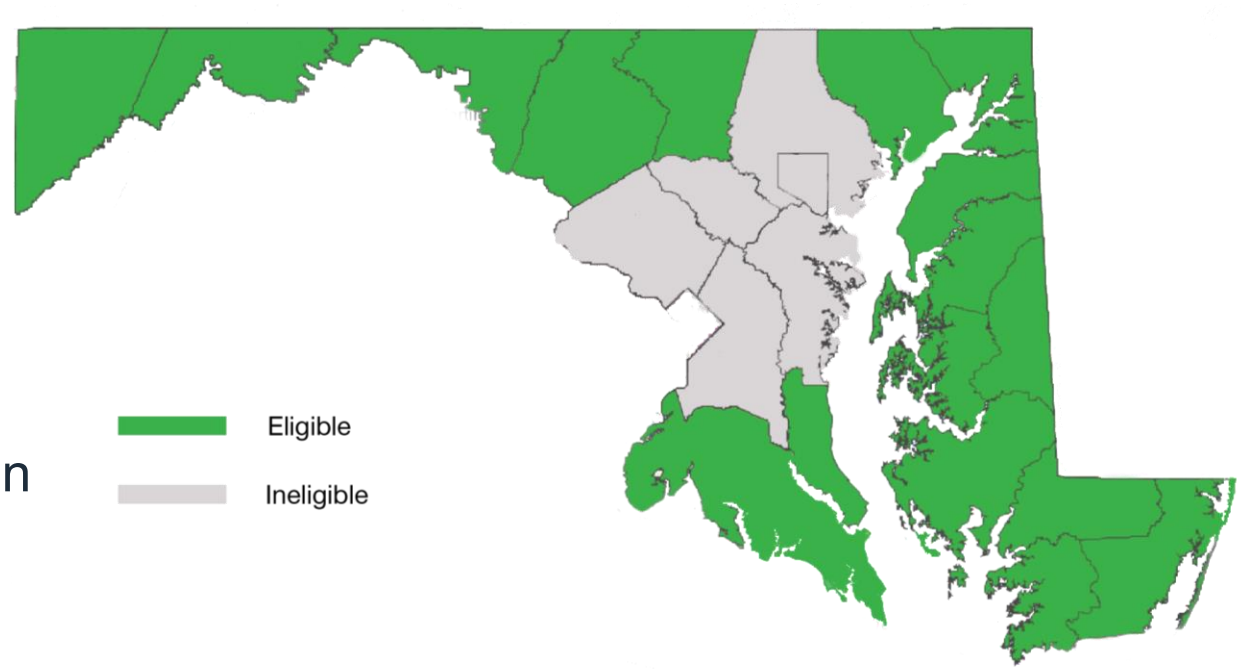
Learn more & submit Interest Form: mdcleanenergy.org/reap

REAP Technical Assistance Grant (TAG)

Supporting Application Assistance

MCEC provides FREE support for Maryland-based rural agricultural producers and rural small businesses to access USDA Rural Energy for America Program (REAP) funding:

- Review for proposed grant projects and coordination with State Energy Coordinator for project approval
- Registration assistance in the SAM.gov, Login.gov, and Grants.gov federal system
- Grant writing assistance for project submission
  - ✓ March 31, 2024
  - ✓ June 30, 2024
  - ✓ September 30, 2024
  - ✓ December 31, 2024



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MD Biomass Initiatives

- The MCEC Wood Energy Coordinator leads the State Wood Energy Team (SWET), hosting quarterly meetings between stakeholders in wood energy across Maryland, and hosted two tours to visit biomass facilities in Vermont and New Hampshire
- Support for feasibility analyses and other project planning for facilities installing biomass systems, through a Wood Innovations Grant from USDA
- Assisted Frostburg State University apply for a USDA grant to support transition of feasibility analysis into a shovel-ready project
- Recently published: Fuel Wood Supply Chain Analysis – key findings include:

1. The available supply of fuelwood far exceeds its demand;
2. Wood fuel is available for heat generation, electrical power, and for use in combined heat and power plants;
3. Better utilization of Maryland's wood fuel resources will result in more productive forests with the capacity to sequester additional carbon from the atmosphere; and
4. Citizen and landowner education and engagement is called for to underscore the value and role of forest management and fuelwood harvest for the environment, economy and communities in the state

https://www.mdcleanenergy.org/wp-content/uploads/2024/03/Maryland-Wood-Fuel-Supply-Chain-Analysis.pdf

Save The Date: October 7 & 8

2024 MARYLAND CLEAN ENERGY SUMMIT

CARBON REDUCTION

FROM IDEA TO IMPLEMENTATION

at the College Park Marriott Hotel & Conference Center

MARYLAND CLEAN ENERGY CENTER

Details Coming Soon: www.mdcleanenergy.org/summit

MARYLAND
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