Making your community solar-ready

Quantifying the benefits of solar

Power A Clean Future Ohio

UNPREDICTABLE city

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Principal

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About us

UNPREDICTABLEcity works with governments, nonprofit organizations, and community groups to strengthen the foundations of change in our built environment.

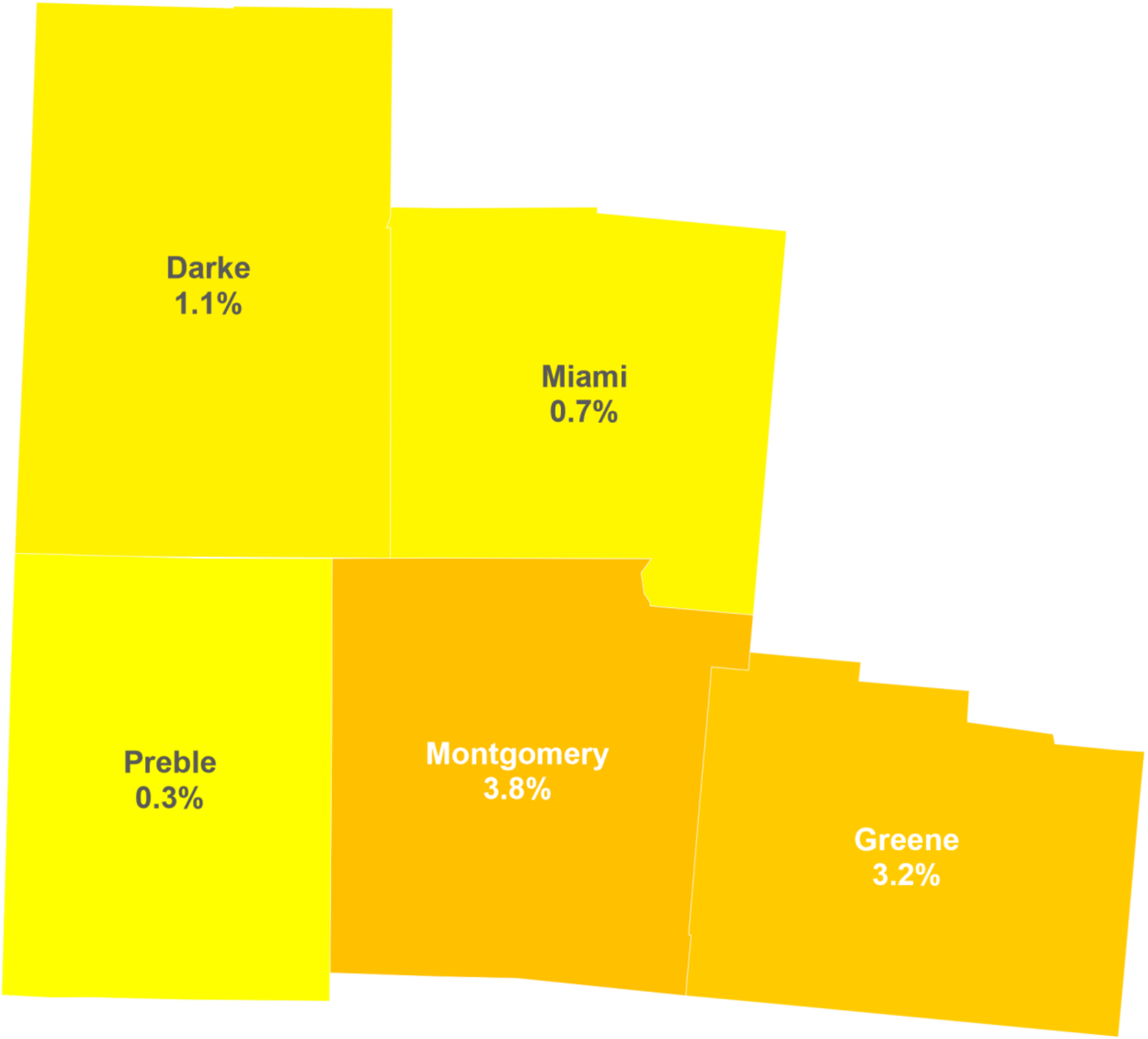
As a part of PCFO's Technical Team, we provide greenhouse gas inventorying services, tree canopy assessments, solar market development technical assistance, education and training.

Jon-Paul d'Aversa AICP
Principal

- **A decade in the energy and sustainability fields**
- **Worked with over 100 governments, nonprofits and institutions in the U.S. and abroad**
- **Authored 47 plans, studies, and publications**

Why should you care about solar?

Your region does



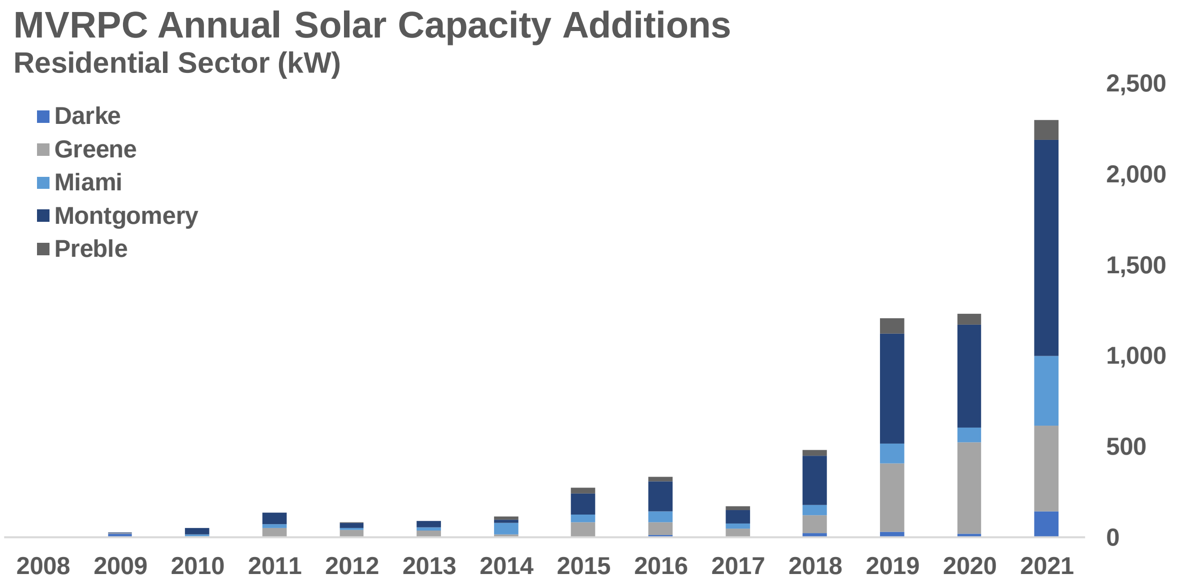
The MVRPC region is home to 15.7 MW of solar capacity in investor-owned utility territory.

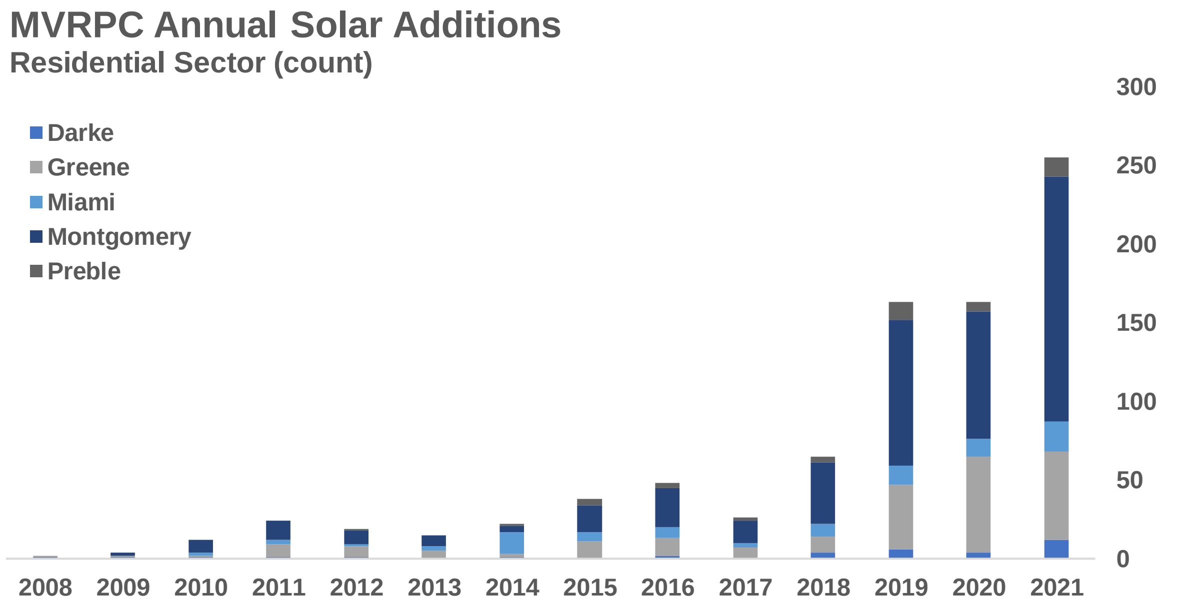
That's 9.2% of all of Ohio's solar.

In terms of solar capacity in the state, Montgomery and Greene ranked #4 and #7 out of all counties in Ohio.

Why should you care about solar?

The interest is growing



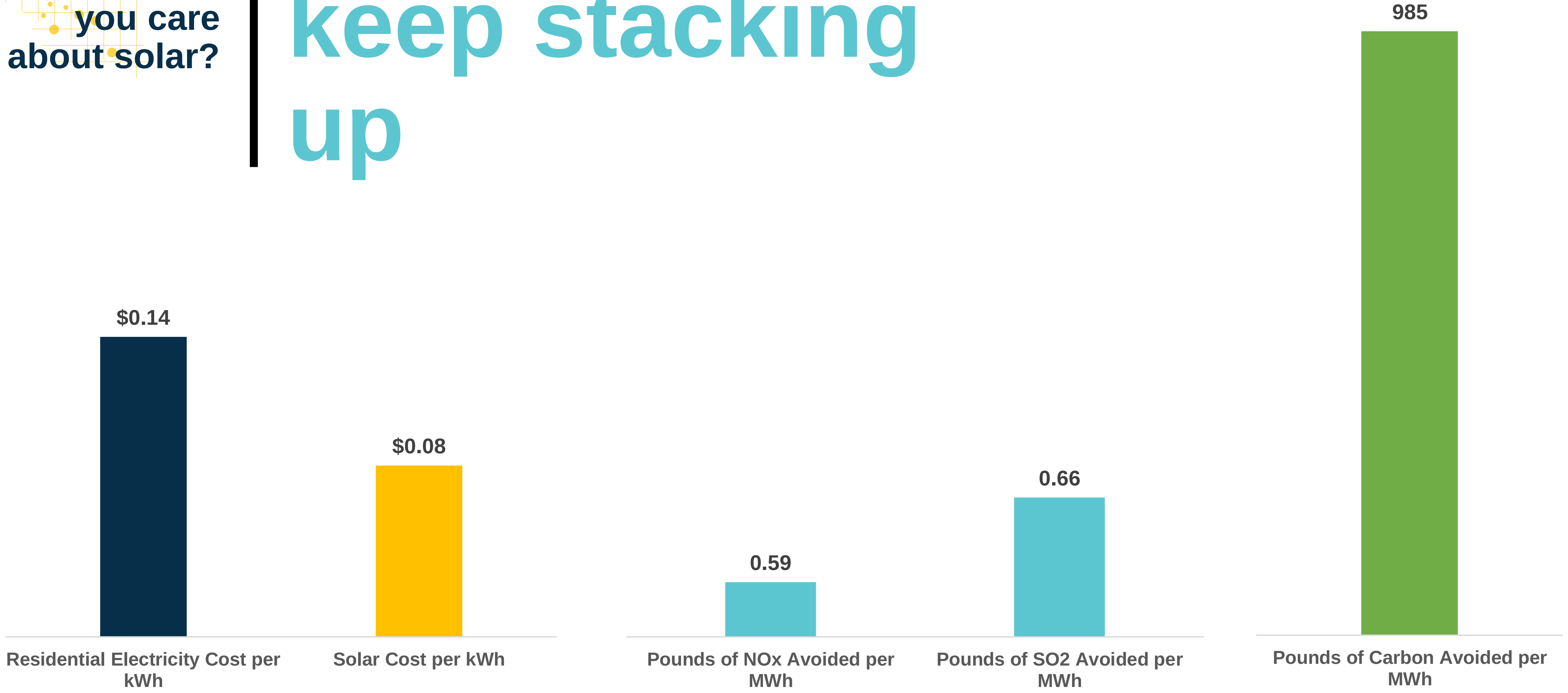


The pandemic didn't slow down solar in the residential sector. Number of installations and their size grew.

Since 2008, there's been a 23% average annual growth rate for the average size of solar in the MVRPC region.

Why should you care about solar?

The benefits keep stacking up



Why should you care about solar?

They're not just local either

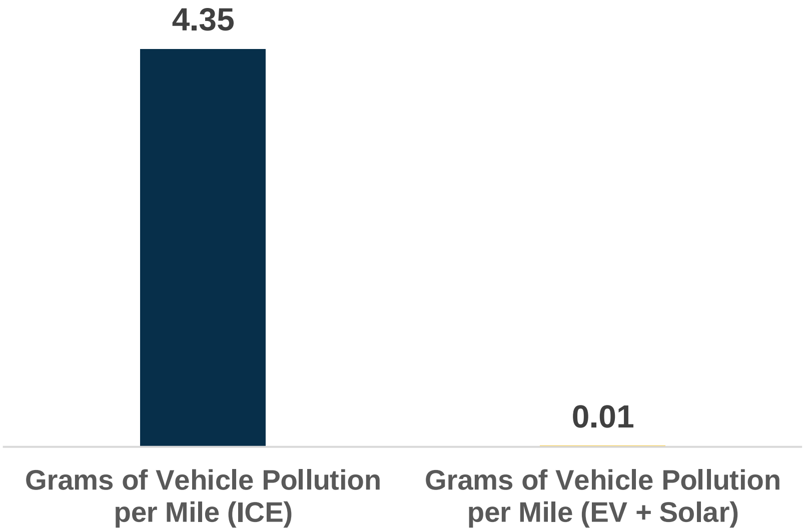
Our grid is regional.

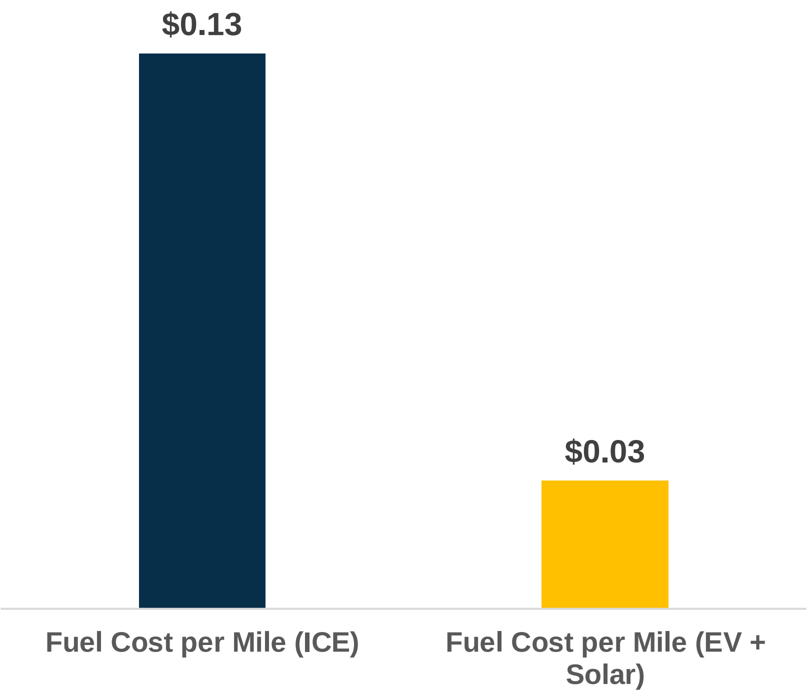
MVRPC-region solar causes 20,070 tons of carbon and 24 tons of air pollution EVERY YEAR to be avoided across the Midwest and East Coast.

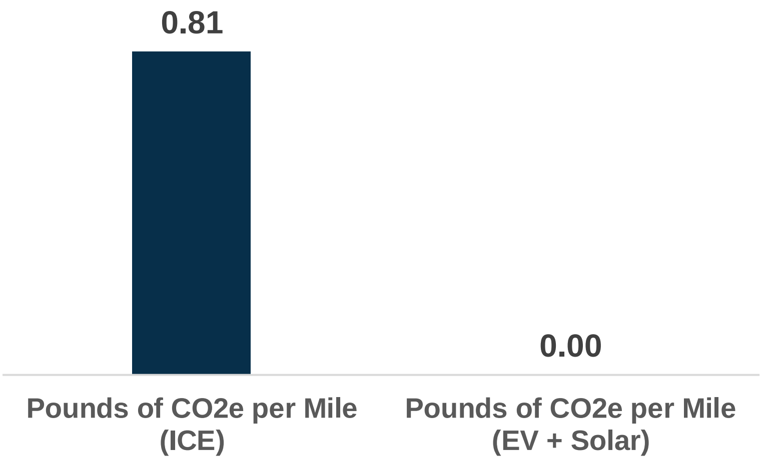
Annual State Emission Changes	CO_2 (tons)	SO_2 (lb)	NO_X (lb)	$PM_{2.5}$ (lb)	VOCs (lb)	NH_3 (lb)
Delaware	-330	-170	-280	-30	-10	-10
Illinois	-2,530	-1,390	-2,100	-180	-80	-120
Indiana	-1,260	-1,660	-1,180	-160	-30	-10
Kentucky	-840	-650	-790	-70	-30	-30
Maryland	-1,400	-1,570	-900	-120	-60	-40
Michigan	-100	0	0	0	0	-10
New Jersey	-950	-10	-450	-160	-50	-110
North Carolina	0	0	-10	0	0	0
Ohio	-3,460	-7,630	-4,050	-480	-80	-130
Pennsylvania	-4,200	-7,840	-3,580	-700	-60	-90
Virginia	-1,700	-490	-1,480	-230	-50	-100
West Virginia	-3,300	-5,220	-3,550	-410	-80	-10
Total	-20,070	-26,630	-18,370	-2,540	-530	-660

Why should you care about solar?

The future looks bright







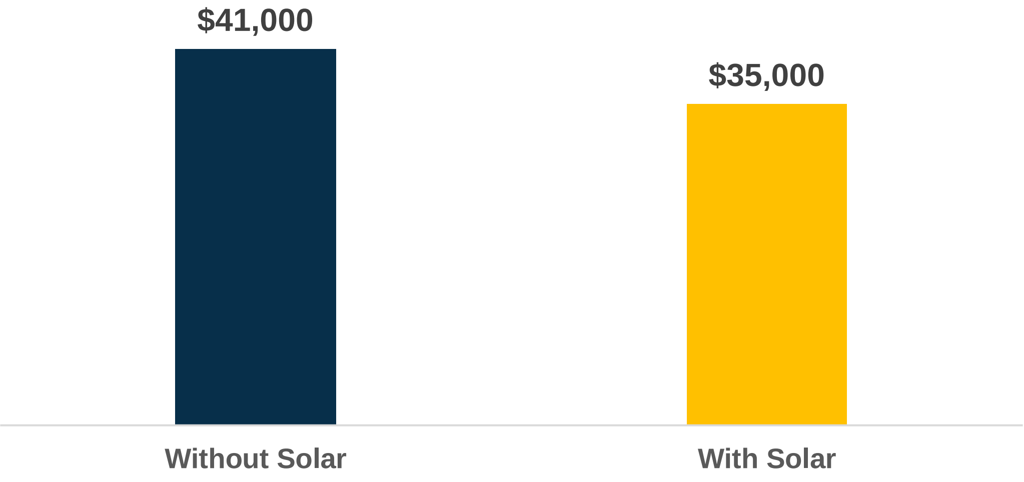
Solar on your home is good, but solar on your home with an EV is GREAT!

Why should you care about solar?

Solar can address equity

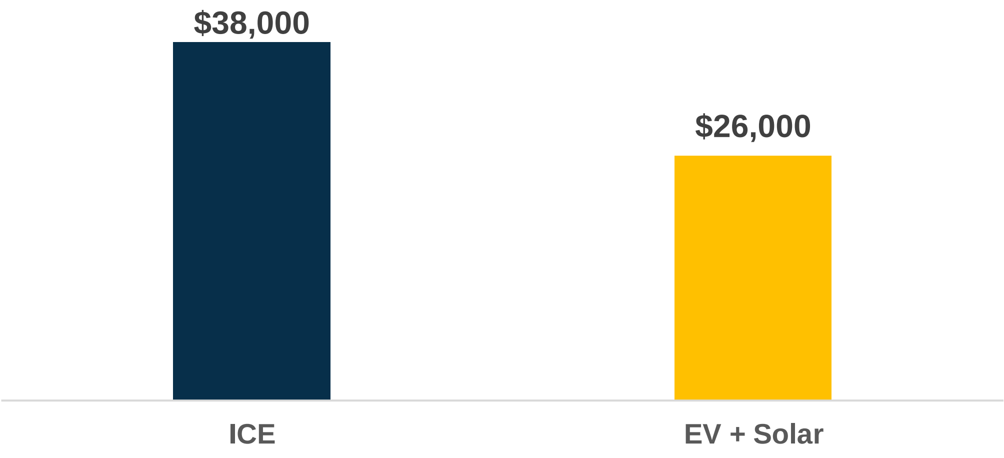
Solar on a home can reduce the income needed to have an affordable energy burden, below 5%.

Based on average home energy consumption in MVRPC region.



Solar on a home can reduce the income needed to have an affordable transportation burden, below 10%.

Based on Ohio average values with no car payment.



Why should you care about solar?

But wait, there’s more

Energy-efficiency type benefits

- Lowers the reliance on the grid
- Helps to avoid costly upgrades on the distribution system
- Lowers overall cost of electricity for everyone

Resiliency benefits

- Paired with a battery means food and medications aren’t thrown away when the power goes out.

Local economic benefits

- Solar means local jobs
- Means more spending at your local shops
- Large scale systems can directly benefit schools and counties

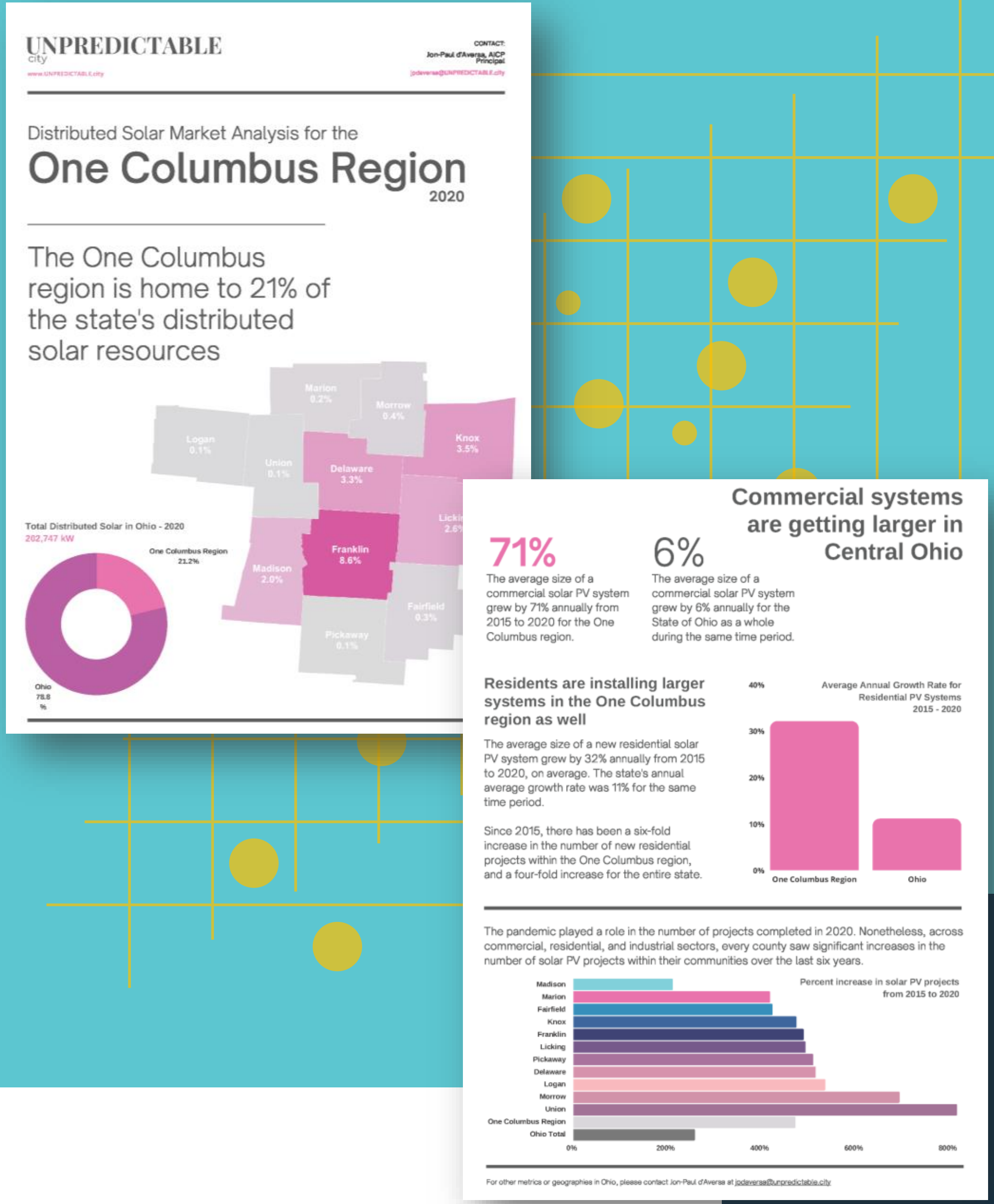
Quick show of hands

Who has ever seen a project get delayed because a regulation got in the way, or the process was confusing?

Solar Market Development Technical Assistance

PCFO communities can receive:

- Zoning and process reviews and recommendations
- Community-appropriate guidance
- Market analyses
- Program design advisement
- SolSmart designation assistance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Distributed Solar Market Analysis for the

One Columbus Region

2020

The One Columbus region is home to 21% of the state's distributed solar resources

Total Distributed Solar in Ohio - 2020

Marion 0.2%
Morrow 0.4%
Logan 0.1%
Union 0.1%
Delaware 3.3%
Knox 3.5%
Franklin 8.6%
Madison 2.0%
Fairfield 0.3%
Pickaway 0.1%

Commercial systems are getting larger in Central Ohio

71%

The average size of a commercial solar PV system grew by 71% annually from 2015 to 2020 for the One Columbus region.

6%

The average size of a commercial solar PV system grew by 6% annually for the State of Ohio as a whole during the same time period.

Residents are installing larger systems in the One Columbus region as well

The average size of a new residential solar PV system grew by 32% annually from 2015 to 2020, on average. The state's annual average growth rate was 11% for the same time period.

Since 2015, there has been a six-fold increase in the number of new residential projects within the One Columbus region, and a four-fold increase for the entire state.

Average Annual Growth Rate for Residential PV Systems 2015 - 2020

The pandemic played a role in the number of projects completed in 2020. Nonetheless, across commercial, residential, and industrial sectors, every county saw significant increases in the number of solar PV projects within their communities over the last six years.

Percent increase in solar PV projects from 2015 to 2020

Solar Market Development Technical Assistance

Our Process

1. Initial Call
2. Develop work plan
3. Review of current ordinances
4. Review of existing plans
5. Solar market analysis
6. Interviews/emails with city staff
7. Undertake additional activities identified in the work plan and supported by data.
8. Document activities for SolSmart designation (if desired)

SolSmart Program

SolSmart is a national designation program designed to recognize communities that have taken key steps to address local barriers to solar energy and foster the growth of mature local solar markets.

SolSmart provides over 200 activities to undertake across five categories:

COMMUNITY	DESIGNATION
Amesville	Bronze
Athens	Bronze
Athens County	Bronze
Cleveland	Bronze
Delaware	Bronze
Franklin County	Bronze
MORPC	Silver
Oberlin	Silver
OKI	Silver
Somerset	Bronze
Upper Arlington	Gold

Permitting and Inspection – Focusing on the process for solar installations and safety.

Planning and Zoning – Focusing on codes and regulations for solar development.

Government Operations – Activities you can undertake internally.

Community Engagement – Ensuring your community has opportunities to participate.

Market Development – Stimulating and encouraging solar in your community.

Other Opportunities

Municipalities can aggregate and purchase electricity on behalf of their residents and businesses.

Benefits

- You can require a particular amount of solar
- You can require it to be generated instate, keeping the economic benefits local
- You can design your aggregation program to have benefits for local programs and schools

Darke County
- Adams Twp (G)(E)
- Brown Twp (G)(E)
- Greenville Twp (G)(E)
- Village of Ansonia (G)(E)
- Village of Bradford (G)(E)
- Village of Versailles (G)
- Village of Wayne Lakes (E)
- City of Greenville (G)(E)

Greene County
- Greene County (E)
- City of Beavercreek (G)(E)
- City of Xenia (G)(E)

Miami County
- Newberry Twp (G)(E)
- Village of Bradford (G)(E)
- Village of Covington (G)(E)
- Village of West Milton (G)(E)
- City of Troy (E)

Preble County
- Preble County (E)
- Village of New Paris (E)

Montgomery County
- Butler Twp (E)
- Clay Twp (G)(E)
- Jefferson Twp (G)(E)
- City of Centerville (G)
- City of Dayton (E)
- City of Germantown (G)
- City of Huber Heights (E)
- City of Kettering (G)
- City of Miamisburg (G)
- City of Moraine (G)
- City of Springboro (G)
- City of West Carrollton (G)

Northern Warren County
- Franklin Twp (G)(E)
- City of Springboro (G)
- City of Franklin (E)

Other Opportunities

Community solar is possible for municipal utilities and rural cooperatives.

Benefits

- Local economic benefits
- Smaller than utility-scale
- "Solar on your home" without being solar on your home

Rural Cooperatives

- Butler Rural Electric
- Darke Rural Electric
- Midwest Electric
- Pioneer Electric

Municipal

- Arcanum
- Eldorado
- Piqua
- Tipp City
- Versailles
- Yellow Springs

Resources

Solar in your community

- Your own permit data
- Public Utilities Commission of Ohio

Cost and production data

- US Energy Information Administration
- Your utility

Solar potential

- National Renewable Energy Laboratory's State and Local Planning for Energy Tool
- Project Sunroof

Emissions data

- US Environmental Protection Agency's Emissions & Generation Resource Integrated Database (eGRID)
- US Environmental Protection Agency's AVoided Emissions and geneRation Tool (AVERT)

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