Maryland
DEPARTMENT OF GENERAL SERVICES

Advancing Energy Performance Contracting (EPC) in Maryland

Hosted by Maryland Department of General Services

March 11, 2026

Agenda

9:00 am	**Welcome** *Joh Sedtal, Deputy Secretary, Maryland Dept. of General Services (DGS)*
9:10 am	**Advancing Energy Performance Contracting (EPC)** *David St. Jean, Director, DGS Office of Energy & Sustainability*
9:45 am	**Procurement and Financing for County and Local Governments** *Ben Rupert, Maryland Clean Energy Center (MCEC)*
10:10 am	**Owner's Representative Perspective & Case Study** *Aldo Mazzaferro, NV5*
10:25 am	**How the State Finances & Agency Budget** *Tanya Mekeal, Capital Lease Manager, Maryland State Treasurer's Office*
10:30 am	**Networking Break**
11:00 am	**Maryland's High Performance Green Building Program** *Ben Roush, Chair of Maryland Green Building Council*
12:00 pm	**Adjourn**

Slides and Resources

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DEPARTMENT OF GENERAL SERVICES

Advancing Energy Performance Contracting

David St. Jean, Director, Maryland DGS Office of Energy and Sustainability

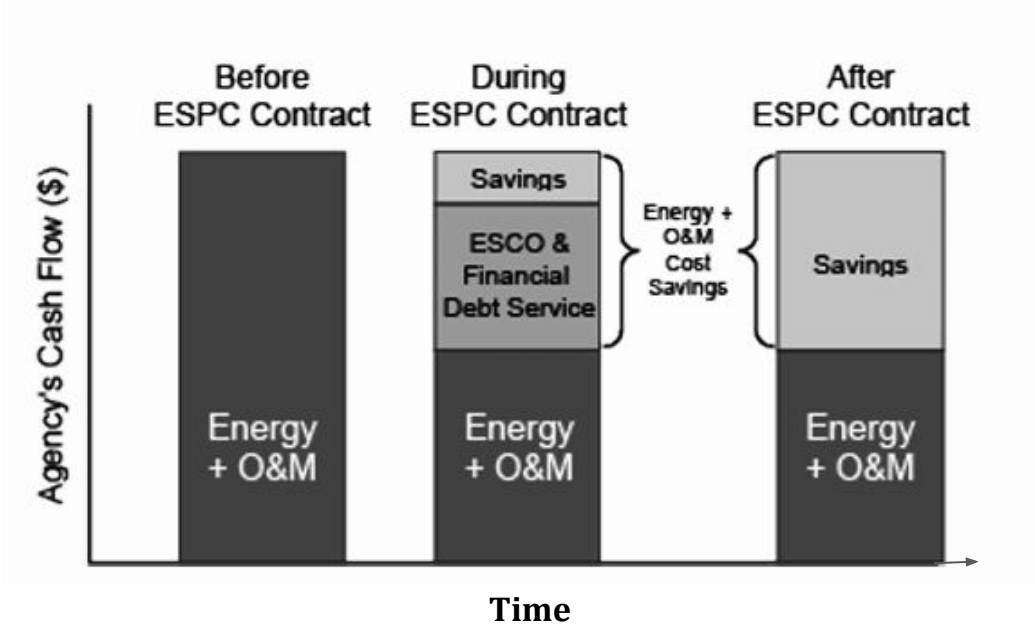
State Agency Experience with Energy Performance Contracts (EPC)

- DGS has had an EPC program in place since the mid-1990's.
  - 8 active projects with $16 million in annual guaranteed savings.
  - 2 projects under development.
- DGS holds a master contract that pre-qualified Energy Service Companies (ESCO).
  - The contract is available to local governments and non-profits.
- The contract **defines EPCs for the state**. Each project includes:
  - Annual measurement and verification (M&V) for the life of the contract.
  - Maintenance services for the life of the project.
  - Full replacement value of installed measures for the life of the contract.

Introduction to Energy Performance Contracting

- A construction project in which the cost of the project is paid for over time through guaranteed annual savings, typically through energy and operational savings.
- An EPC has a long-time frame:
  - Normally 2-3 years from design and development to the end of construction.
  - Followed by 13+ years of Measurement and Verification (M&V) of savings.
- An EPC is a procurement vehicle through which you can:
  - Address some capital improvements,
  - Solve ongoing maintenance issues,
  - Reduce both your cost of operations and your environmental footprint.

Timeline of Savings



Source: NREL, "ESPC Overview: Cash Flows, Scenarios, and Associated Diagrams for Energy Savings Performance Contracts"

EPC Process



- Stakeholder engagement
- Kick-off meeting

- Preliminary Audit
- ESCO Selection process

- In depth audit/plan
- Project Scope

- Project approval
- Construction & implementation

- Measurement & verification
- Long term cost savings

Introduction: The components of an EPC

Energy Service Company (ESCO)

- Facility Audit
- Financing
- Design
- New Equipment and Installation
- Full Maintenance of installed equipment
- Monitoring and Verification

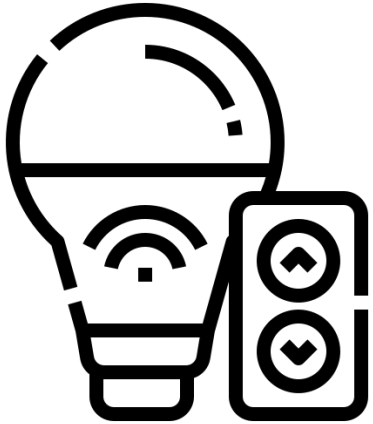


DHCM Spring Grove Hospital

----------An Owner's Rep ?----------

Introduction: Typical Energy Conservation Measures (ECM)

- Interior & Exterior Lighting
- Lighting Controls
- Building Automation System
- Plug Load Management
- Variable Frequency Drives (VFD)
- Building Envelope Upgrades
- Commissioning and Retro-Commissioning
- Innovative Technologies
- Inefficient Motor Replacement
- Ventilation, & Air Conditioning (HVAC) Equipment replacement or upgrade
- Renewable Alternatives (i.e., PV, Solar Thermal, Biomass)
- Water Conservation Measures



Introduction: EPC Process Steps

1. Familiarize yourself -and your procurement and fiscal offices- with DGS IDC to understand how the EPC program works.
2. Non-state agency - Consider hiring an owner's representative.
3. Perform a site visit and analyze your energy use to determine whether you are a good candidate.
4. Collect building plans, occupancy information, develop an energy baseline, create a broad scope of work that identifies goals.
5. Hold a pre-proposal meeting with Energy Service Companies (ESCOs).
    - ESCOs perform a series of site visits and develop a preliminary scope.
    - A single ESCO is hired through a competitive review.
    - ESCO provides a final proposal.
    - Construction.
    - M&V commences.

Measurement and Verification (M&V)

- M&V is how you hold the ESCO to their annual savings guarantee.
- The ESCO will be responsible for providing an annual M&V report to the facility owner.
- The owner (and owner's rep or other 3rd party consultant) should review each report for accuracy.
- M&V needs to be tailored to the installed measures.
- For complex HVAC projects, M&V should span the full term of the project.
- The cost of M&V is included in the cash flow.

For State agencies, DGS supports M&V



Introduction: Cash Flow – Follow the Money

Yr.	Year	Guaranteed Energy Savings	Lighting Maintenance Cost Avoidance	Maint. Cost Avoidance & Ops. Savings	Total Guaranteed Energy and O&M savings	Capital and O&M Cost Avoidance	Est. Loan Payment P & I	STO fee	Maintenance Cost*	Guarantee Bond	ESCO M &V Costs	DGS Consulting Service Costs	DGS M & V Costs	Total Costs	Net Cash Flow
1	2019	$ 292,167	$ 11,747	$ 69,179	$ 373,093	$ 99,293	$ 297,972	$ 3,568	$ 72,512	$ 3,850	$ 29,000	$ 20,000	$ 12,000	$ 438,902	$ 34,322
2	2020	$ 292,167	$ 12,099	$ 71,254	$ 375,521	$ 77,271	$ 297,972	$ 3,331	$ 74,687	$ 3,966	$ 29,870	$ 15,000	$ 12,360	$ 437,186	$ 15,606
3	2021	$ 292,167	$ 12,462	$ 73,392	$ 378,021	$ 101,616	$ 297,972	$ 3,087	$ 76,928	$ 4,084	$ 30,766	$ 15,000	$ 12,731	$ 440,569	$ 39,069
4	2022	$ 292,167	$ 12,836	$ 75,594	$ 380,597	$ 82,471	$ 297,972	$ 2,837	$ 81,036	$ 4,207	$ 31,689	$ 15,000	$ 13,113	$ 445,853	$ 17,215
5	2023	$ 292,167	$ 13,221	$ 77,861	$ 383,250	$ 101,233	$ 297,972	$ 2,579	$ 83,467	$ 4,333	$ 32,640	$ 15,000	$ 13,506	$ 449,497	$ 34,986
6	2024	$ 292,167	$ 2,461	$ 80,197	$ 374,825	$ 109,656	$ 297,972	$ 2,315	$ 85,971	$ 4,463	$ 33,619	$ 15,000	$ 13,911	$ 453,251	$ 31,230
7	2025	$ 292,167	$ 2,535	$ 82,603	$ 377,305	$ 97,808	$ 297,972	$ 2,043	$ 88,550	$ 4,597	$ 34,628	$ 15,000	$ 14,329	$ 457,118	$ 17,995
8	2026	$ 292,167	$ 2,611	$ 85,081	$ 379,859	$ 95,184	$ 297,972	$ 1,764	$ 91,207	$ 4,735	$ 35,666	$ 15,000	$ 14,758	$ 461,102	$ 13,942
9	2027	$ 292,167	$ 2,689	$ 87,634	$ 382,490	$ 115,256	$ 297,972	$ 1,476	$ 93,943	$ 4,877	$ 36,736	$ 15,000	$ 15,201	$ 465,205	$ 32,541
10	2028	$ 292,167	$ 2,770	$ 90,263	$ 385,200	$ 109,404	$ 297,972	$ 1,181	$ 96,761	$ 5,023	$ 37,838	$ 15,000	$ 15,657	$ 469,433	$ 25,171
11	2029	$ 292,167	$ 2,853	$ 92,971	$ 387,991	$ 119,705	$ 297,972	$ 878	$ 99,664	$ 5,174	$ 38,974	$ 15,000	$ 16,127	$ 473,788	$ 33,908
12	2030	$ 292,167	$ 2,939	$ 95,760	$ 390,865	$ 157,495	$ 297,972	$ 566	$ 102,654	$ 5,329	$ 40,143	$ 15,000	$ 16,611	$ 478,274	$ 70,086
13	2031	$ 292,167	$ 3,027	$ 98,633	$ 393,826	$ 136,440	$ 297,972	$ 246	$ 105,733	$ 5,489	$ 41,347	$ 15,000	$ 17,109	$ 482,896	$ 47,370
	Total	$ 3,798,171	$ 84,250	$ 1,080,422	$ 4,962,843	$ 1,402,832	$ 3,873,632	$ 25,872	$ 1,153,112	$ 60,128	$ 452,916	$ 200,000	$ 187,413	$ 5,953,075	$ 413,439

DGS EPC Contract and Statute

SF&P §12–301 for state agencies:

- A unit shall consult with the Department of General Services during the development phase of a project that will require an energy performance contract.
- A unit pursuing an energy contract must receive final approval from the Department of General Services before submitting the proposed contract to the Board of Public Works for approval.

DGS Master Contract for localities:

- Maryland State and local entities as defined in Finance and Procurement 13-110(a)(5)(I) and not-for-profit entities within the State of Maryland may purchase from the Contractor goods or services covered by the Contract at the same prices chargeable to the State.

DGS EPC Contract in Brief

The ESCO shall provide for each project:

- An annual M&V report throughout the contract period.
- Comprehensive Maintenance service, up to and including full replacement, for all installed equipment, throughout the Performance Period.
- System performance. All proposals to replace major equipment (boiler/chiller/AHU, etc.) shall consider how existing connected components affect system performance, and ESCO will be responsible to maintain, for the life of the contract, any existing components that would cause the energy guarantee to be missed.
- The Contractor is further advised that any ECMs or operational measures implemented through this Contract must be fully compatible with the proper operation of the entire existing system(s) of which they are included, including portions of any system(s) not directly covered in the scope of work of this Contract. The Contractor will take adequate steps to evaluate the impact on entire system(s) performance, including any new work and operational measures, to ensure that proper operation of the entire system(s) is achieved or maintained.

The Headwinds for EPCs

Past experience – what has worked:

- Fuel switching from fuel oil to natural gas.
- Lighting.

Headwinds:

- Improved federal equipment efficiency standards.
- Energy efficiency goals in Maryland statute have made our buildings more efficient.
- Holistic systems approach to HVAC replacements.
- Electrification.

The Headwinds for EPCs

	Energy Usage (MMBtu)	Floor Area (SqFt)	Change in Floor Area	EUI (kBtu per SqFt)	Change in EUI
FY18	8,740,501	84,996,433		102.8	
FY19	8,589,148	84,996,443	0.00%	101.1	-1.73%
FY20	8,009,928	84,992,745	-0.004%	94.2	-8.35%
FY21	7,786,027	84,863,329	-0.16%	91.7	-10.78%
CY22	7,622,137	84,695,577	-0.35%	90.0	-12.49%
CY23	7,740,466	84,502,582	-0.58%	91.6	-10.92%
CY24	**7,765,147**	**83,658,358**	**-1.57%**	**92.8**	**-9.74%**

The Headwinds for EPCs

Building Energy Performance Standards (BEPS)

- Buildings >35,000 sq. ft. reduce onsite fossil fuel use to zero by 2040 (NI K-12).
- US DOE National labs: all covered buildings combined will spend more on efficiency measures ($8.8B) and electrification measures ($6.4B) than the energy cost savings accrued in this period ($8.96B).
- On a longer time horizon (2025—2050), energy cost savings increase to $22.3B, indicating a net savings for Maryland's covered buildings. (All public and private BEPS buildings statewide).

DGS' Decarbonization study:

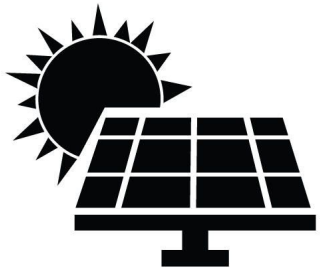
- 17.5 million sq. ft. & 800 buildings.
- $10.5 million in utility savings (LCC).
- $718 million in incremental capital costs (NPV).

The Role and Opportunity of EPCs

EPCs can provide a significant portion of project costs, but to achieve BEPS compliance, additional funds must be added to a project.

Example:

- Subsidize a particular measure, such as onsite solar so that it has a 5-year ROI.
    - Look for grants and/or utility rebates.
- Use the short payback of the subsidized measure to leverage additional funding via the EPC process.



Questions?

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Idea to Implementation: Procurement and Financing for County and Local Governments

Ben Rupert, Maryland Clean Energy Center (MCEC)

What is MCEC?

MCEC was created as an instrumentality of the state in 2008 to promote clean energy and energy efficiency by acting as Maryland's state-wide green bank, aiming to:

- Fuel the expansion of clean energy businesses across the state.
- Accelerate the adoption of cutting-edge clean energy technologies
- Amplify Maryland's economy, creating new opportunities and prosperity.
- Enhance the health, safety, and well-being of our communities with a more sustainable future

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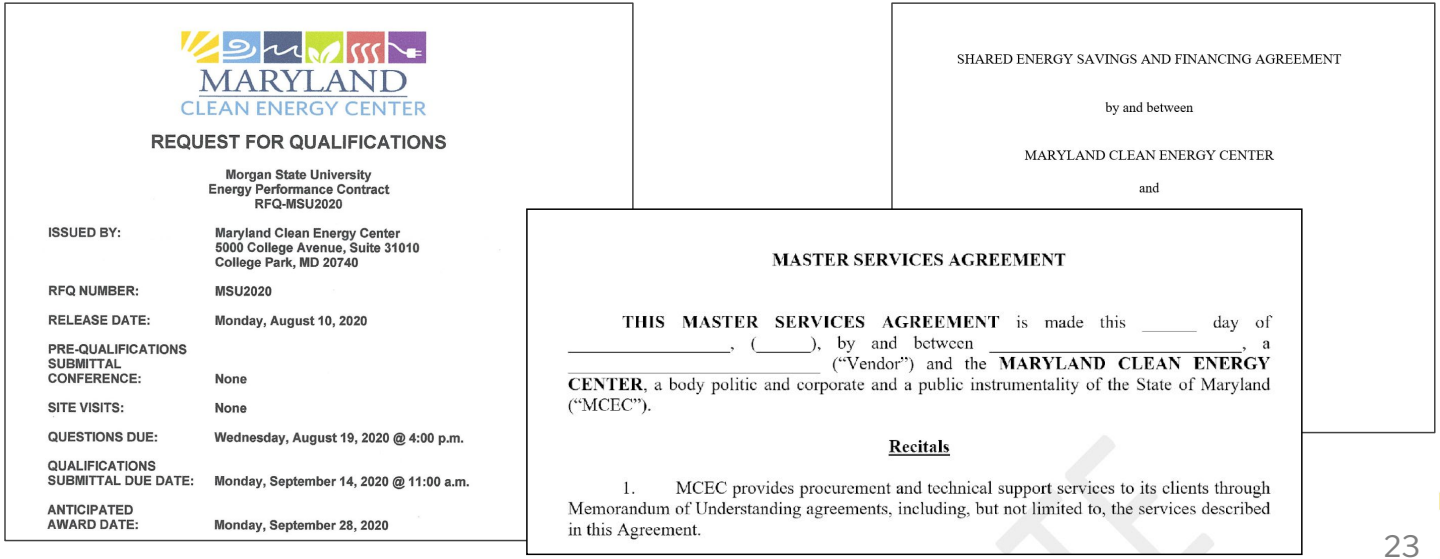
How MCEC Can Help Clean Energy Projects



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PTAS Benefits

- ✔ Add capacity and expedite outcomes
- ✔ Contractor and advisory expertise
- ✔ Affordable fee for service



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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**

SHARED ENERGY SAVINGS AND FINANCING AGREEMENT

by and between

MARYLAND CLEAN ENERGY CENTER

and

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.

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MCEC Clean Energy Financing Programs



MCAP Program

Provides conduit tax-exempt and taxable financing for **large-scale** clean energy projects, helping organizations reduce costs and emissions while boosting Maryland's green economy.



MD PACE Program

Offers **commercial** loans repaid through property tax liens, enabling property owners to finance renewable energy, efficiency and resilience upgrades without upfront costs or on-the-books debt.

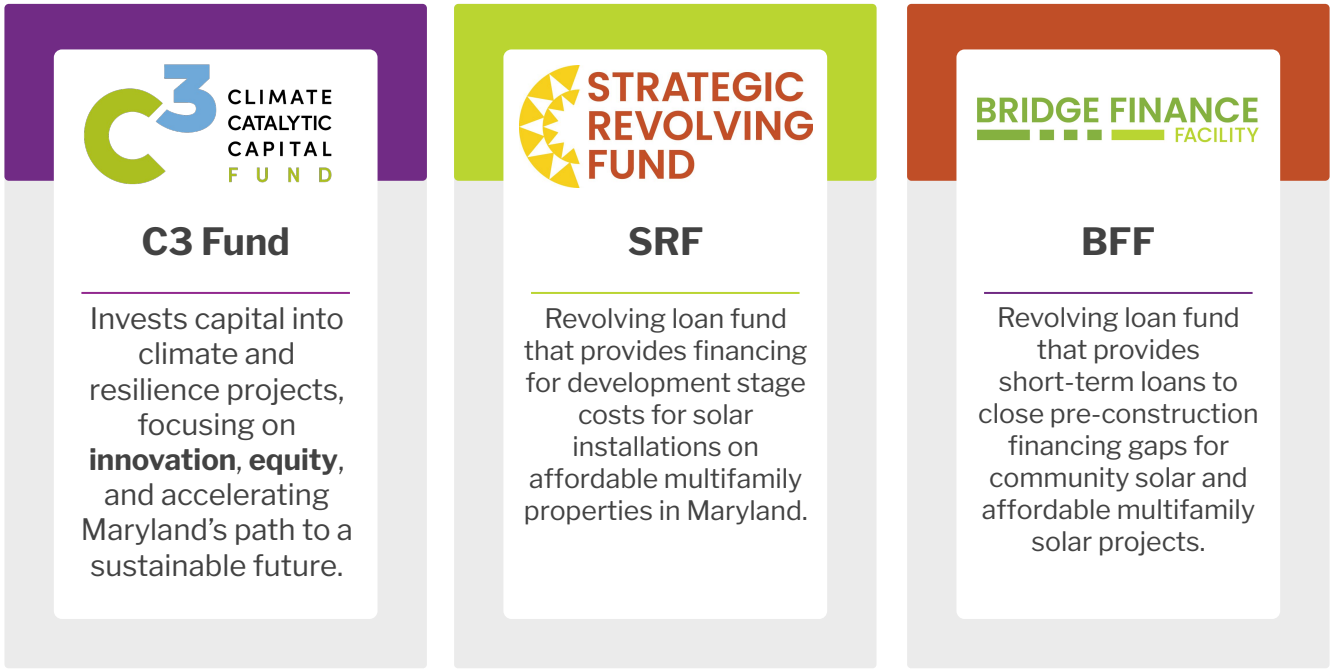


CEA Program

Delivers low-interest loans for **residential** energy efficiency and renewable energy improvements, making clean energy upgrades more affordable for Maryland homeowners.

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MCEC Clean Energy Financing Programs



Maryland Clean Energy Capital

Created to provide conduit bond financing for large-scale clean energy and energy efficiency projects, helping organizations reduce costs and emissions while supporting Maryland's clean energy economy.

Cumulative MCAP Bond Issuance

$48.4M *Total Financing*	
$3.4M *Lease Financing*	**$45M** *Bond Financing (EPCs)*
$5.1M *Taxable Bonds*	**$43.3M** *Tax Exempt Bonds*

(Values as of FY24)

Transaction History



Maryland Clean Energy Capital

Under MCAP, MCEC is structuring a tax-exempt municipal bond to provide construction-to-permanent financing for municipally owned solar projects. Part of the proceeds will be used to take-out bridge finance provided by the C3 Fund. The project delivers municipal cost savings, LMI community solar benefits, and long-term public clean energy infrastructure.

Project Info

Total Project Cost: ~$5.4M

Location: Town of Chestertown

Ownership: Town-owned municipal asset

EPC/Developer: Green Generation Solutions, LLC

Utility: Delmarva Power

1.2 MW Town Operations Array (ANEM)

- First-year savings: ~$205k
- 25+ year system life
- Supports municipal load reduction

1.0 MW Community Solar Array (NEM)

- 10–20% bill discounts to subscribers
- 40% capacity reserved for LMI households
- Participates in Maryland Community Solar Program

Capital Stack & Leverage

- $1.5M Bridge Loan from MCEC C3 Fund (ITC Safe Harbor – Dec 2025)
- Federal ITCs (25.5%)
- MCAP Bond Issuance of up to $6M
- Potential $1M MEA L-GEM Grant (pending award)
    - If received, ITCs and grants may be applied toward bond repayment.

Project Benefits

- Municipal energy cost stabilization
- Energy affordability via community solar
- Long-term public asset ownership
- Blended public-private capital leveraging federal incentives
- Expected operational life: 30–35 years

Eligible Entities & Measures

Eligible Entities

Non-Profit Organizations
Universities, Hospitals, Community Orgs

Public Entities
State agencies, Counties, Municipalities, School Districts

Private Entities
Affordable housing developers, clean-energy developers

Eligible Measures

Energy Efficiency
HVAC upgrades, lighting retrofits, building envelope improvements

Renewable Energy
Solar PV, geothermal, biomass, combined heat & power

Fleet Electrification
Electric vehicles, charging infrastructure, associated electrical upgrades

Resiliency & Infrastructure
Microgrids, energy storage, water/energy infrastructure, net-zero housing upgrades

Financing Pathways and Process Overview

	1. Application Processing & Initialization	2. Deal Structuring & Capital Raise	3.Documentation and Closing Package	4. Final Approval and Closing
Conduit Only *Borrower has lender ready*	2 – 6 weeks **MCEC**: $5k application fee **Other**: $2-5k Bond Counsel		2 – 3 weeks	1 - 2 weeks **MCEC**: 0.75% (min. $35k) closing fee **Other**: $50k - 100k Bond Counsel
Conduit & Capital Raise *MCEC arranges financing*	2 – 6 weeks **MCEC**: $5k application fee **Other**: $2-5k Bond Counsel	4 – 6 weeks	3 – 4 weeks	1 – 2 weeks **MCEC**: 1.00% (min. $50k) closing fee **Other**: $50 - 100k Bond Counsel, $40 – 80k Financial Advisor
Structured Finance & Capital Raise *MCEC arranges financing & acts as lessor*	2 – 6 weeks **MCEC**: $5k application fee **Other**: $2-5k Bond Counsel	5 – 7 weeks	4 – 5 weeks	1 – 2 weeks **MCEC**: 1.00% (min. $65k) closing fee **Other**: $50 - 100k Bond Counsel, $50 – 100k Financial Advisor

Two Sources of Capital

Private Placement		Capital Markets
A single lender purchases the entire bond – essentially direct lending via MCEC as a conduit	Structure	Bonds are sold to the public through an underwriter to retail and/or institutional investors via MCEC as a conduit
Generally simpler and cheaper — requires fewer parties and fewer documents	Costs & Complexity	More complex and time consuming — involves a trustee, underwriter, and multiple counsels
Suitable for smaller projects where a single lender is willing to hold the bond	Project Suitability	Suitable for larger transactions that justify the fixed costs of a public offering
Typically, no credit enhancement involved, and bonds are not rated	Credit & Ratings	May involve ratings and credit enhancement
Often funded on a draw-down basis, reducing negative arbitrage	Funding Approach	Proceeds typically fully funded at closing, which may create negative arbitrage

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Conduit Financing

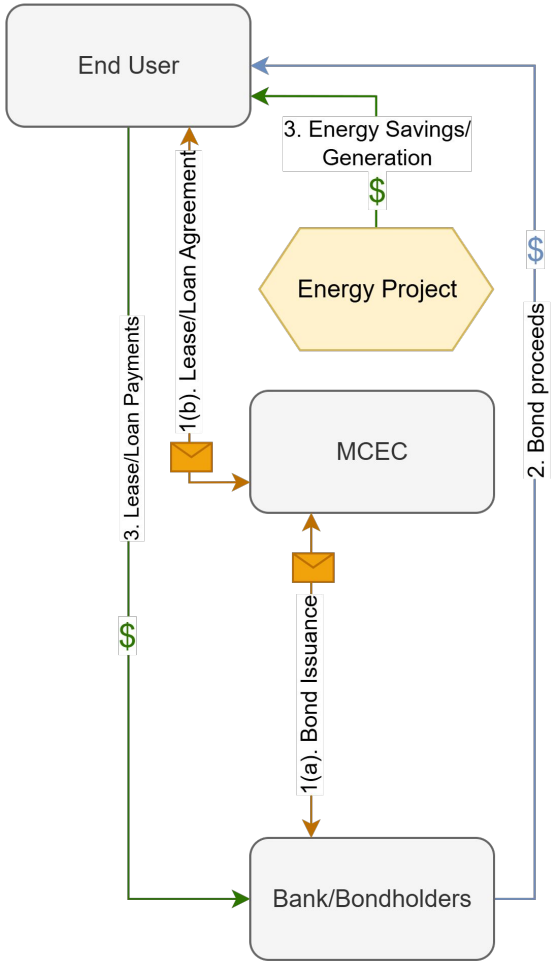
1. MCEC's conduit capabilities can be used for receiving tax-exempt financing for energy efficiency and/or clean energy generation projects.

2. Qualified end users such as non-profit organizations, public entities or certain public-benefit projects by private entities can access financing through a loan or lease.

3. Critical steps involved:
   a. Project Identification and Approval
   b. Bond Issuance
   c. Project Implementation
   d. Project Operations and Repayment
   e. Legal and Regulatory Compliance

4. Energy projects may include an additional Energy Performance Contract (EPC) with an Energy Services Company (ESCo) that will guarantee the savings that will be generated to pay back the lease or loan.

5. Capital market transactions may involve additional entities like trustees and additional complexities.



Note: Simplified MCAP private placement structure.

Structured Finance Solutions

1. MCEC can structure financing to receive off-balance sheet treatment where the end user lacks the capacity or willingness to borrow directly.

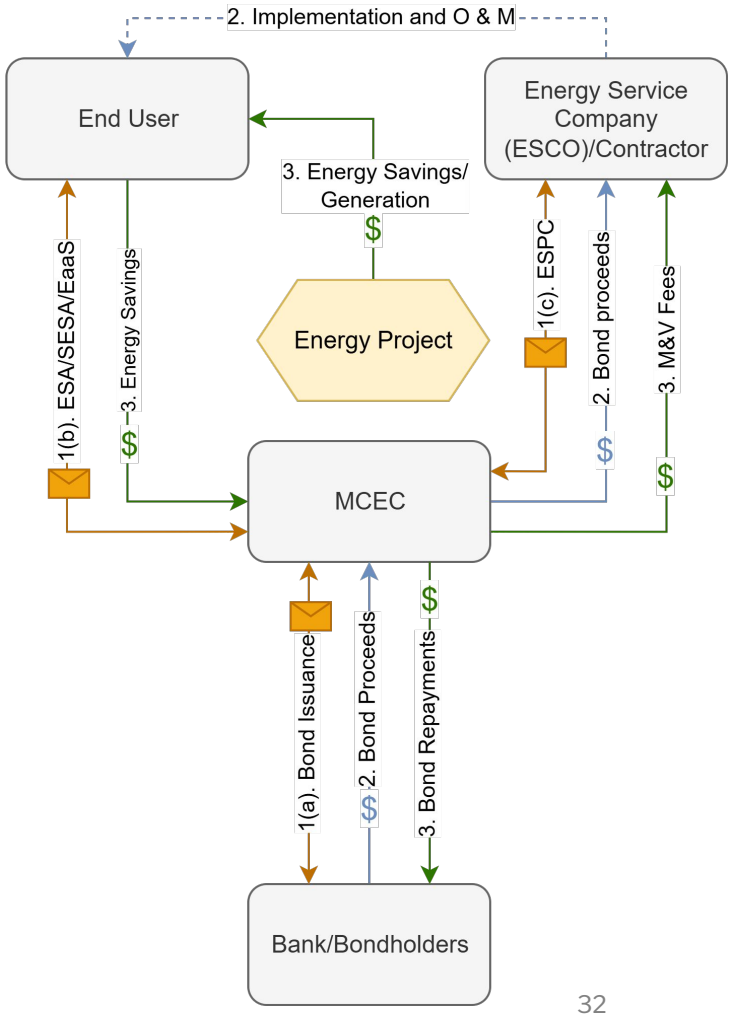
2. Qualified end users include non-profit organizations, public entities or certain public-benefit projects by private entities.

3. Lender must assume energy savings and non-appropriation risk. Savings are sized to cover all end-user costs.

4. MCEC stands in the middle of the structure and no other party directly transacts with any other party but MCEC.

5. Critical steps involved same as conduit financing plus higher degree of monitoring and verification due to annual true up process.

6. Upfront and ongoing transaction costs for this structure could be higher



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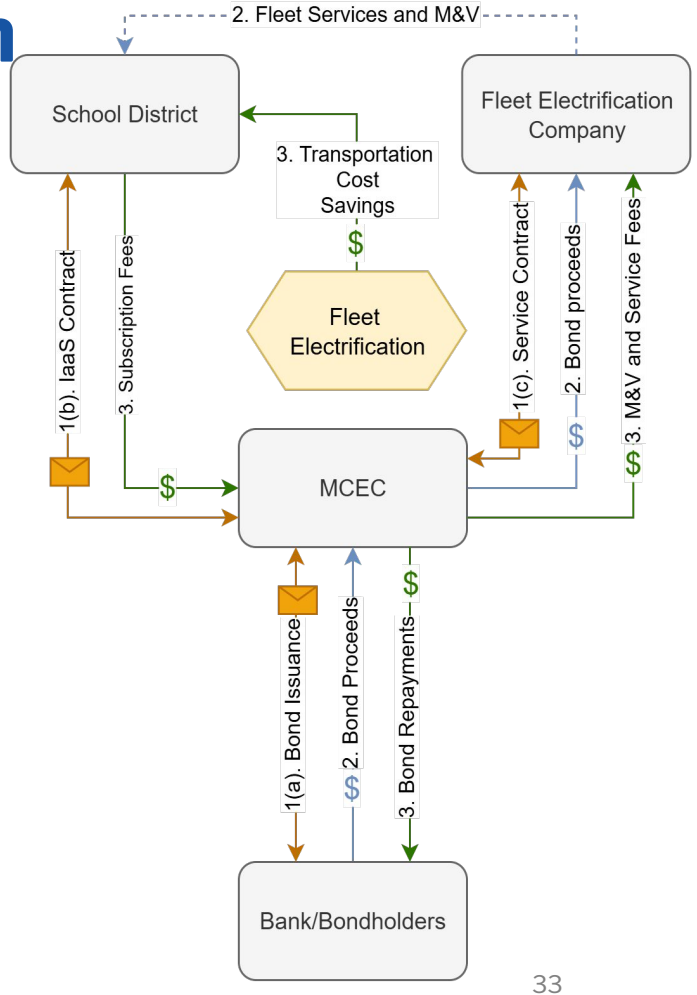
Financing Fleet Electrification

1. Like energy projects, MCEC can provide upfront capital for fleet electrification (vehicles, chargers, electric upgrades etc.) through conduit financing to end users such as School Districts. Where necessary, MCEC can replicate the off-balance sheet structure through Infrastructure-as-a-Service (IaaS) type contracts with end users.

2. The end user (e.g., a school district) partners with a full-service electric vehicle company for the fleet electrification implementation, and MCEC for tax-exempt capital.

3. Critical steps involved are similar to energy efficiency/generation projects.

4. Private placement option more feasible than capital markets due to relatively short asset life.



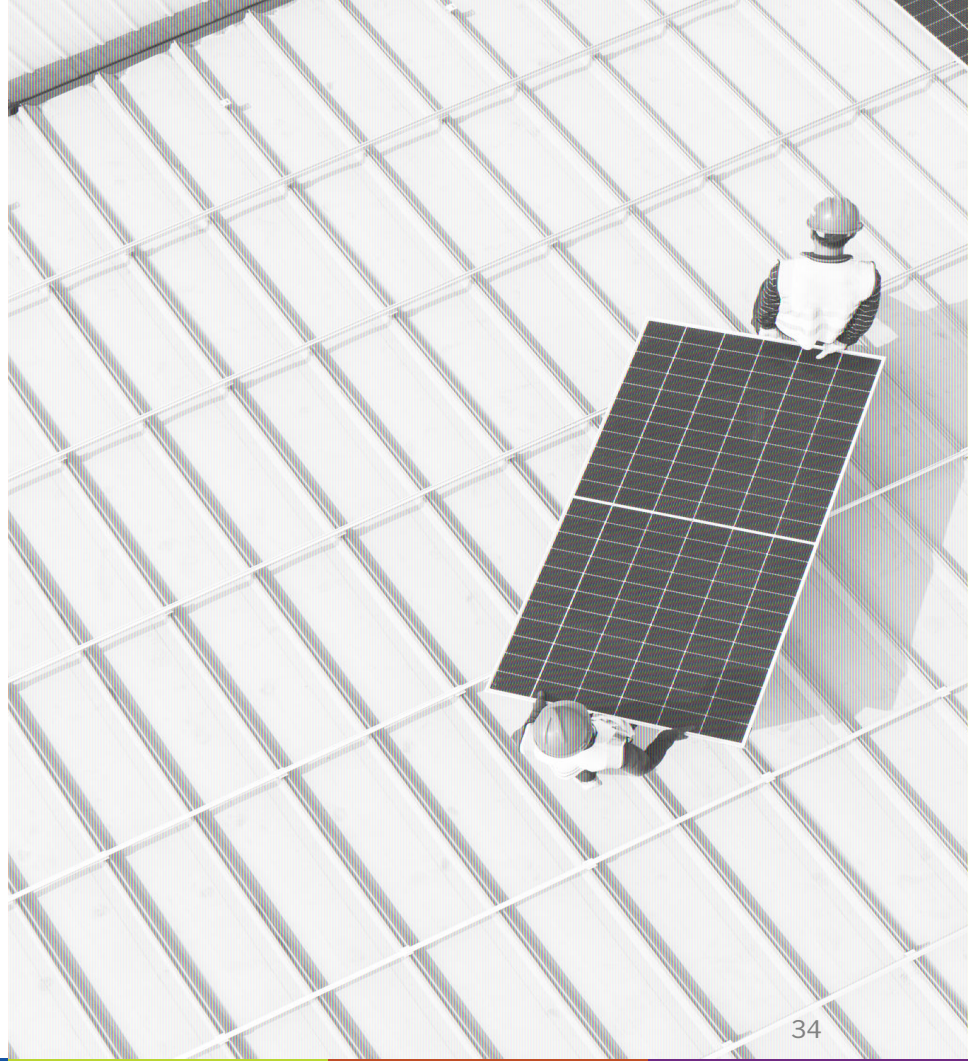
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Get In Touch

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Advancing EPCs: Owner's Representative Perspective

Aldo Mazzaferro, NV5

INTRO TO NV5'S CLEAN ENERGY GROUP

- Lifecycle Consulting Services for all forms of energy projects
  - Energy Auditing & Feasibility Studies
  - Energy Benchmarking & 3rd Party BEPs Verification
  - HVAC Electrification & Buildings Automation Systems
  - Solar & BESS Microgrids
  - Electric Fleet & Charging Infrastructure
- Independent Owner's Representative for Energy Savings Performance Contracts (ESPCs)

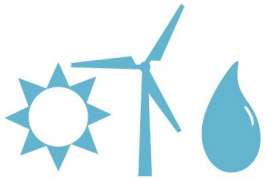












$4 BILLION OF
CLEAN ENERGY INVESTMENTS

INTEGRATED FULL-SERVICE SOLUTIONS



PROJECT DRIVERS

- Capture Cost Savings
- Fund Capital Improvements
- Greenhouse Gas Emission Reductions
- Increase Energy Resilience
- Student Engagement & Curriculum Enhancement
- Ease of contracting with turnkey ESCO

ESPCS IN MD & AROUND THE NATION



Montgomery County Public Schools (MCPS) – GHG Emission Reductions

- 2 x $25M ESPC Projects to Install 6 MW Solar Array
- Goal: 100% GHG Reduction by 2035
- Results: Offsetting ~35% of the selected sites' GHG emissions using Efficiency, Electrification, and Renewables



Joint Base San Antonio – Funding Resilience via ESPC

- $132 Million ESPC Investment funded by $9M in Guaranteed Annual Savings
- Goal: *Mission Assurance through Energy Assurance*
- 25% Efficiency Savings, 18 MW of Solar PV, and 4 MW/8MWh of Energy Storage



PA State Correctional Institute – Fund Central Utility Plant via ESPC

- ~$60 Million ESPC Investment
- Goal: Leverage $30 Million Capital Reserve Funds to fund more!
- Modeling using Capital Cost Avoidance

BEST PRACTICES – INITIATE THE PROJECT & PROCURING THE ESCO

- Conduct ESPC Pre-Qualification Study
  - Understand your existing conditions, existing utility & O&M budgets, identify scope opportunities
  - Develop business case – economics, key steps, timeline, etc.
  - Goal: Confirm ESPC Opportunity & set reasonable expectations with stakeholders
- Procure the partner, not the project
  - Focus on Qualifications, Team Members, References, Technical & Financial Approach
  - Request indicative project pricing and pre-negotiated contract templates to minimize risks and ensure fair pricing
  - Understand the limitations of site-specific auditing during the RFP/Q stage
  - **Interview the top respondents!**

BEST PRACTICES – LEVERAGING FUNDS

- Sample IGA Findings
  - Bundling Fast & Slow Payback ECMs
  - Slow Payback ECMs include critical infrastructure
  - What are the financing constraints?
  - Does an 18 yr net SPB self-fund?

Scope	Costs	Funds	Savings	SPB
Retro-Commissioning	$650k	$0	$100k	6.5
Building Envelope	$200k	$0	$25k	8.0
Electrify Kitchen Equip.	$1.00M	$0	$100k	10.0
Water Conservation	$2.00M	$0	$190k	10.5
LED Upgrades	$10.0M	$0	$700k	14.3
Solar PV	$2.50M	$0	$175k	14.3
Controls Upgrades	$5.50M	$0	$150k	36.7
Geothermal Upgrade	$6.00M	$0	$125k	48.0
Chiller Upgrades	$1.25M	$0	$20k	62.5
Boiler Upgrades	$5.0M	$0	$65k	76.9
TOTAL	**$34.1M**	**$0**	**$1.7M**	**20.7**

BEST PRACTICES – LEVERAGING FUNDS

- Problem:
  - Must remove slow paybacks to create self-funding project
  - Slow Paybacks = Top Priorities
- Solution:
  - Identify funding that can be leveraged

Scope	Costs	Funds	Savings	SPB	In ?
Retro-Commissioning	$650k	$0	$100k	6.5	Y
Building Envelope	$200k	$0	$25k	8.0	Y
Electrify Kitchen Equip.	$1.00M	$0	$100k	10.0	Y
Water Conservation	$2.00M	$0	$190k	10.5	Y
LED Upgrades	$10.0M	$0	$700k	14.3	Y
Solar PV	$2.50M	$0	$175k	14.3	Y
TOTAL	**$16.4M**	**$0**	**$1.3M**	**12.6**	
Controls Upgrades	$5.50M	$0	$150k	36.7	N
Geothermal Project	$6.0M	$0	$125k	48	N
Chiller Upgrades	$1.25M	$0	$20k	62.5	N
Boiler Upgrades	$5.0M	$0	$65k	76.9	N

BEST PRACTICES – LEVERAGING FUNDS

- Leverage Funds
  - Utility Rebates
  - ITC Direct Payment for Solar & Geothermal
  - Capital Contributions

Scope	Costs	Funds	Savings	SPB
Retro-Commissioning	$650k	$60k	$100k	6.5
Building Envelope	$200k	$0	$25k	8.0
Electrify Kitchen Equip.	$1.00M	$0	$100k	10.0
Water Conservation	$2.00M	$0	$190k	10.5
LED Upgrades	$10.0M	$1.7M	$700k	14.3
Solar PV	$2.50M	$750k	$175k	14.3
Controls Upgrades	$5.50M	$750k	$150k	36.7
Geothermal Upgrade	$6.0M	$1.8M	$125k	48.0
Chiller Upgrades	$1.25M	$0	$20k	62.5
Boiler Upgrades	$5.0M	$4.25M	$65k	76.9
TOTAL	**$34.1M**	**$9.3M**	**$1.7M**	**15.0**

BEST PRACTICES – LEVERAGING FUNDS

Project Financials	Original Project without Leveraging	Revised Project with Leveraging	DELTA
Total Project Cost	$16.4M	$34.1M	$17.7M
Total Funds Leveraged	$0	$9.3M	$9.3M
		Leveraging Ratio	**1.91**

- Per Oak Ridge National Laboratory, the **Leveraging Ratio** is defined as the ratio of the total amount of new investment relative to funds leveraged
- ESPC Leveraging Ratios typically range from 1.3 – 2.1.
- For every $1 leveraged, 1.3-2.1x of scope can be added to the project for deeper, more holistic upgrades

BEST PRACTICES – PERSISTENCE OF SAVINGS

- Operations, Maintenance, Repair, and Replacement (OMR&R)
  - Transparently & clearly defined using Risk & Responsibility Performance Matrix
  - Customizable for every project considering Scope, Technology, In-house Capabilities, etc.
  - Realistic proposed conditions signed off and agreed upon by facility operators
- Utilize advanced Building Analytics
  - Trend operating conditions
  - Fault Detection & Diagnostics (FDDs)
  - Continuously monitor & report common overrides

BEST PRACTICES – REPORTING VIA M&V

- Measurement & Verification (M&V) is key to the success of your ESPC and it starts Day 1!
- eProject eXpress (ePX): Developed by Lawrence Berkely National Laboratory (LBNL) on behalf of the U.S. Department of Energy
  - ✔ Standardized data formats & reports
  - ✔ Preserves ESPC project data & results long term
  - ✔ Roll up reports summarizing state-wide & national ESPC project performance

EVO® Efficiency Valuation Organization

IPMVP® INTERNATIONAL PERFORMANCE MEASUREMENT & VERIFICATION PROTOCOL

ePROJECTeXPRESS

ePROJECT eXPRESS Fact Sheet

Questions?

Aldo Mazzaferro, NV5
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How the State Finances & Agency Budget

Tanya Mekeal, Capital Lease Manager, Maryland State Treasurer’s Office

MARYLAND STATE TREASURER

Energy Lease-Purchase Program Overview

- The State Treasurer's Office (STO) procures financing for Energy Performance Contracts (EPCs) for State agencies and higher education institutions
- Financing may be used to purchase capital equipment (LEDs, HVAC systems, etc.) needed for the EPC and pay for the equipment over an extended term sustainable by guaranteed project savings
- Lease payments are made using the utility savings generated by the EPCs
- STO collects administrative fee on the outstanding principal twice per year

MARYLAND STATE TREASURER

Benefits of STO Energy Lease-Purchase Program

- STO leverages State's credit rating to obtain lowest possible cost of borrowing and favorable lease terms from banks
  - Interest rates under 5.0%*
- Lease payments and escrow accounts are managed by STO
- Access to expert guidance from STO staff, Attorney General's office, bond counsel, and State's financial adviser
- Only legal method of procuring financing for most State agencies

MARYLAND STATE TREASURER

Leasing Process

- Leasing process begins with DGS Submission of Cash flow & ancillary documents to STO for confirmation of cash-flow and viability for financing
- DGS/Agency receives Board of Public Works (BPW) approval of EPC
- Following BPW approval, STO works with DGS and/or State agency to obtain necessary documentation so STO can create Invitation for Bids (IFB)
- Bids are due to STO 21 calendar days following publishing of IFB; the bid with the lowest interest rate is awarded the contract, pending BPW approval
- Following BPW approval, STO works with DGS and/or State agency to close the lease, which consists primarily of circulating documents for signatures
- Upon closing, funds are placed into an escrow account from which funds can be drawn to pay ESCO for its work

MARYLAND STATE TREASURER

Lease Servicing

- **Payments to ESCO**
  - DGS and/or State agency directs STO to release funds from escrow account as it approves invoices from ESCO

- **Lease Payments**
  - Banks invoice STO directly twice per year; STO pays invoices on agency's behalf
  - Once per year, STO recovers funds directly from Agency budgets to cover cost of lease payments and administrative fee

Budgeting Energy Performance Contracts

Department of Budget and Management



DBM – Budgeting EPC and SALP/JELLP Loan Repayment

- Receive EPC schedule from Treasury
- Incorporate EPC schedule into Budget Instructions
- Following agency's budget submission, analysts confirm that agency's budget request match the published schedule
- If different, analysts work with agencies to determine why and realign funding if needed

Department of BUDGET AND MANAGEMENT

Budget Instructions – EPC and SALP/JELLP Schedule

APPENDIX 2
ENERGY PERFORMANCE CONTRACTS (EPC) AND STATE AGENCY LOAN PROGRAM (SALP) / JANE E. LAWTON CONSERVATION LOAN PROGRAM (JELLP) SCHEDULE – SUBOBJECT 0698

Agencies should request funding in the amount required in their Energy Performance Contract (EPC) or State Agency Loan Program (SALP) / Jane E. Lawton Conservation Loan Program (JELLP) contract as detailed in the following schedule. The schedule lists charges known as of June 1, 2025.

Agency Code	Name	EPC Amount FY 2027	SALP/JELLP Amount FY 2027	Total 0698
H00	Department of General Services	$0	$286,636	**$286,636**
J00D	Maryland Port Administration	$167,905	$0	**$167,905**
J00E	Motor Vehicle Administration	$173,968	$148,690	**$322,658**
M00L04	Thomas B Finan Center	$299,593	$0	**$299,593**
M00L08	Springfield Hospital	$253,424	$127,847	**$381,271**
M00L10	Perkins Hospital Center	$0	$38,847	**$38,847**
M00M05	Holly Center	$597,157	$0	**$597,157**
Q00	Department of Public Safety and Correctional Services	$1,142,046	$77,693	**$1,219,739**
R30B22	University of Maryland College Park	$0	$85,283	**$85,283**
R30B34	University of Maryland Center for Environmental Science	$0	$108,215	**$108,215**
V00	Department of Juvenile Services	$476,446	$77,700	**$554,146**

Agencies – Budgeting EPC and SALP/JELLP Loan Repayment

Loan Repayment - Energy Conservation Project/State Agency Loan Program (0698): Agencies can find the schedule for EPCs and SALP as of June 2025 in Appendix 2. If an agency plans to initiate a new EPC and/or SALP loan, the amounts on the schedule should be increased. If the request deviates from the schedule in Appendix 2, agencies should be prepared to explain how the request is derived and why it differs from the schedule. Questions about the appendix should be directed to Mario Sto. Domingo at mario.stodomingo@maryland.gov.

- Confirm the amount in the EPC and SALP/JELLP schedule, ask any questions
- Update the amount in agency budget request

Department of BUDGET AND MANAGEMENT

Budgeting Utilities With An EPC/SALP/JELLP Loan

- In the first year of an EPC or SALP/JELLP loan, agencies realign funding from other utility lines based on anticipated savings to fund the EPC/SALP/JELLP loan repayment

- Budget instructions encourage agencies to budget fuel and utilities at a historic rate or at prior year actual expenditures adjusted by an inflation rate
  - Based on energy savings, Fuel and Utilities funding may naturally decrease over time by using historic rates or prior year actual expenditures to project future year expenditures

Object .06 Fuel and Utilities

Code	Title of Comptroller Object	Rates Assumption/ Basis for Calculation
0601	Fuel - Alcohol	
0602	Fuel - Coal	Be prepared to answer DBM/DLS questions regarding request amount.
0603	Fuel - Oil #2	Be prepared to answer DBM/DLS questions regarding request amount.
0604	Fuel - Oil #3	Be prepared to answer DBM/DLS questions regarding request amount.
0605	Fuel - Oil #6	Be prepared to answer DBM/DLS questions regarding request amount.
0606	Fuel - Natural Gas/Propane	Equal to FY 2025 actual expenditures.
0607	Fuel - Wood	Be prepared to answer DBM/DLS questions regarding request amount.
0608	Fuel - Steam	Be prepared to answer DBM/DLS questions regarding request amount.
0619	Fuel - Miscellaneous	
0620	Utilities - Electricity	Equal to FY 2025 actual expenditures.
0621	Utilities - Water/Sewage	
0622	Utilities - Combined Utility Purchases	
0695	Corporate Purchasing Card	
0697	Maryland Environmental Service (MES) Charges	**Same as FY 2026 appropriation by fund type.** Budgeted values are based on MOUs with MES, and DBM will update agency values in December based on MOU schedules.
0698	Loan Repayment- Energy Conservation	Amount listed in schedule in Appendix 2.
0699	Utilities - Miscellaneous	Agencies should avoid using this subobject. Discuss with DBM analyst prior to use and be prepared to answer DBM/DLS questions.

Department of BUDGET AND MANAGEMENT

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Agenda

9:00 am	**Welcome** *Joh Sedtal, Deputy Secretary, Maryland Dept. of General Services (DGS)*
9:10 am	**Advancing Energy Performance Contracting (EPC)** *David St. Jean, Director, DGS Office of Energy & Sustainability*
9:45 am	**Procurement and Financing for County and Local Governments** *Ben Rupert, Maryland Clean Energy Center (MCEC)*
10:10 am	**Owner's Representative Perspective & Case Study** *Aldo Mazzaferro, NV5*
10:25 am	**How the State Finances & Agency Budget** *Tanya Mekeal, Capital Lease Manager, Maryland State Treasurer's Office*
10:30 am	**Networking Break**
11:00 am	**Maryland's High Performance Green Building Program** *Ben Roush, Chair of Maryland Green Building Council*
12:00 pm	**Adjourn**

Slides and Resources

Maryland
DEPARTMENT OF GENERAL SERVICES

Maryland's High Performance Green Building Program (HPGBP)

Ben Roush, fsi Engineers & Chair of Maryland Green Building Council

LEED v5 and the Maryland HPGBP



Mukilteo Ferry Terminal, LMN Architects & KPFF Consulting Engineers

Presented by

fsi ENGINEERS

Ben Roush

Principal, PE (Mech & FP), LEED AP BD+C ASHRAE BEMP & BEAP, CCP, CEPE, FPE (F3)

Mechanical & FP Engineer
Certified Energy Plans Examiner, ICC Fire Plans Examiner
Board Chair Emeritus, USGBC-MD
AIA Baltimore COTE co-chair
USGBC E&A TAG Emeritus
MD Green Building Council Chair
Sustainable Mechanical Engineering
Energy Modeling and Auditing
150+ LEED Projects
4 Certified Living Buildings
8 Current Projects Targeting Net Zero
Code Nerd



I want to read the code myself!

HB0870:

https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/hb0870?ys=2026RS

High Performance Green Building Program

https://dgs.maryland.gov/Pages/GreenBuilding/HighPerformanceProgram.aspx

Maryland BEPS:

https://mde.maryland.gov/programs/air/ClimateChange/Pages/BEPS.aspx

LEED Credit Library:

https://mde.maryland.gov/programs/air/ClimateChange/Pages/BEPS.aspx

Green Globes Reach Plus Protocol for MD:

https://app.thegbi.org/education/library/download/1a64536a-30f2-4a4e-b3f3-52edac633560/



MD Green Building Council, HPGBP

Applies to:

101.2 Scope

The provisions of this HPGBP apply to:

A. New building and major renovation[3] construction projects that are funded solely with state funds and are of 7,500-gross square feet or larger or are community college projects that receive any State funds and are of 7,500-gross square feet or larger[4].

B. New construction pre-kindergarten through 12th grade (PK-12) public schools which are partly funded by state funds[5].

C. A facility construction implemented by another instrumentality, public or private, that may be subject to the HPGBP pursuant to other Maryland statutes or regulations.[6]

D. Projects receiving more than 50% state funding and are not a public-school construction project are required to meet the requirements for bird safe construction in Appendix D. Exceptions in 101.2.1 do not apply to this provision.

HPGBP Approval Date by Council Vote	Schools RFP published date to use program	All Other RFP published date to use program
March 22, 2024	Up until 12/31/2026	Up until 9/30/2025
February 20, 2025	12/31/2026 - 7/1/2027	9/30/2025 - 4/1/2026
November 20, 2025	7/1/2027	4/1/2026

MD Green Building Council, HPGBP

Requires:

- LEED Silver certification, *or equivalent:*
  - *Meet Council adopted version of IgCC*
  - *Green Globes two globes, specific pathway*

February 2025 changes

- Apply bird safe building requirements from LEED v4 pilot credit, legislatively required:
  - BUG ratings for exterior lights
  - Interior light trespass limits
  - Fritted or UV film glass
  - Limiting reflective surface
  - Limiting “fly through” conditions like skybridge

https://www.usgbc.org/credits/new-construction-core-and-shell-schools-new-construction-retail-new-construction-data-75?return=/credits/New%20Construction/v4.1

Feb 2025 Changes:
Buy-Clean Maryland Act (2022 –Senate Bill 961)

- Purpose is to “achieve a continuous reduction in greenhouse gas emissions over time” by purchasing construction materials with a reduced maximum global warming potential (GWP).
- Eligible materials include: **Cement and concrete mixtures**
- **Eligible projects are those that are subject to the High-Performance Green Building Program**
  - NOT ROAD CONSTRUCTION
- DGS shall establish a maximum GWP based on environmental product declarations (EDP) submitted by an industry and include that figure in procurement contracts
- Review the GWP every three years.
- Possible future additions:
  - Glass,
  - Post tension steel,
  - Reinforcing steel,
  - Structural steel, and
  - Wood structural elements.

February 2025 changes
Buy-Clean Act Next Steps

2022 –Senate Bill 961 Buy Clean Maryland Act in force by July 1, 2026

- Requirements included in the DGS' Procedure Manual.
- All solicitations for HPGBP projects will include the requirement for the successful bidder to provide a current environmental product declaration (EPD) Type III – facility specific – for each project.

Concrete	**Ready Mix Concrete** in $kgCO2e/yd^3$ ($kgCO2e/m^3$) at 28 days:
	a. 2500 psi: 211 (276)
	b. 3000 psi: 232 (303)
	c. 4000 psi: 276 (361)
	d. 5000 psi: 333 (435)
	e. 6000 psi: 351 (459)
	f. 8000 psi: 414 (542)
	g. Lightweight (LW) 3000 psi: 455 (595)
	h. LW 4000 psi: 504 (659)
	j. LW 5000 psi: 552 (722)

Compliance can be achieved on a "per mix" basis or "project average" basis.

February 2025 changes

- Electrification of space heating and service water heating, required to be BEPS compliant:

302.1 Decarbonization.

Projects subject to the HPGBP shall be designed and built with space conditioning and domestic water heating systems that do not combust fossil fuels on site.

302.1.1 Where emergency backup generation is needed, non-fossil fueled systems shall be evaluated but are not required.

302.1.2 All-electric food preparation and storage systems shall be evaluated but are not required.

302.1.3 Heat pumps shall be used in all space conditioning/HVAC and service water heating applications. Fossil Fuels and electric resistance shall not be used for space heating or water heating, with exceptions listed in Appendix G: Exceptions for Resistance Electric Space and Service Water Heating Systems.

302.1.3 Projects located on a campus, or a district energy system, served by a central plant that combusts fossil fuel to provide space conditioning and water heating, shall have an independent space conditioning and water heating system installed that does not combust fossil fuel on site. A project connected to a district energy system that is contractually obligated to provide carbon-free steam by a date that aligns with state goals is allowed.

February 2025 changes

Exceptions allowing electric resistance:

- Low heating capacity <8.5 BTH
- Dwelling and sleeping units with wattage limits
- Buildings <2500 SF
- Defrost for heat pumps
- Air-to-air heat pumps, air-to-water heat pumps, & ground source heat pumps backup heating, with limitations
- Small systems less than 5% of total building capacity
- Kitchen makeup
- Heat tape for freeze protection
- Temporary systems <40 degrees F
- Pasteurization
- Freeze protection <45 degrees F
- DOAS frost protection
- I-2 and I-3 essential facilities with required redundant backup systems
- Standby HVAC heating (manual switchover)
- Wastewater heat recovery auxiliary heating
- Waiver Process

Exceptions allowing fossil fuel heating:

- Small systems less than 5% of total building capacity
- District energy predating 2/20/2025
- Low carbon district energy systems
- I-2 and I-3 essential facilities and research laboratories with required redundant backup systems
- Waiver Process
- ***Emergency generators***

November 2025 Key Changes

- LEED v5 updates
- Update equivalent programs for IgCC and Green Globes
- Concrete Environmental Product Declarations
- Define Third Party Reviewer for projects not seeking certification
- Clarify School Renovations and HPGBP requirements
- Add legislatively required color/temperature ratings for exterior lighting and uplight and interior light requirements.

LEED v5, guiding principles

LEED v5 for Building Design and Constr

Project scorecard

Decarbonization

Yes	Maybe	No			
☐	☐	☐	IP Prereq	IPp3	Carbon Assessment
☐	☐	☐	IP Credit	IPc1	Integrative Design Process
☐	☐	☐	LT Credit	LTc3	Compact and Connected Development
☐	☐	☐	LT Credit	LTc4	Transportation Demand Management
☐	☐	☐	LT Credit	LTc5	Electric Vehicles
☐	☐	☐	SS Credit	SSc5	Heat Island Reduction
☐	☐	☐	WE Prereq	WEp2	Minimum Water Efficiency
☐	☐	☐	WE Credit	WEc1	Water Metering and Leak Detection
☐	☐	☐	WE Credit	WEc2	Enhanced Water Efficiency
☐	☐	☐	EA Prereq	EAp1	Operational Carbon Projection and Decarbonization Plan
☐	☐	☐	EA Prereq	EAp2	Minimum Energy Efficiency
☐	☐	☐	EA Prereq	EAp3	Fundamental Commissioning
☐	☐	☐	EA Prereq	EAp4	Energy Metering and Reporting
☐	☐	☐	EA Prereq	EAp5	Fundamental Refrigerant Management
☐	☐	☐	EA Credit	EAc1	Electrification
☐	☐	☐	EA Credit	EAc2	Reduce Peak Thermal Loads
☐	☐	☐	EA Credit	EAc3	Enhanced Energy Efficiency
☐	☐	☐	EA Credit	EAc4	Renewable Energy
☐	☐	☐	EA Credit	EAc5	Enhanced Commissioning
☐	☐	☐	EA Credit	EAc6	Grid Interactive
☐	☐	☐	EA Credit	EAc7	Enhanced Refrigerant Management
☐	☐	☐	MR Prereq	MRp1	Planning for Zero Waste Operations
☐	☐	☐	MR Prereq	MRp2	Quantify and Assess Embodied Carbon
☐	☐	☐	MR Credit	MRc1	Building and Materials Reuse
☐	☐	☐	MR Credit	MRc2	Reduce Embodied Carbon
☐	☐	☐	MR Credit	MRc4	Building Product Selection and Procurement
☐	☐	☐	MR Credit	MRc5	Construction and Demolition Waste Diversion

Quality of Life

Yes	Maybe	No			
☐	☐	☐	IP Prereq	IPp1	Climate Resilience Assessment
☐	☐	☐	IP Prereq	IPp2	Human Impact Assessment
☐	☐	☐	IP Credit	IPc1	Integrative Design Process
☐	☐	☐	LT Credit	LTc2	Equitable Development
☐	☐	☐	LT Credit	LTc3	Compact and Connected Development
☐	☐	☐	LT Credit	LTc4	Transportation Demand Management
☐	☐	☐	SS Credit	SSc2	Accessible Outdoor Space
☐	☐	☐	SS Credit	SSc4	Enhanced Resilient Site Design
☐	☐	☐	SS Credit	SSc5	Heat Island Reduction
☐	☐	☐	WE Credit	WEc1	Water Metering and Leak Detection
☐	☐	☐	MR Credit	MRc3	Low Emitting Materials
☐	☐	☐	MR Credit	MRc4	Building Product Selection and Procurement
☐	☐	☐	EQ Prereq	EQp1	Construction Management
☐	☐	☐	EQ Prereq	EQp2	Fundamental Air Quality
☐	☐	☐	EQ Prereq	EQp3	No Smoking or Vehicle Idling
☐	☐	☐	EQ Credit	EQc1	Enhanced Air Quality
☐	☐	☐	EQ Credit	EQc2	Occupant Experience
☐	☐	☐	EQ Credit	EQc3	Accessibility and Inclusion
☐	☐	☐	EQ Credit	EQc4	Resilient Spaces
☐	☐	☐	EQ Credit	EQc5	Air Quality Testing and Monitoring

Ecological Conservation and Restoration

Yes	Maybe	No			
☐	☐	☐	IP Credit	IPc1	Integrative Design Process
☐	☐	☐	LT Credit	LTc1	Sensitive Land Protection
☐	☐	☐	LT Credit	LTc3	Compact and Connected Development
☐	☐	☐	SS Prereq	SSp1	Minimized Site Disturbance
☐	☐	☐	SS Credit	SSc1	Biodiverse Habitat
☐	☐	☐	SS Credit	SSc2	Accessible Outdoor Space
☐	☐	☐	SS Credit	SSc3	Rainwater Management
☐	☐	☐	SS Credit	SSc4	Enhanced Resilient Site Design
☐	☐	☐	SS Credit	SSc5	Heat Island Reduction
☐	☐	☐	SS Credit	SSc6	Light Pollution Reduction
☐	☐	☐	WE Prereq	WEp1	Water Metering and Reporting
☐	☐	☐	WE Prereq	WEp2	Minimum Water Efficiency
☐	☐	☐	WE Credit	WEc1	Water Metering and Leak Detection
☐	☐	☐	WE Credit	WEc2	Enhanced Water Efficiency
☐	☐	☐	MR Prereq	MRp1	Planning for Zero Waste Operations
☐	☐	☐	MR Credit	MRc1	Building and Materials Reuse
		☐	MR Credit	MRc4	Building Product Selection and Procurement
		☐	MR Credit	MRc5	Construction and Demolition Waste Diversion
		☐	EQ Prereq	EQp3	No Smoking or Vehicle Idling

LEED v5, New prereqs

Yes	Maybe	No			Total Possible Points	Total Anticipated Points
			Integrative Process, Planning and Assessments (IP)		**1**	**0**
☐	☐	☐	IPp1	Climate Resilience Assessment	Required	
☐	☐	☐	IPp2	Human Impact Assessment	Required	
☐	☐	☐	IPp3	Carbon Assessment	Required	
0	0	0	IPc1	Integrative Design Process	1	0

Other adopted credits

302.10 Additional Requirements for LEED projects

The following credits are mandatory for projects pursuing LEED:

- Climate Resilience Assessment prerequisite IPp1 and Enhanced Resilient Design SSc4, must evaluate three (or more) for proposed design strategies, must implement 2 strategies for two points in SSc4.
- Electric Vehicles LTc5 (for projects with parking), achieve one point
- Biodiverse Habitat SSc1, achieve 1 point for Option 2 Bird Friendly Glass
- Light Pollution Reduction SSc6, achieve 1 point
- Enhanced Commissioning EAc5, Option 1 Path 1, achieve 2 points, Enhanced Commissioning for MEP
- Enhanced Commissioning EAc5, Option 1 Path 2, achieve 1 point, Enhanced Commissioning for Building Enclosure. Required for new construction only.
- Electrification EAc1, achieve 5 points, no fossil fuel combustion
- Reduce Peak Thermal Loads Eac2, achieve 3 points, Option 1 and 3 required. Required for new construction only
- Occupant Experience EQc2, Achieve 1 point from any category
- Accessibility and Inclusion EQc3, Achieve 1 point
- Air Quality Testing and Monitoring EQc5, Achieve 1 point from any category

Other adopted credits

Yes	Maybe	No			Total Possible Points	Total Anticipated Points
			Integrative Process, Planning and Assessments (IP)		**1**	**0**
☐	☐	☐	IPp1	Climate Resilience Assessment	Required	
☐	☐	☐	IPp2	Human Impact Assessment	Required	
☐	☐	☐	IPp3	Carbon Assessment	Required	
0	0	0	IPc1	Integrative Design Process	1	0
			Location and Transportation (LT)		**15**	**0**
0	0	0	LTc1	Sensitive Land Protection	1	0
0	0	0	LTc2	Equitable Development	2	0
0	0	0	LTc3	Compact and Connected Development	6	0
0	0	0	LTc4	Transportation Demand Management	4	0
0	0	0	LTc5	Electric Vehicles	2	0
			Sustainable Sites (SS)		**11**	**0**
☐	☐	☐	SSp1	Minimize Site Disturbance	Required	
0	0	0	SSc1	Biodiverse Habitat	2	0
0	0	0	SSc2	Accessible Outdoor Space	1	0
0	0	0	SSc3	Rainwater Management	3	0
0	0	0	SSc4	Enhanced Resilient Site Design	2	0
0	0	0	SSc5	Heat Island Reduction	2	0
0	0	0	SSc6	Light Pollution Reduction	1	0
			Water Efficiency (WE)		**9**	**0**
☐	☐	☐	WEp1	Water Metering and Reporting	Required	
☐	☐	☐	WEp2	Minimum Water Efficiency	Required	
0	0	0	WEc1	Water Metering and Leak Detection	1	0
0	0	0	WEc2	Enhanced Water Efficiency	8	0

Yes	Maybe	No			Total Possible Points	Total Anticipated Points
			Energy and Atmosphere (EA)		**33**	**0**
☐	☐	☐	EAp1	Operational Carbon Projection and Decarbonization Plan	Required	
☐	☐	☐	EAp2	Minimum Energy Efficiency	Required	
☐	☐	☐	EAp3	Fundamental Commissioning	Required	
☐	☐	☐	EAp4	Energy Metering and Reporting	Required	
☐	☐	☐	EAp5	Fundamental Refrigerant Management	Required	
0	0	0	EAc1	Electrification	5	0
0	0	0	EAc2	Reduce Peak Thermal Loads	5	0
0	0	0	EAc3	Enhanced Energy Efficiency	10	0
0	0	0	EAc4	Renewable Energy	5	0
0	0	0	EAc5	Enhanced Commissioning	4	0
0	0	0	EAc6	Grid Interactive	2	0
0	0	0	EAc7	Enhanced Refrigerant Management	2	0
			Materials and Resources (MR)		**18**	**0**
☐	☐	☐	MRp1	Planning for Zero Waste Operations	Required	
☐	☐	☐	MRp2	Quantify and Assess Embodied Carbon	Required	
0	0	0	MRc1	Building and Materials Reuse	3	0
0	0	0	MRc2	Reduce Embodied Carbon	6	0
0	0	0	MRc3	Low-Emitting Materials	2	0
0	0	0	MRc4	Building Product Selection and Procurement	5	0
0	0	0	MRc5	Construction and Demolition Waste Diversion	2	0
			Indoor Environmental Quality (EQ)		**13**	**0**
☐	☐	☐	EQp1	Construction Management	Required	
☐	☐	☐	EQp2	Fundamental Air Quality	Required	
☐	☐	☐	EQp3	No Smoking or Vehicle Idling	Required	
0	0	0	EQc1	Enhanced Air Quality	1	0
0	0	0	EQc2	Occupant Experience	7	0
0	0	0	EQc3	Accessibility and Inclusion	1	0
0	0	0	EQc4	Resilient Spaces	2	0
0	0	0	EQc5	Air Quality Testing and Monitoring	2	0

Other LEED HPGBP Notes

302.11 LEED Credits and Pilot Credits Impacted by State Statute and Regulations

Other LEED HPGBP Notes

Yes	Maybe	No			Total Possible Points	Total Anticipated Points
			Integrative Process, Planning and Assessments (IP)		**1**	**0**
☐	☐	☐	IPp1	Climate Resilience Assessment	Required	
☐	☐	☐	IPp2	Human Impact Assessment	Required	
☐	☐	☐	IPp3	Carbon Assessment	Required	
0	0	0	IPc1	Integrative Design Process	1	0
			Location and Transportation (LT)		**15**	**0**
0	0	0	LTc1	Sensitive Land Protection	1	0
0	0	0	LTc2	Equitable Development	2	0
0	0	0	LTc3	Compact and Connected Development	6	0
0	0	0	LTc4	Transportation Demand Management	4	0
0	0	0	LTc5	Electric Vehicles	2	0
			Sustainable Sites (SS)		**11**	**0**
☐	☐	☐	SSp1	Minimize Site Disturbance	Required	
0	0	0	SSc1	Biodiverse Habitat	2	0
0	0	0	SSc2	Accessible Outdoor Space	1	0
0	0	0	SSc3	Rainwater Management	3	0
0	0	0	SSc4	Enhanced Resilient Site Design	2	0
0	0	0	SSc5	Heat Island Reduction	2	0
0	0	0	SSc6	Light Pollution Reduction	1	0
			Water Efficiency (WE)		**9**	**0**
☐	☐	☐	WEp1	Water Metering and Reporting	Required	
☐	☐	☐	WEp2	Minimum Water Efficiency	Required	
0	0	0	WEc1	Water Metering and Leak Detection	1	0
0	0	0	WEc2	Enhanced Water Efficiency	8	0

Yes	Maybe	No			Total Possible Points	Total Anticipated Points
			Energy and Atmosphere (EA)		**33**	**0**
☐	☐	☐	EAp1	Operational Carbon Projection and Decarbonization Plan	Required	
☐	☐	☐	EAp2	Minimum Energy Efficiency	Required	
☐	☐	☐	EAp3	Fundamental Commissioning	Required	
☐	☐	☐	EAp4	Energy Metering and Reporting	Required	
☐	☐	☐	EAp5	Fundamental Refrigerant Management	Required	
0	0	0	EAc1	Electrification	5	0
0	0	0	EAc2	Reduce Peak Thermal Loads	5	0
0	0	0	EAc3	Enhanced Energy Efficiency	10	0
0	0	0	EAc4	Renewable Energy	5	0
0	0	0	EAc5	Enhanced Commissioning	4	0
0	0	0	EAc6	Grid Interactive	2	0
0	0	0	EAc7	Enhanced Refrigerant Management	2	0
			Materials and Resources (MR)		**18**	**0**
☐	☐	☐	MRp1	Planning for Zero Waste Operations	Required	
☐	☐	☐	MRp2	Quantify and Assess Embodied Carbon	Required	
0	0	0	MRc1	Building and Materials Reuse	3	0
0	0	0	MRc2	Reduce Embodied Carbon	6	0
0	0	0	MRc3	Low-Emitting Materials	2	0
0	0	0	MRc4	Building Product Selection and Procurement	5	0
0	0	0	MRc5	Construction and Demolition Waste Diversion	2	0
			Indoor Environmental Quality (EQ)		**13**	**0**
☐	☐	☐	EQp1	Construction Management	Required	
☐	☐	☐	EQp2	Fundamental Air Quality	Required	
☐	☐	☐	EQp3	No Smoking or Vehicle Idling	Required	
0	0	0	EQc1	Enhanced Air Quality	1	0
0	0	0	EQc2	Occupant Experience	7	0
0	0	0	EQc3	Accessibility and Inclusion	1	0
0	0	0	EQc4	Resilient Spaces	2	0
0	0	0	EQc5	Air Quality Testing and Monitoring	2	0

LEED Platinum Special Requirements

LEED BD+C and ID+C Platinum requirements	
Highly energy-efficient	EA credit Enhanced Energy Efficiency: earn 8 points
Electrification	Design and operate the project from start-up with no on-site combustion except for emergency support systems. Combined weighted average equipment efficiency for space heating and service water heating must be at least 2.0 COP
Renewable energy	100% of site energy use from any combination of Tier 1, Tier 2, and Tier 3 renewable energy
Reduce embodied carbon	20% reduction in embodied carbon

LEED, other notes

			Project Priorities (PR)			**10**	**0**
			PRc1	Project Priorities		9	0
0	0	0		Project Priority 1:	*Insert credit name*		0
0	0	0		Project Priority 2:	*Insert credit name*		0
0	0	0		Project Priority 3:	*Insert credit name*		0
0	0	0		Project Priority 4:	*Insert credit name*		0
0	0	0		Project Priority 5:	*Insert credit name*		0
0	0	0		Project Priority 6:	*Insert credit name*		0
0	0	0		Project Priority 7:	*Insert credit name*		0
0	0	0		Project Priority 8:	*Insert credit name*		0
0	0	0		Project Priority 9:	*Insert credit name*		0
0	0	0	PRc2	LEED AP		1	0

What is “or equivalent” anyways

303.1 Adopted Version IgCC

The *International Green Construction Code (2024)*, Version 1 dated February 2025, as modified by the additions, deletions, amendments, and other changes listed in Appendix A of this document, is adopted by the Maryland Green Building Council.

304 Adopted Version Green Globes

The Green Globes Reach Plus Certification for Maryland protocol of the Green Building Initiative (GBI), a specific Maryland funded program that aligns with LEED v5 requirements and credits below, as modified by the additions, deletions, and amendments of this document, is adopted by the Maryland Green Building Council.

Green Globes Notes

Standard Green Globes program doesn't have an equivalent for Carbon disclosure or resiliency

Requires:

- Reach Plus Certification for Maryland Protocol
- Adopts Reach Plus Net Zero Carbon reporting and resiliency:
  - https://app.thegbi.org/education/library/download/6e206665-6437-4414-9fd6-9e557ab02f6c/
- Adopts Reach Plus Health Assessment
  - https://app.thegbi.org/education/library/download/ae381c05-7fa5-449b-88df-c78a0153ef1b/

IgCC, HPGBP Edition

- Makes many IgCC “mandatory” requirements optional to align with LEED.
- Adds mandatory LEED prerequisites and credits without analog in IgCC (carbon accounting, resiliency, etc.)
- Third Party certifier required, may be hired by project team

Chapter 12, IgCC

CHAPTER 12 - ELECTIVES

1201.1 Scope. This section specifies the elective requirements for all projects.

1201.2 Compliance. Each project must comply with Section 1101.3 Mandatory Provisions by complying with either 1101.3.1 "Electives" or 1101.3.2 "Zero Energy".

1201.3 Mandatory Provisions

1201.3.1 Required Electives. A total of 15 electives from 1201.4 through 1201.9 must be achieved and selected as follows:
a) 1201.5 Water – 1
b) 1201.6 Energy – 2
c) 1201.7 Indoor Environmental Quality – 1
d) 1201.8 Materials and Resources – 1
d) Any category – Additional 10

1201.3.2 Zero Energy Elective (10 Points for Energy). Choose one of the following paths:
a) Path 1: Provide energy model for building consumption, solar generation or other renewable generation report for yearly generation, and a summary report noting building EUI, solar generation, and a summary of energy savings measures implemented by the building. For the purposes of this credit, only on site generated solar may be used.

b) Path 2: If the building pursues a net zero certification such as International Living Futures Institutes Zero Energy or Energy Petal, or LEED Zero Energy, the building may provide documentation showing acceptance into the monitoring period by those agencies in lieu of plans and energy calculations. Provide energy information as required in the Green Building Statement of Compliance. Purchasing Renewable Energy Credits to meet program requirements is not allowed.

c) An additional five points from credits other than credits within 1201.6 Energy Efficiency must be achieved.

Chapter 12, IgCC

Maryland Green Building Council
High Performance Green Building Program

Chapter 12 Electives:

15 points required, see 1201.3.1

a) 1201.5 Water – 1
b) 1201.6 Energy – 2
c) 1201.7 Indoor Environmental Quality – 1
d) 1201.8 Materials and Resources – 1
d) Any category – Additional 10

Project Name		*Date*			
Location					
IgCC Section or LEED v5 credit reference	*IgCC Item*	*Points possible*	*Points achieved*	*Performed By*	*Reviewed By*
1201.3.2	Path 1 or Path 2 documentation for zero energy	10			
1201.4	Site Sustainability				
	501.3.5.1 Site Hardscape 50%	1			
	501.3.3.2.b Greenfield Sites 40%	1			
	See 501.3.8.1 Building Project Site Waste Management Plan, pursue 90% in base IgCC instead of edited chapter 5 above	1			
1201.5	Water Use Efficiency				
	601.3.2 Building Water Use Reduction, 35% (all credits use Using LEED v5 Water Efficiency Calculator	1			
	601.3.3 Building Water Use Reduction. 40%	1			
	601.3.4 Building Water Use Reduction. 45%	1			
	601.3.5 Water Consumption Measurement	1			

Questions?

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Slides and Resources

