



Maryland
Energy
Administration

Solar on Brownfields: An Opportunity for Equitable Outcomes at Scale

Presented November 15, 2024

4th Statewide Brownfields Conference

Solar on Landfill Projects (MES work)

- Utility Scale Solar Energy Coalition (USSEC) published a study in 2018
- Maryland Environmental Service (MES) Landfill Study updated and refined the study in 2022-2024.
- Maryland legislature allowed Community Solar projects to increase from 2 MW to 5 MW-ac.
 - Allows 10 MW colocation if 75% of energy serves LMI or is used for agrivoltaics

List of Landfills

EPAREG	State	Program	SiteID	SiteInfo	SiteName	Address	City	County	ZipCode	Acreage	Landfill	AML	REPwrPr	EstPVCaj	UtilPV	DistribP	OffgridP	NoAcreF	GHI	EstWind	UtilWnd	Comm
3	MD	AML	MDN0003	https://ci	POWHATAN MINING COMPANY	6721 WINDSOR MILL ROAD	WOODLA	BALTIMOI		0		Y	https://cimc.epa.gc							4.25		
3	MD	BROWNF	91501	https://o	CENTER FOR AQUATIC LIFE AND CONSERVATION	101 WEST DICKMAN STREET	BALTIMOI	BALTIMOI	21230	11.33			https://ci	1.64	Y	Y				4.18		
3	MD	BROWNF	128241	https://o	FORMER CROP PRODUCTION SERVICES	419 CROSS STREET	CHESTERT	KENT	21620	2.55			https://ci	0.37	Y	Y				4.3		
3	MD	BROWNF	154123	https://o	SENATOR THEATRE	5904-06 YORK ROAD	BALTIMOI	BALTIMOI	21212	0.47			https://ci	0.07	Y	Y				4.22		
3	MD	BROWNF	241604	https://o	406 N. MADEIRA STREET	406 N. MADEIRA STREET	BALTIMOI	BALTIMOI	21231	0.02			https://ci	0	Y	Y				4.23		
3	MD	BROWNF	10260	https://o	1301 BOYLE STREET	1301 BOYLE STREET	BALTIMOI	BALTIMOI	21230	0.96			https://ci	0.14	Y	Y				4.2		
3	MD	BROWNF	25121	https://o	BYRD PARK - FORMER SNOW HILL LANDFILL	MARKET STREET	SNOW HII	WORCEST	21863	15	Y		https://ci	2.17	Y	Y				4.4		
3	MD	BROWNF	154141	https://o	1134 HULL STREET	1134 HULL STREET	BALTIMOI	BALTIMOI	21230	0.3			https://ci	0.04	Y	Y				4.23		
3	MD	BROWNF	111281	https://o	MCPA	5543 HARFORD ROAD	BALTIMOI	BALTIMOI	21214	0.75			https://ci	0.11	Y	Y				4.21		
3	MD	BROWNF	32561	https://o	CITY YARD - NORTH PRONG	400 2 W ISABELLA STREET	SALISBUR	WICOMIC	21801	1.33			https://ci	0.19	Y	Y				4.37		
3	MD	BROWNF	85341	https://o	IMPERO FOODS	120 SOUTH JANNEY STREET	BALTIMOI	BALTIMOI	21224	0.35			https://ci	0.05	Y	Y				4.23		
3	MD	BROWNF	241606	https://o	1300 N. ROSE STREET	1300 N. ROSE STREET	BALTIMOI	BALTIMOI	21213	0.09			https://ci	0.01	Y	Y				4.23		
3	MD	BROWNF	217841	https://o	701 WHITELOCK (TUNEUP CITY)	701 WHITELOCK AVENUE	BALTIMOI	BALTIMOI	21217	0.42			https://ci	0.06	Y	Y				4.2		
3	MD	BROWNF	133465	https://o	NATIONAL PARK SEMINARY	9610 DEWITT DRIVE	SILVER SP	MONTGO	20910	18.47			https://ci	2.68	Y	Y				4.27		
3	MD	BROWNF	219641	https://o	OLD FAIRFIELD	1500 CHESAPEAKE AVENUE	BALTIMOI	BALTIMOI	21202	8.68			https://ci	1.26	Y	Y				4.2		
3	MD	BROWNF	156761	https://o	LIBERTY HEIGHTS SHOP RITE	4610-12 MAINE AVENUE	BALTIMOI	BALTIMOI	21207	5.6			https://ci	0.81	Y	Y				4.24		
3	MD	BROWNF	241605	https://o	1564 ABBOTSTON STREET	1564 ABBOTSTON STREET	BALTIMOI	BALTIMOI	21218	0.04			https://ci	0.01	Y	Y				4.21		
3	MD	BROWNF	217861	https://o	BIG CITY FARMS	4825 WINDSOR MILL ROAD	BALTIMOI	BALTIMOI	21207	5.25			https://ci	0.76	Y	Y				4.25		
3	MD	BROWNF	10303	https://o	WILSON FARM SITE	SHERIFF ROAD	HYATTSVI	PRINCE G	20785	3			https://ci	0.43	Y	Y				4.26		
3	MD	BROWNF	10319	https://o	FORT MCHENRY SHIPYARD	1201 WALLACE STREET	BALTIMOI	BALTIMOI	21230	13.8			https://ci	2	Y	Y						
3	MD	BROWNF	10230	https://o	COLLINS ELECTRONICS PROPERTY	OLD LOVE POINT ROAD	STEVENS	QUEEN A	21666	7			https://ci	1.01	Y	Y				4.31		
3	MD	BROWNF	10187	https://o	DICKMAN STREET SITE (MIDDLE BRANCH PARK)	101 W. CROMWELL STREET	BALTIMOI	BALTIMOI	21230	7			https://ci	1.01	Y	Y				4.18		
3	MD	BROWNF	10223	https://o	CARROLL-CAMDEN AREA/WARNER STREET CORRIDOR-L	WARNER & HAINES STREET	BALTIMOI	CARROLL	21201	25			https://ci	3.62	Y	Y				4.23		
3	MD	BROWNF	10225	https://o	7520 MAIN STREET PROPERTY	7520 MAIN STREET	SYKESVIL	CARROLL	21784	0.3			https://ci	0.04	Y	Y				4.22		
3	MD	BROWNF	10263	https://o	FORMER FAMOUS DRYCLEANERS	114 B SOUTH MAIN STREET	FEDERALS	CAROLIN	24011	0.11			https://ci	0.02	Y	Y				4.35		
3	MD	BROWNF	10293	https://o	TRIUMPH INDUSTRIAL PARK - PARCEL 573, LOT 5-PARCE	BLUE BALL ROAD	ELKTON	CECIL	21921	3			https://ci	0.43	Y	Y				4.2		
3	MD	BROWNF	13260	https://o	SOUTHERN GALVANIZING	33100 FOX RD	ROSS FAR	TALBOT	21601	0			https://cimc.epa.gc					Y		4.34		
3	MD	BROWNF	13240	https://o	CONTINENTAL CAN/3500 BIDDLE STREET	3500 BIDDLE ST.	BALTIMOI	BALTIMOI		0			https://cimc.epa.gc					Y		4.23		
3	MD	BROWNF	13244	https://o	PORT LIBERTY	500 FAYETTE ST E	BALTIMOI	BALTIMOI	21202	30			https://ci	4.35	Y	Y				4.2		
3	MD	BROWNF	32481	https://o	BROCK STEEL	220 WEST KING STREET	CUMBERL	ALLEGAN	21502	0.04			https://ci	0.01	Y	Y				4.01		
3	MD	BROWNF	32741	https://o	FORMER TRI-STATE OIL TERMINAL	305 MARKET STREET	SNOW HII	WORCEST	21863	2.3			https://ci	0.33	Y	Y				4.4		
3	MD	BROWNF	31981	https://o	ACME BUSINESS PARK - ROSEMONT	2100 BLOCK OF W. LAFAYETTE AVENUE	BALTIMOI	BALTIMOI	21502	8.42			https://ci	1.22	Y	Y				4.24		
3	MD	BROWNF	170461	https://o	1400-1428 GREENMOUNT AVENUE	1400 GREENMOUNT AVENUE	BALTIMOI	BALTIMOI		0.5			https://ci	0.07	Y	Y				4.2		
3	MD	BROWNF	10272	https://o	GILBERT TANK FARM - PARCEL 463	WATER STREET	HAVRE DE	HARFORD	21078	1.59			https://ci	0.23	Y	Y				4.12		
3	MD	BROWNF	10279	https://o	HAMPTON BUSINESS PARK	8901 EDGEWORTH DRIVE	CAPITOL I	PRINCE G	20743	62			https://ci	8.99	Y	Y				4.26	0.78	Y
3	MD	BROWNF	31901	https://o	101 GARRETT STREET	101 W GARRETT ST	BALTIMOI	BALTIMOI	21225	9.5			https://ci	1.38	Y	Y				4.18		
3	MD	BROWNF	32761	https://o	HOLT TRUCKING	6707 EADS STREET	SEAT PLEA	PRINCE G	20743	0.29			https://ci	0.04	Y	Y				4.26		
3	MD	BROWNF	33201	https://o	WARNER STREET WETLANDS	EAST OF S. EUTAW STREET	BALTIMOI	BALTIMOI	21230	5.3			https://ci	0.77	Y	Y				4.2		
3	MD	BROWNF	133466	https://o	CENTER FOR AQUATIC LIFE CONSERVATION	2400 CLARKSON STREET	BALTIMOI	BALTIMOI	21230	12.97			https://ci	1.88	Y	Y				4.18		

What makes a Landfill a Good Pick

- Not within critical areas or wetlands,
- Not in flood plains,
- Provide standoff from roads, structures and parcel boundaries,
- Provide standoff from forested areas,
- Land slope <10%,
- Conform to local ordinances,
- Close to an electrical interconnection point,
- Size large enough to justify economic development.

Example

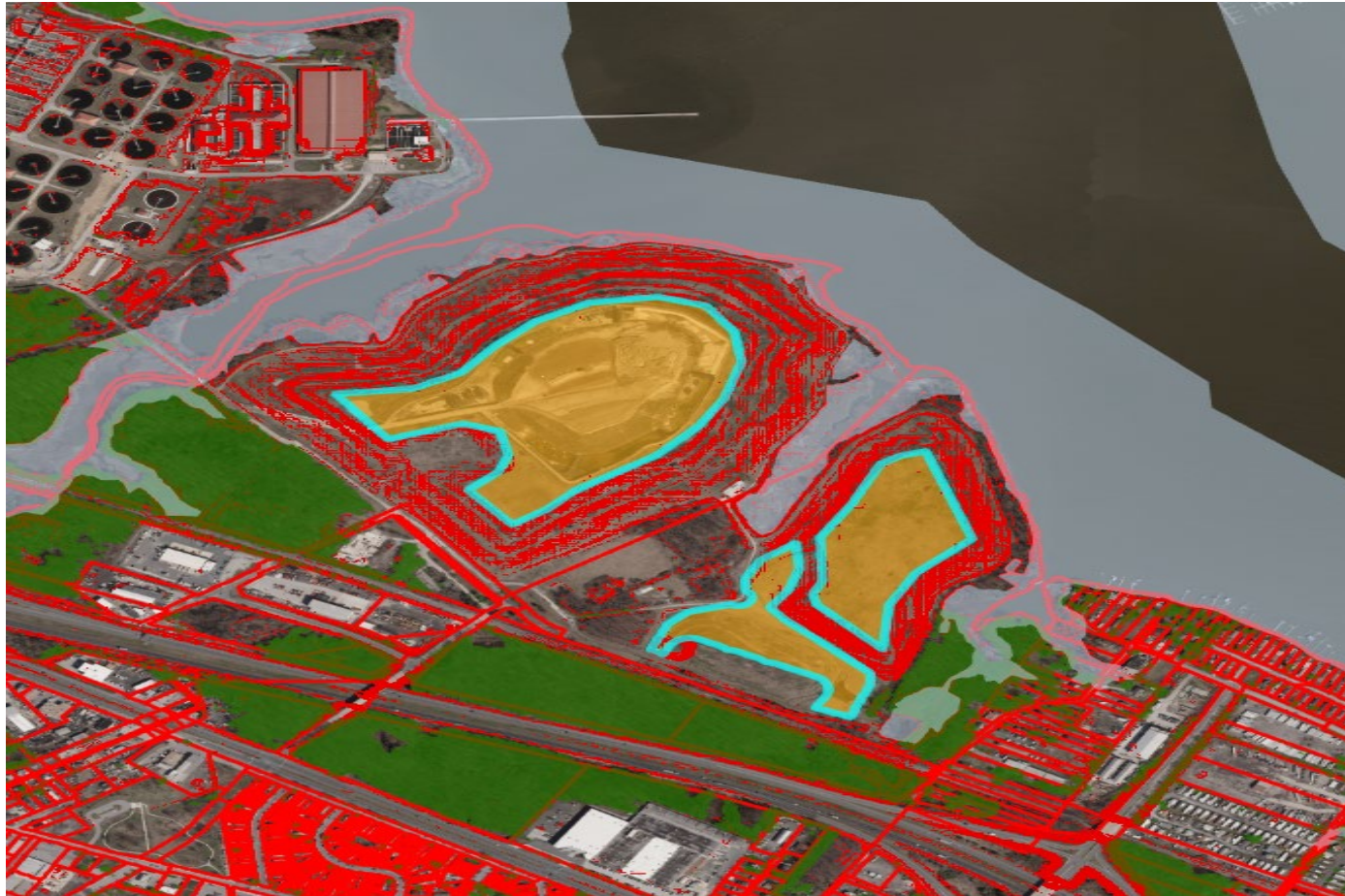
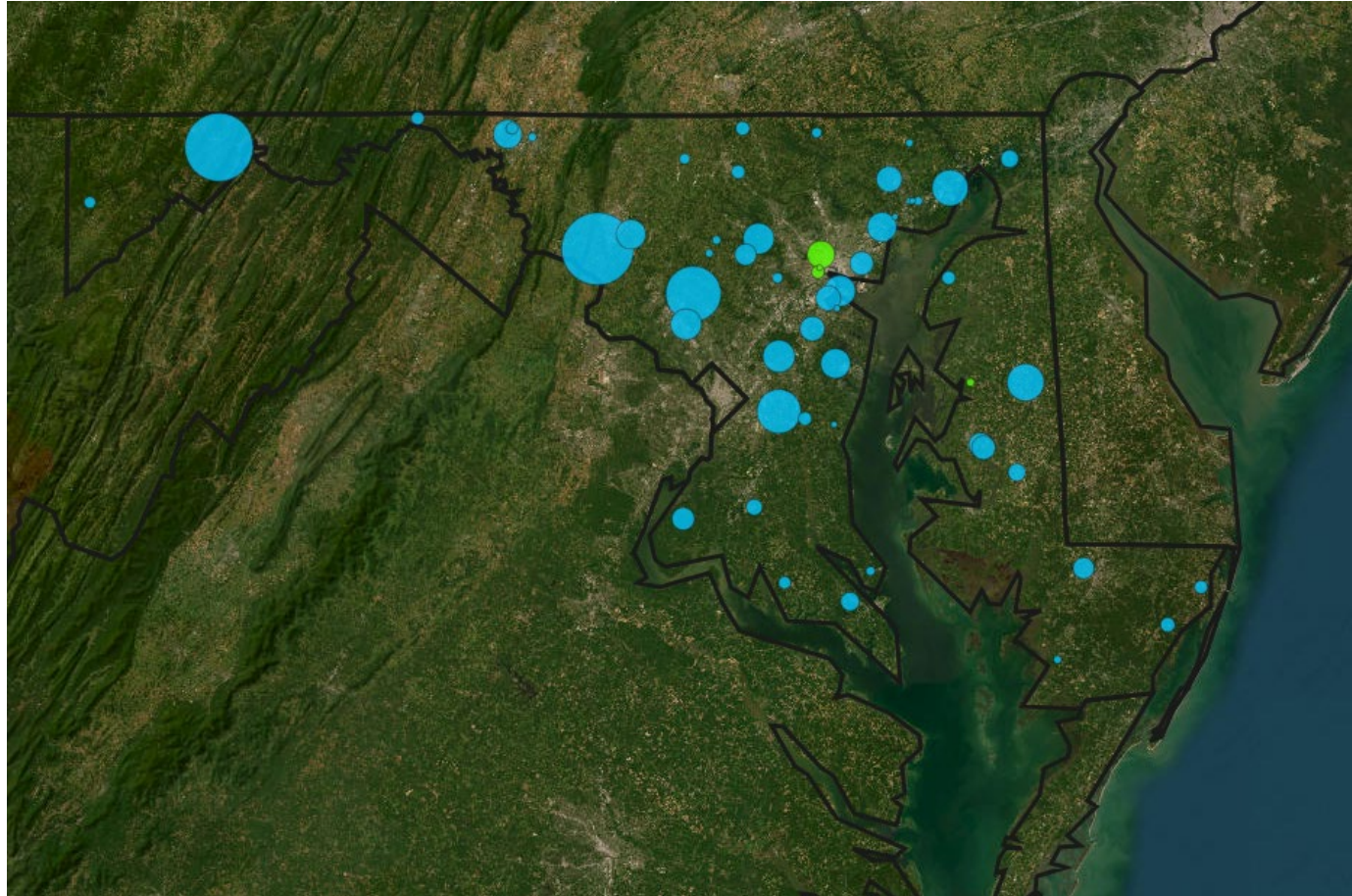


Figure 1 – Norris Farms Landfill Suitable Solar Development Area (Parcel Polygons), with land sloped greater than 10% shown in red.

List of Suitable Landfills

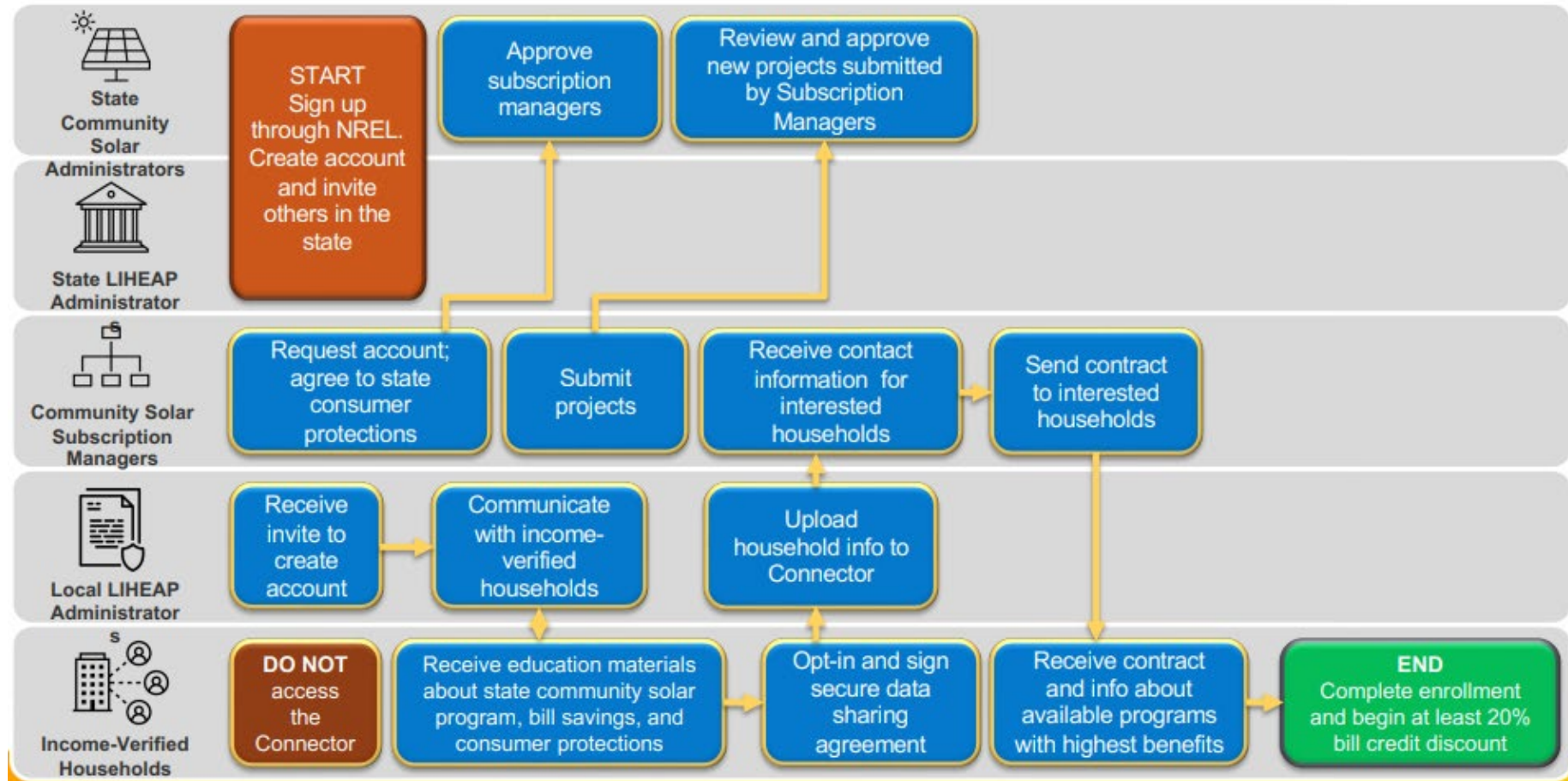
	Solar Site Owner	Solar Existing (Y, Y with Potential for more, N)	Solar Capacity (MW)	Acreage	Distance to Nearest Transmission Line (Miles)	Active	Landfill Site Admin	City	County	Zip Code	Utility Service Provider
Ste Landfill	Quantum Maryland LLC	N	63.32	205.9	0.00	N	Alcoa - Eastalco Works	Frederick	Frederick	21703	Potomac Edison Company
	Allegany Coal-Land Co	N	59.40	193.1	0.00	N	Allegany County Department of Public Works	Frostburg	Allegany	21532	Potomac Edison Company
	Montgomery County	YP	38.38	124.8	0.37	N	Montgomery County Government	Laytonsville	Montgomery	20882	Pepco
Unitary Landfill	Prince George's County	N	36.51	118.7	0.19	N	Department of the Environment	Upper Marlboro	Prince George's	20774	Pepco
Solid Waste Facility	Maryland Environmental Service	N	29.98	97.5	1.72	Y	Maryland Environmental Service	Ridgely	Caroline	21660	Delmarva Power
	The Pusey Family LLC	N	28.99	94.3	2.27	N	Town of Aberdeen	Aberdeen	Harford	21001	BGE
	MNCPPC	N	25.29	82.2	0.54	N	Department of the Environment	Bowie	Prince George's	20720	BGE
	Mayor & City Council of Baltimore	N	24.33	79.1	0.17	Y	Baltimore City Department of Public Works	Curtis Bay	Baltimore	21226	BGE
Landfill	Baltimore County	N	24.22	78.7	1.27	N	Baltimore County Department of Public Works	Woodstock	Baltimore	21163	BGE
	Montgomery County	N	24.14	78.5	0.14	N	Montgomery County Government	Rockville	Montgomery	20850	Pepco
	Frederick County Commissioners	YP	23.00	74.8	3.96	N	Department of Solid Waste Management	Frederick	Frederick	21704	Potomac Edison Company
	City of Annapolis	Y	22.99	74.7	1.18	N	Novis Renewables, LLC	Annapolis	Anne Arundel	21401	BGE
Small Solid Waste Management Facility	Baltimore County	N	22.77	74.0	0.65	Y	Baltimore County Department of Public Works	White Marsh	Baltimore	21162	BGE
	Washington County Commissioners	N	22.10	71.9	1.14	Y	Department of Solid Waste and Watershed Programs	Hagerstown	Washington	21740	Town of Williamsport
Landfill (Heavenly Water)	Harford County	N	19.28	62.7	1.98	Y	Harford County	Bel Air	Harford	21014	BGE
	Anne Arundel County	N	18.51	60.2	0.29	Y	Anne Arundel County Department of Public Works	Glen Burnie	Anne Arundel	21060	BGE
	Anne Arundel County	N	18.23	59.3	0.04	Y	Anne Arundel County Department of Public Works	Severn	Anne Arundel	21144	BGE
Landfill*	Maryland Environmental Service	N	17.42	56.7	1.20	N	Maryland Environmental Service	Easton	Talbot	21601	Choptank Electric Cooperative
Solid Waste Facility	Town of Easton	YP	17.28	56.2	0.88	N	Maryland Environmental Service	Easton	Talbot	21601	Choptank Electric Cooperative
	Browning-Ferris LLC	N	17.01	55.3	1.43	N	Baltimore County	Baltimore	Baltimore	21222	BGE
	Charles County Commissioners	N	16.34	53.1	0.49	N	Environmental Resources Division Charles County Public Works	La Plata	Charles	20646	Southern Maryland Electric Co

Landfill Map



LIHEAP/DHS/Community Solar Nexus

Clean Energy Connector Workflow: Overview



Community Solar Area of Interest (AOI- 3) Previously referred to as Project ABC

- Community Solar projects built on landfills with MEA incentive
- Subscription to Low Income subscribers only
- 50% of the energy provided to Low Income subscribers for free
- Remaining energy sold at 25% discount to utility rate
- DHS involvement with benefit allocation
- Provides a dual use for the landfill
- MEA will consider landfills not on the MES “Suitable Landfills List”

Organizations with Solar Landfill Experience

- Can not penetrate the landfill cap
- Must work around methane flaring system or capture piping
- Heavy equipment may be limited on the landfill cap, hence special equipment may be necessary for installation.
- Added permitting requirement

Organizations with Solar Landfill Building Experience

Standard Solar	Turning Point Energy	Synergen Solar
Pippin Farms	Nautilus Solar	Pivot Energy
Clean Capital	Calvert Energy	Altus Power
Ameresco	Syncapha Capital, LLC.	

Vision

- Many possible uses for a landfill/brownfield, solar is just one choice.
- It provides a dual use for the space and allows solar to be developed and deployed to reduce the pressure on prime farmland.
- Continues to allow for vegetation and pollinator friendly habitat.
- Most brownfields/landfills are not visible to the general public so large scale solar should not be a problem.
- Provides possible power for a utility microgrid.
- This is our vision. Help us make it a reality.

Learn more at
Energy.Maryland.gov!



Maryland
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Thank You

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