

A composite image featuring a wind turbine on the left, a solar panel in the center-left, and the dome of the U.S. Capitol building in the center. To the right of the dome are two bicycles. The background consists of horizontal stripes in light blue, yellow, orange, and blue. The text is overlaid on the right side of the image.

COMMUNITY SOLAR ENERGY AT OXON RUN

PRESENTATION TO ANC8D 3/28/19



DEPARTMENT
OF ENERGY &
ENVIRONMENT



GOVERNMENT OF THE
DISTRICT OF COLUMBIA
MURIEL BOWSER, MAYOR

PROJECT OVERVIEW

- Community Solar at Oxon Run will be the largest clean energy project in the District focused on serving neighborhood residents through DOEE's Solar for All program.
- About 750 households will receive up to \$500 per year to reduce electric bills by half
- Reuse of a contaminated District-administered property
- Project Cost: \$5.5 million

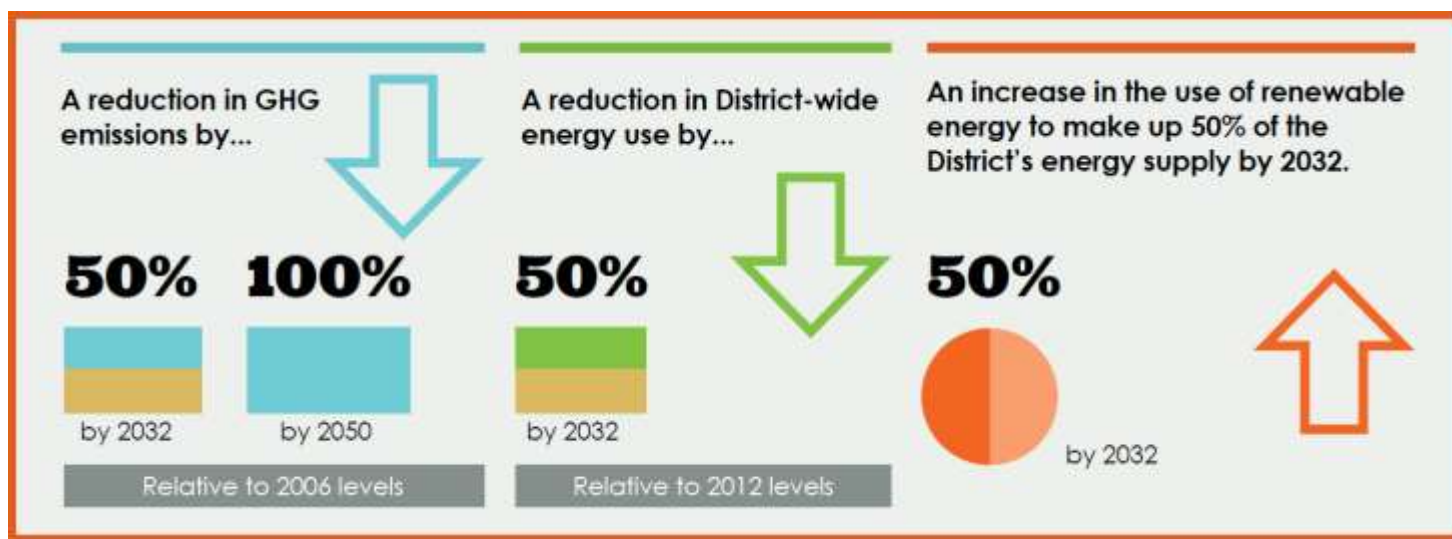
Community Solar System (Community Renewable Energy Facility):

- 2.65 megawatts (2,650 kilowatts) of generation capacity
- 7,200+ solar panels
- 25+ years of clean, safe, silent operation



CLEAN ENERGY DC - LOCAL RENEWABLE ENERGY

MAYOR'S CLEAN ENERGY DC PLAN 2017



KEY LOCAL RENEWABLES ACTIONS

- Solar proliferation strategy
- Solar-ready building code requirements
- **Neighborhood-scale energy**
- *11 actions on electricity system modernization*

CLEAN ENERGY DC ACT OF 2018

- **The *Act mandates 100% Renewable Energy by 2032**
 - Includes a 10% local solar generation requirement by 2041 (over **800 MW** goal)
 - Currently, only **87 MW** of eligible solar capacity exists in the district
 - Ambitious targets + lucrative financial incentives create tremendous demand for DC solar construction
 - Space is a limiting factor

***Law became effective March 22, 2019**

GOING SOLAR IN DC: THE OPTIONS



1

Solar For All

2

Market Rate Solar

WHY WE'RE DOING IT



Solar for All aims to bring the benefits of solar energy to 100,000 low to moderate income families in the District of Columbia.

DOEE is partnering with organizations across the District to install solar on single family homes and develop community solar projects to benefit renters and residents in multi-family buildings. All Solar for All participants should expect to see a 50% savings on their electricity bill over 15 years and can be proud to have gone solar!

- Established by the **Renewable Portfolio Standard (RPS) Expansion Amendment Act of 2016**
- **Increases the amount of solar energy generated in the District**, and provide those benefits to seniors, small local businesses, nonprofits, and low-income households
- Funded by **Renewable Energy Development Fund** (RPS alternative compliance payments)
- **Task Force** of stakeholders informed the development of the Solar for All Implementation Plan



People. Planet. Employment

Our Vision

A successful transition to clean, renewable energy that includes everyone.

Our Mission

Make renewable energy technology and job training accessible to underserved communities.

Systems Installed

220



kW Installed

1,896



Lifetime Savings

\$6,888,254



Tons of Greenhouse Gas
Emissions Prevented

45,092



Participants Trained

822



Installations in DC,
MD, and VA

GRID MID-ATLANTIC'S PROGRAMS

EPC Services

Capacity to support solar projects from an initial project proposal to equipment purchasing, construction, and final utility interconnection.

Solar Works DC

In partnership with DOEE and DOES, participating DC residents ages 18+ are prepared to enter careers in solar and other related industries.

Field and classroom based education includes:

- OSHA 10 and First Aid/CPR cert.
- NABCEP Associate class & exam fee
- Up to 30 hours paid employment/week

Tenant & Community Engagement

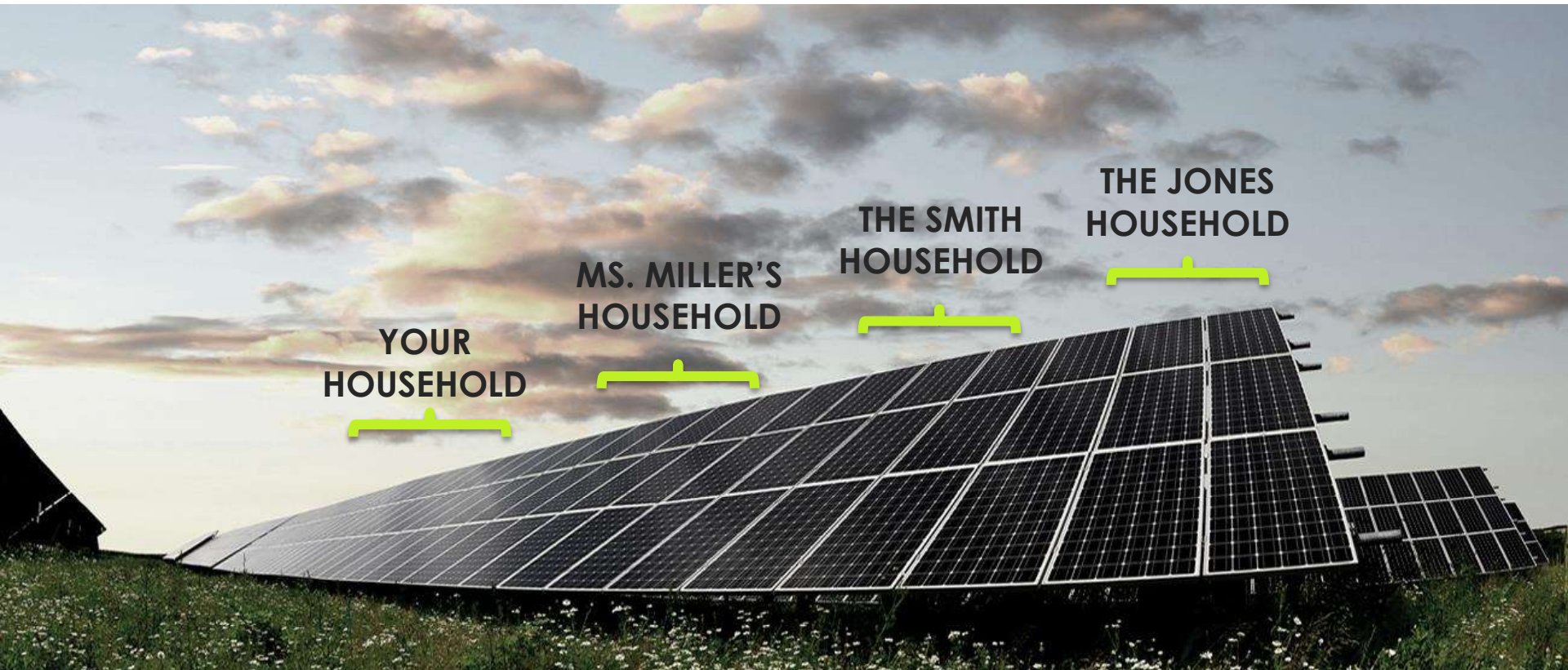
Development and installation of solar systems to support income-qualified clients at zero cost.

Approx. 72% of DC-based, income-qualified clients do not own their own homes or have adequate roofs to support solar. Community Renewable Energy Facilities (**CREFs**) **expand solar's financial and environmental benefits to renters**



WHAT IS COMMUNITY SOLAR?

Community solar allows renters and homeowners to save on their electricity bills even if they don't have a roof to install solar. Subscribers can receive the benefits of solar from systems located anywhere in the District.



COMMUNITY SOLAR AT OXON RUN

Oxon Run Community Solar - DC

- System Size: 2.65 MW DC, 2.0 MW AC
- Modules: 7,280 Jinko 365 W
- Inverters: 16 Sungrow 125 KW



COMMUNITY BENEFITS

ELECTRICITY BILL ASSISTANCE

About 750 households will receive up to \$500 per year to reduce electric bills by half.

- Benefits will be provided for between 15 and 25 years, starting at the end of 2019.

JOBS

Local subcontractor hiring requirements and preference points

- Recruiting from within the surrounding community

HEALTH

Reduces air pollution and asthma by reducing electricity fossil fuels

BEAUTIFICATION

Landscaping enhancements inside fence line



ENVIRONMENTAL BENEFITS

GREENHOUSE GAS EMISSIONS

66,000 metric tons of GHG emissions avoided, equivalent to removing more than 14,000 cars from the road for a year, or planting 1,725,000 tree seedlings grown for 10 years

AIR QUALITY

Native and ornamental trees capture CO₂ as they grow

HABITAT RESTORATION

- Adaptive reuse and revitalization of a contaminated brownfield
- Native tree and pollinator plants provide food and protective shelter for birds, insects, and other wildlife.

WHO'S INVOLVED?

PROJECT OWNER: Government
of the District of Columbia

PROJECT FUNDING: Department
of Energy and Environment
(DOEE)

CONSTRUCTION MANAGEMENT:
Department of General Services
(DGS)

PROJECT CONSTRUCTION: GRID
Alternatives, Mid-Atlantic

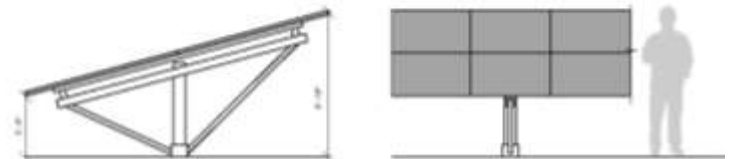
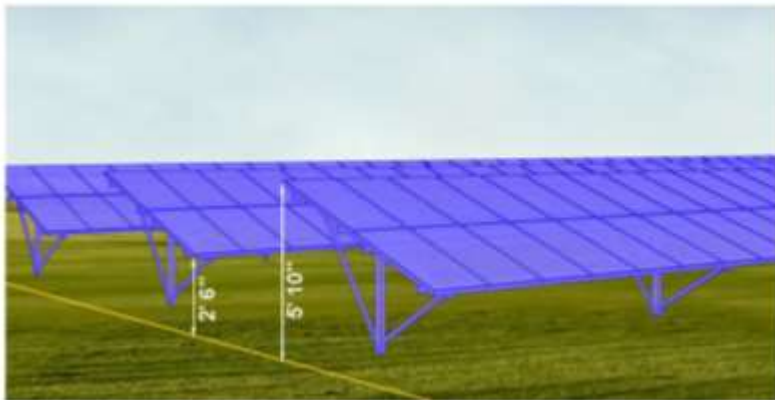


THE SITE



- Reuse of a contaminated brownfield site of approximately 15.4 acres
- Community solar panels will cover approximately 3.6 Acres

THE SOLAR ARRAYS



PROPOSED TREE PLANTING



YEAR ONE

~40 new trees

- Serviceberry (*Amelanchier grandiflora*)
- Paw-paw (*Asimina triloba*)
- Eastern Redbud (*Cercis canadensis*)
- Persimmon (*Diospyros virginiana*)
- Eastern redcedar (*Juniper virginiana*)
- Virginia Pine (*Pinus virginiana*)
- Yoshino Cherry (*Prunus yedoensis*)

~30 new shrubs

- Black or red chokeberry (*Aronia arbutifolia*)
- Winged sumac (*Rhus copallina*)
- Pasture rose (*Rosa carolina*)
- Highbush blueberry (*Vaccinium corymbosum*)
- Blackhaw viburnum (*Viburnum prunifolium*)
- Arrowwood viburnum (*Viburnum dentatum*)

YEAR TWO

Native pollinator meadow buffer plantings in selected perimeter areas

ENERGY SUBSCRIPTIONS & BENEFITS

- Upon project completion, DOEE will manage energy “subscriptions” to benefit about 750 households.
 - Including account management with Pepco
 - Frequently Asked Questions
 - Customer hotline/helpdesk
- Each household will receive up to \$500 per year to reduce electric bills by half.
- Benefits will be provided for between 15 and 25 years, starting end of 2019.
- Mapping of LIHEAP eligible households within the vicinity of the project (.5, 1, 1.5, 2, 2.5 mile radius)
- Prioritization of eligibility criteria being facilitated by the office of CM White and Oxon Run Solar Task Force. Income-eligible priority groups may include:
 - families living close to the facility
 - high energy burden households
 - seniors and persons with disabilities
 - families with young children

SOLAR FOR ALL: CURRENT OFFERINGS

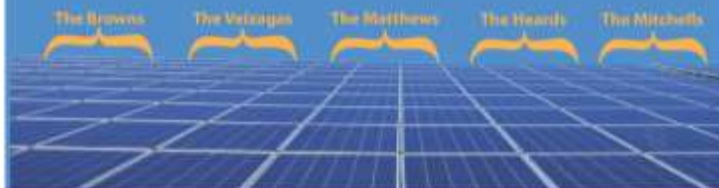
COMMUNITY SOLAR

Community solar provides the benefits of solar to residents who can't install systems on their home, including renters and homeowners whose rooftops are shaded or need repairs. A community solar project is not located on the home, but offsite, and the benefiting household (called a subscriber) receives a credit on their monthly electric bill.

GROUNDWELL is installing solar on houses of worship including at the DuPont Park Seventh Day Adventist Church in Ward 7. Income-eligible households will receive energy credit subscriptions at no cost. Contact customerservice@groundswell.org for more information.

NEIGHBORHOOD SOLAR EQUITY is installing solar on a local university and plans to provide benefits to income-eligible households in the District. For more information, contact rootandbranchinc@gmail.com.

In late 2019, DOEE plans to open enrollment for a variety of new community solar projects currently in the pipeline. Find out more at doee.dc.gov/solarforall



SOLAR ON YOUR ROOF

SOLAR UNITED NEIGHBORS OF DC's 51st State Solar Co-op brings DC residents together to make solar more affordable through bulk purchasing. Homeowners own the solar panels, receive credit for all electricity produced, and will receive additional income from revenue generated by their Solar Renewable Energy Credits (SRECs) starting after five years. **To apply**, contact Yesenia Rivera at (240) 523-3948 or yesenia@solarunitedneighbors.org.

GRID ALTERNATIVES MID-ATLANTIC provides solar installations to income-qualified single-family homeowners. Homeowners lease their solar systems at no cost to them and will receive at least 50% credit for all electricity produced. **To apply**, please call (202) 517-8848 or email dcoutreach@gridalternatives.org.



INCOME GUIDELINES

SfA Participants Should See **50% Electric Bill Savings Annually** over 15 years



PERSONS IN HOUSEHOLD	1	2	3	4	5	6	7	8
INCOME LIMIT	\$65,650	\$75,000	\$84,400	\$93,750	\$101,250	\$108,750	\$116,250	\$123,750

WHAT IF I DON'T QUALIFY?

FIVE STEPS TO SOLAR*

1. Find your Site Potential with the DC Solar Tool (online)
2. Contact Installers to get a site assessment and Quote
3. Decide to Own or Lease (Financing Options)
4. Explore Local Bulk Options
5. Install and Reap the Benefits!

*Find the complete guide on the web:
doee.dc.gov/service/solar-initiatives

solarsystem mapdwell

Solar Electric Potential Report



Financials		
Building Type	Residential	
System Size	Cost per Watt	Total Cost
124.96kW	× \$ 3.00	= \$ 374,888
Federal Tax Credit	\$ (112,466)	
Other Deductions	\$ 0	
Cost to Owner	\$ 183,332	
Generation Value	\$ 1,714	
SRECs	\$ 6,591	
Average Monthly Revenue	\$ 4,040	
Average Yearly Revenue	\$ 48,486	
Payback Period	2 years, 8 months	
Net Present Value	\$ 625,267	
Return	59.3%	

Payment Calculator		
Loan	\$ 183,331.75	Rate % 5.00
Down	\$ 0	Years 10
Monthly Payment	\$ 1,944.52	

System Specs	
Optimize Panel Tilt	<input checked="" type="checkbox"/>
System Size (kW)	124.96
Average SAI	0.92
Panel Efficiency	18.0%
Electricity Output (kWh/yr)	158,181
PV System Area (sqft)	7,472.7
Number of Panels	425
Panel Peak Rating (Wp)	294
Total Roof Area (sqft)	22,609.52
PV System Roof Usage	33.1%

Carbon Offsets	
CO ₂ Offset (US tons)	136.8
Carbon Capture (trees)	3,182
60-Watt Lightbulb (days)	109,870
Air Conditioning (hours)	105,981
Driving Distance (mi)	245,747
Flying Distance (mi)	508,736

Note: All equivalencies per year



125kW System Size

3.18 k	137 T	18
Trees Planted	Carbon Offset	Homes Powered
\$ 183 k	3 - year	\$ 48.5 k
Cost	payback	Revenue

Important: Check with your utility for net-metering conditions and limitations.

IMPORTANT NOTICE Mapdwell Solar System™ is no substitute to an on-site assessment performed by a certified professional. Mapdwell Solar System is a remote evaluation tool, based on topographical surveys, information models, and simulation methodologies, and results may be unavailable or inaccurate due to issues including, but not limited to, partial sample obsolescence, excess of vegetation or non-modeled obstructions, incomplete or corrupted databases, incomplete or corrupted GIS layers, undetectable partial obstructions based on survey resolution, and force majeure. Mapdwell LLC does not guarantee the accuracy of the data or the applicability of the information provided by the Solar System platform.

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THANK YOU

Questions on the District's Oxon Run Community Solar Project? Contact us.

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APPENDICES

APPENDIX 1: PROPOSED TREE SPECIES

Serviceberry (*Amelanchier grandiflora*)



Paw-paw (*Asimina triloba*)



Eastern Redbud (*Cercis canadensis*)



Persimmon (*Diospyros virginiana*)



Eastern redcedar (*Juniper virginiana*)



Virginia Pine (*Pinus virginiana*)



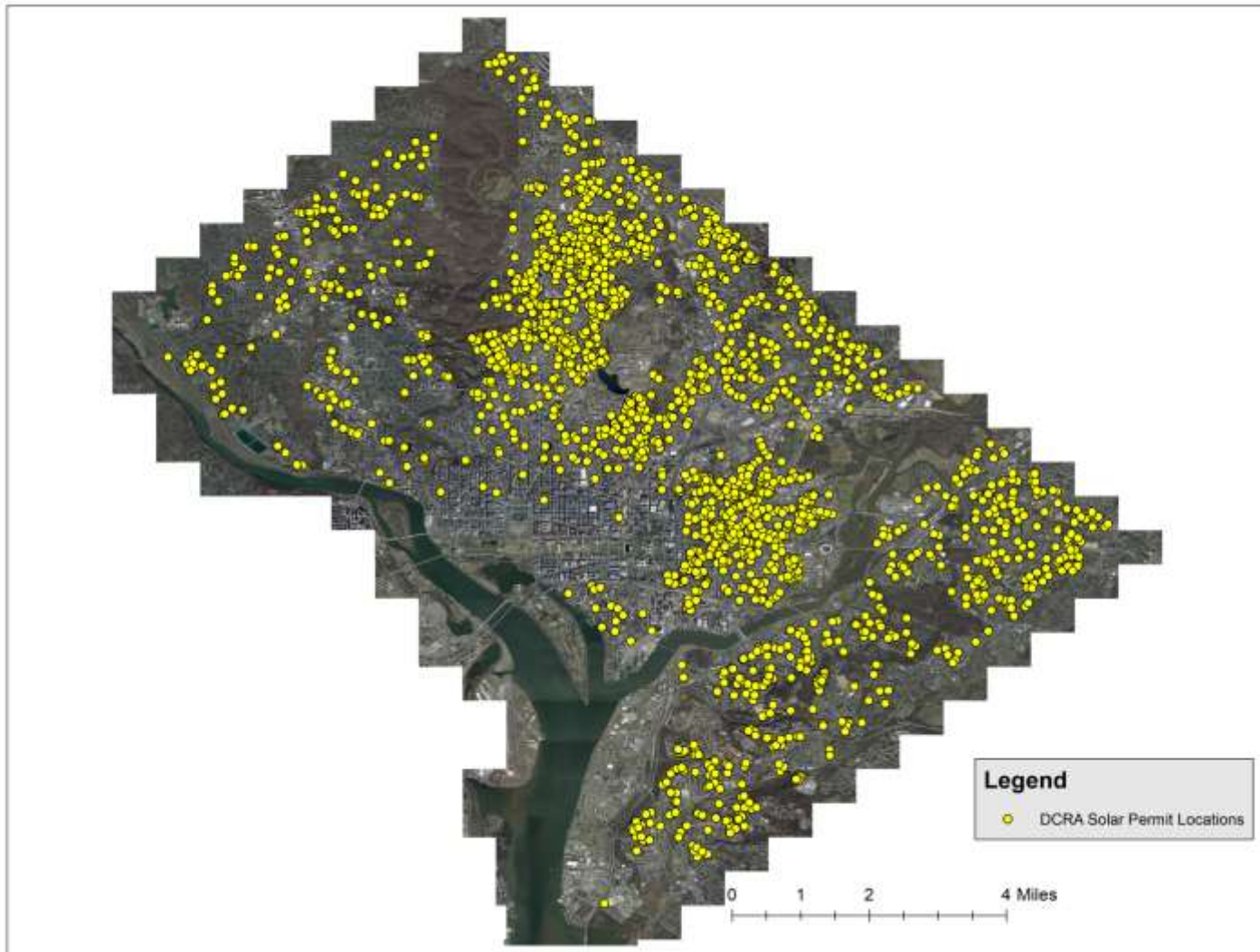
Yoshino Cherry (*Prunus yedoensis*)



Species	Common Name		Quantity	Size	Spacing
<u>Evergreens/screening</u>					
Pinus virginiana	Virginia pine	PiVi		5 4'-6'	25' - 30' O-C
Juniper virginiana	Eastern redcedar	JuVi		5 4'-6'	25' - 30' O-C
<u>Native Understory</u>					
Amelanchier grandiflora	serviceberry	AmGr		5 4'-6'	15' - 20' O-C
Asimina triloba	paw-paw	AsTr		5 1.5"-2.5"	15' - 20' O-C
Cercis canadensis	eastern redbud	CeCa		10 1.5"-2.5"	15' - 20' O-C
Diospyros virginiana	Persimmon	DiVi		5 1.5"-2.5"	15' - 20' O-C
<u>Ornamental - non-native</u>					
Prunus yedoensis or similar (NCBF)	Yoshino cherry	PrYe		5 1.5"-2.5"	15' - 20' O-C
Total			40		
Spec					
2"x2"x6' oak stake w/2"x4"-6' welded wire deer protection fence					
2"-3" shredded hardwood mulch					
<u>Shrubs</u>					
Aronia arbutifolia	Black or red chokeberry			5 3-5 gal	5'-7' O-C
Rhus copallina	Winged sumac			5 3-5 gal	5'-7' O-C
Rosa carolina	Pasture rose			5 3-5 gal	5'-7' O-C
Vaccinium corymbosum	Highbush blueberry			5 3-5 gal	5'-7' O-C
Viburnum prunifolium	Blackhaw viburnum			5 3-5 gal	5'-7' O-C
Viburnum dentatum	Arrowwood viburnum			5 3-5 gal	5'-7' O-C

APPENDIX 2: DISTRICT SOLAR INSTALLATIONS

DCRA SOLAR PERMITS 2016-2018



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DGS SOLAR INSTALLATIONS

- 56 sites citywide (including schools, hospitals, police stations, offices, rec centers)
- 14 installations in Ward 8 (25% of portfolio), 3.78 MW (32% of portfolio)
 - Anacostia High School
 - Ballou Senior High School
 - Evidence CB
 - Ferebee-Hope Elementary School
 - Hart Middle School
 - King Elementary School
 - Kramer Middle School
 - Moten Elementary School
 - Patterson Elementary School
 - Police Training Academy
 - Savoy Elementary School
 - Southeast Tennis and Learning Center
 - St. Elizabeth's Hospital
 - Turner Elementary/Rec Center

SOLAR FOR ALL - ATLANTIC TERRACE, 651 kW (1,860 solar panels) Serves 200 households



BALLOU SENIOR HIGH SCHOOL, 518 kW (1,180 solar panels)



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