



Accelerating the Transition to
Carbon-Free for a Sustainable
Energy Future ... Reducing Your
Energy Bills AND Carbon
Footprint



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Agenda:

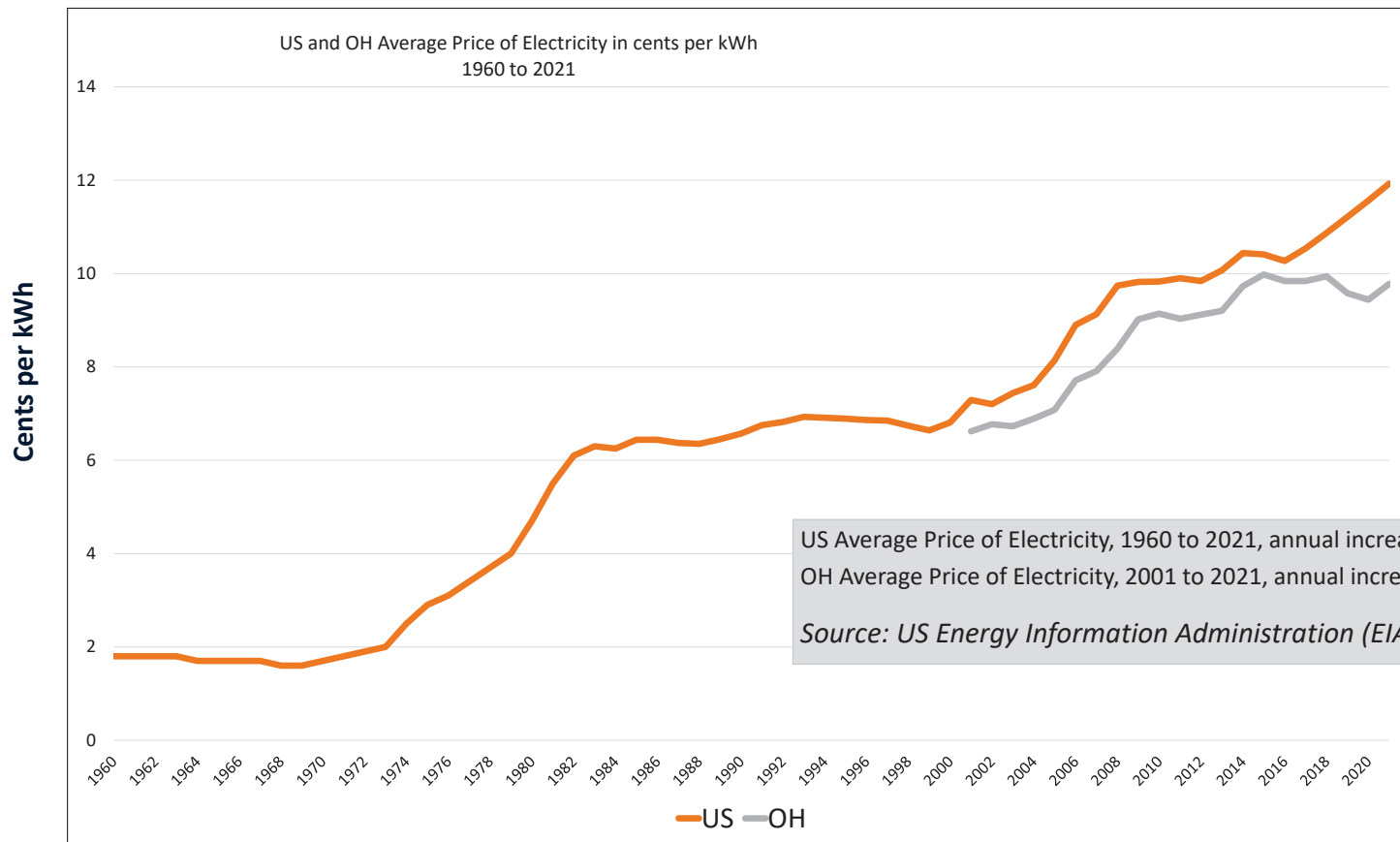
- **Current Trends in the U.S. Energy Market**
- **Forecasted Renewables Impact on U.S. Energy Market**
- **On-Site Solar Economics**
- **Incentive Landscape**



TRENDS IN U.S. ENERGY MARKET

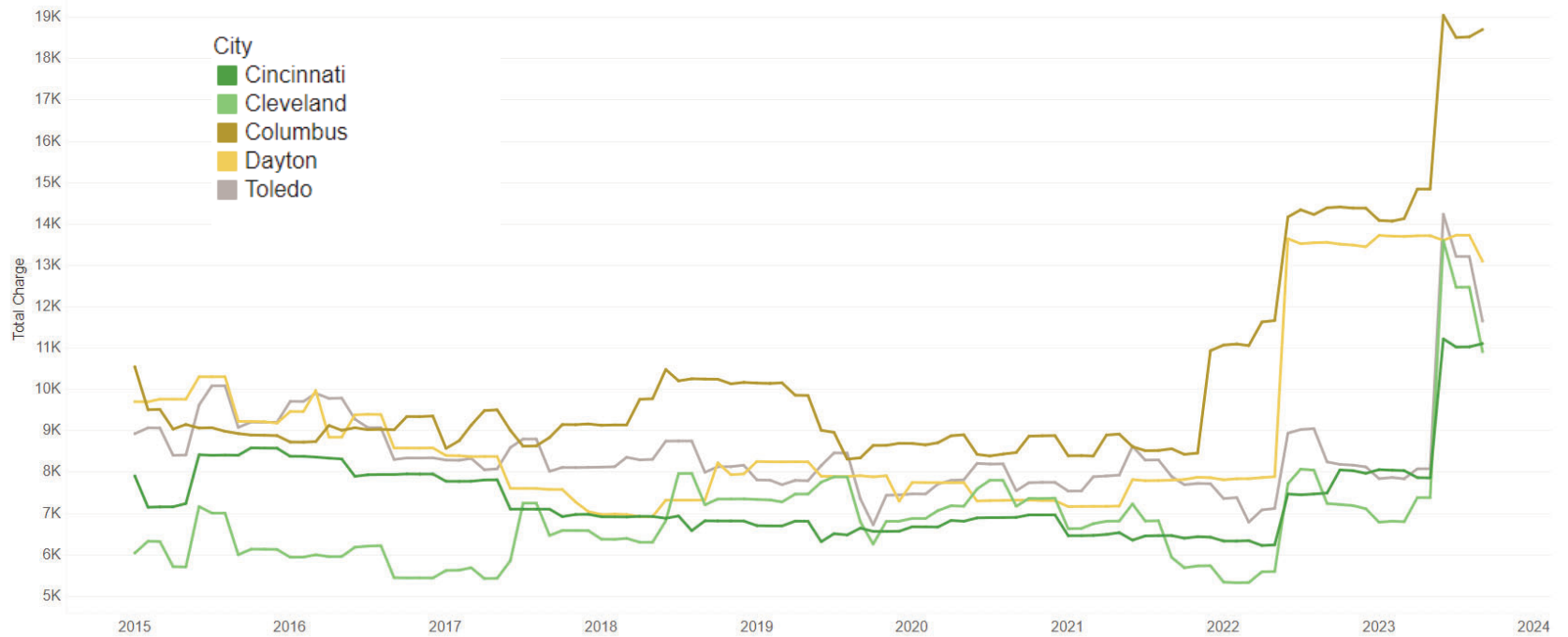
Increasing Electricity Price Trends

National average increase of 3.15% PER YEAR between 1960 and 2021



Recent Pricing: Skyrocketing Rates

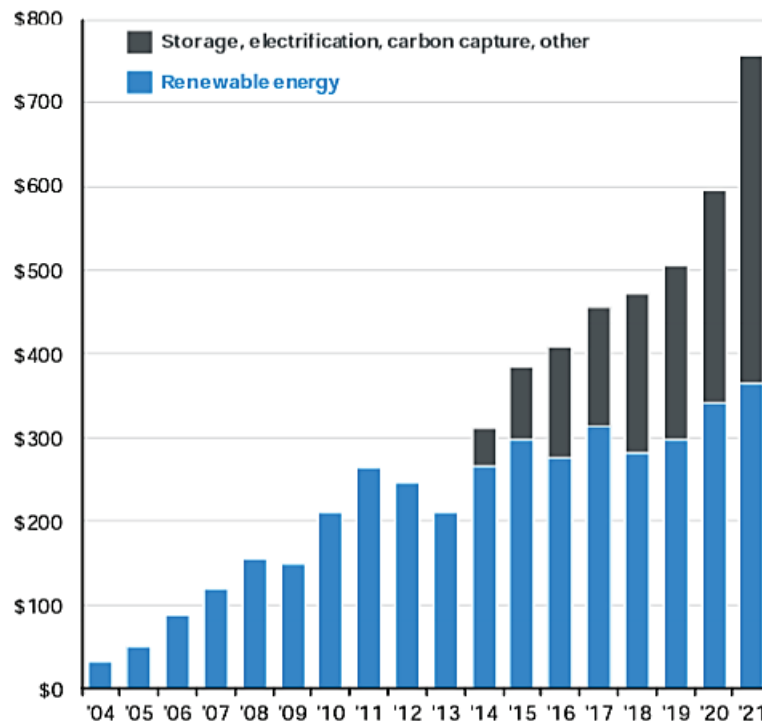
Cincinnati, Cleveland, Columbus and 2 more
Industrial All Utility Bill Trends



Global Energy Transition to Renewables

Global investment in energy transition

Billions USD, nominal



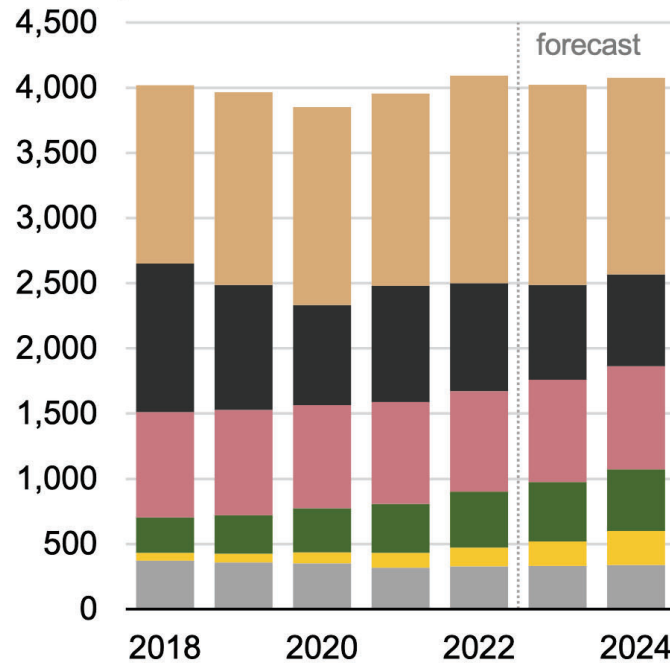
Source: Bloomberg NEF, BP Statistical, Eurostat, Lazard, METI, J.P. Morgan Asset Management; (Left) Storage, electrification, other includes hydrogen, carbon capture and storage, energy storage, electrified transport and electrified heat; (Right) *LCOE is levelized cost of energy, the net present value of the unit-cost of electricity over the lifetime of a generating asset. It is often taken as a proxy for the average price that the generating asset must receive in a market to break even over its lifetime; Forecasts are not a reliable indicator of future performance. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections or other forward-looking statements, actual events, results or performance may differ materially from those reflected or contemplated.
 Guide to the Markets – U.S. Data are as of December 31, 2022.

USA Transition to Renewables

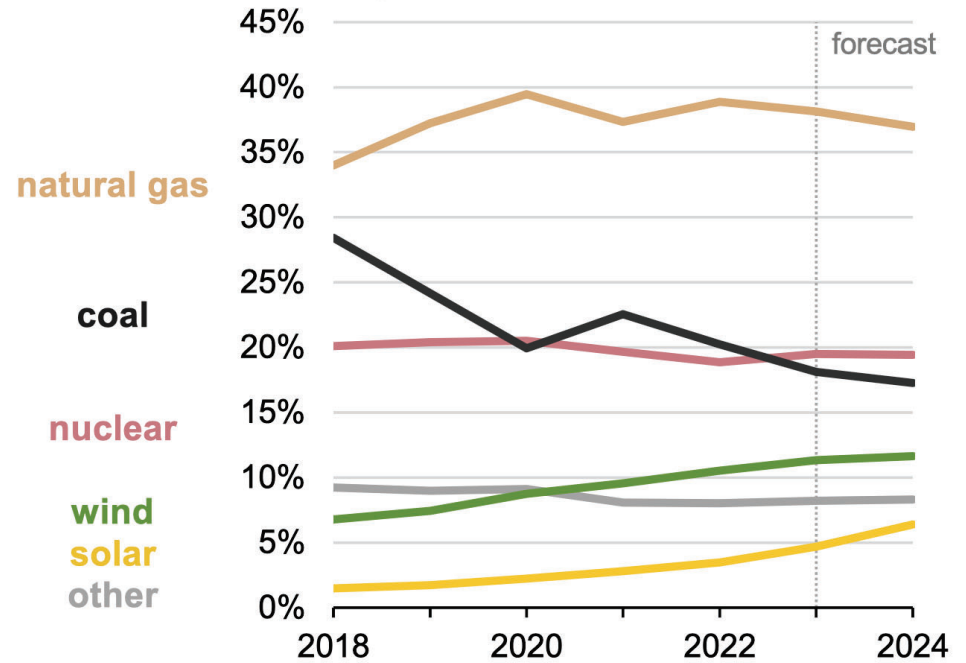
As of January 1, 2023, we are now publishing four new *Today in Energy* articles each week, from Monday through Thursday.

U.S. electricity generation by energy source (2018–2024)

annual generation, in billion kilowatthours



share of total generation

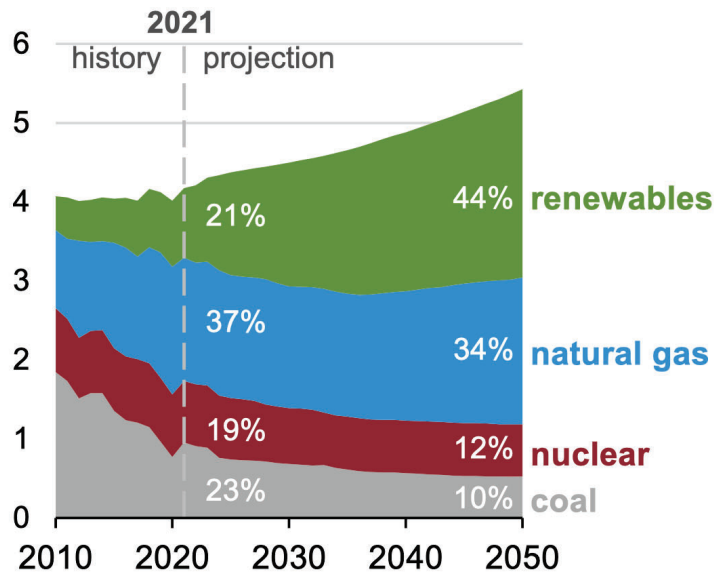


Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook* (STEO)

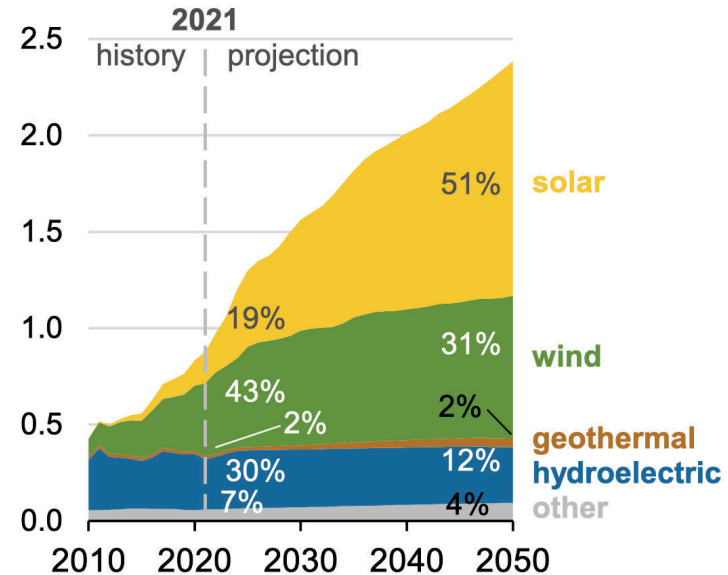
Future Projections of Solar

EIA projects that renewable generation will supply 44% of U.S. electricity by 2050

U.S. electricity generation
AEO2022 Reference case
trillion kilowatthours



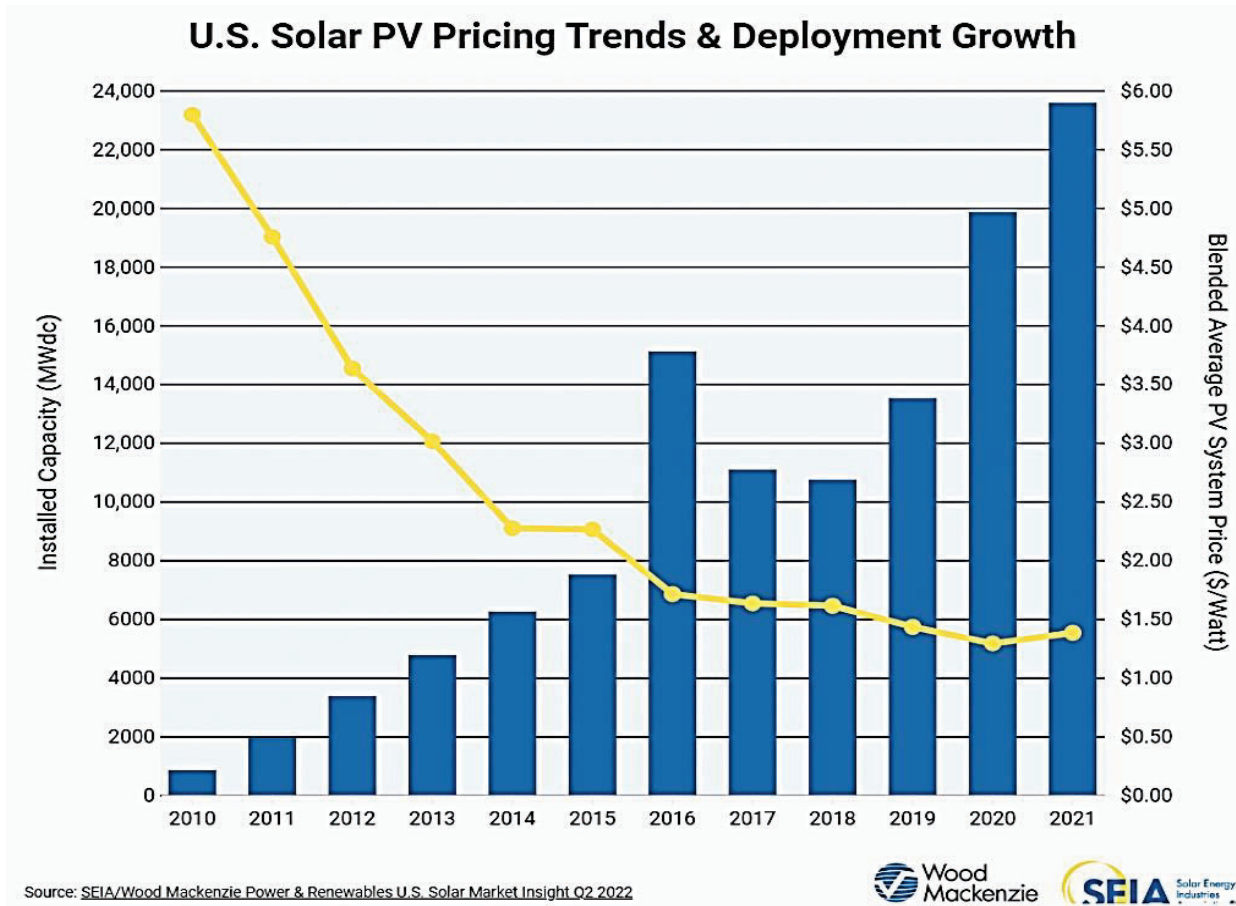
U.S. renewable electricity generation
including end use
trillion kilowatthours



Source: U.S. Energy Information Administration, *Annual Energy Outlook 2022* (AEO2022)

Note: Biofuels are both shown separately and are included in petroleum and other liquids.

Historic Price Decreases Leveling Off



An aerial photograph of a solar farm. The solar panels are arranged in neat, parallel rows across a grassy field. In the background, there are rolling green hills, a winding road, and a line of trees. A small building and some equipment are visible near the solar farm. The overall scene is a mix of natural landscape and modern infrastructure.

CURRENT INVESTMENTS IN RENEWABLES

Talent Attraction + Sustainability

Sustainable practices don't just benefit the environment— they help organizations' bottom lines

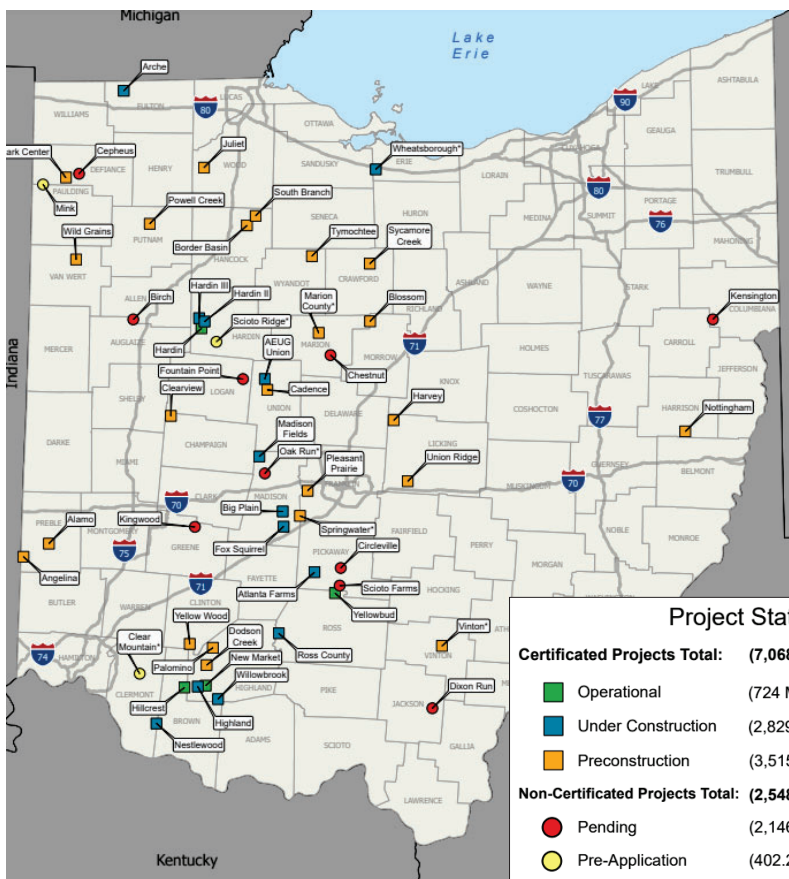
Over 400 Companies

Committed to going 100% renewable



Utility Scale Solar in Ohio

Current, Pending, and Planned Utility Scale Solar projects



30+
Utility Scale Projects
in Ohio

7+ GW
Solar planned in
Ohio

Project Status

Certificated Projects Total: (7,068.8 MW) (71,840 Acres)

- Operational (724 MW) (6,352 Acres)
- Under Construction (2,829.6 MW) (28,158 Acres)
- Preconstruction (3,515.2 MW) (37,330 Acres)

Non-Certificated Projects Total: (2,548.2 MW) (23,451 Acres)

- Pending (2,146.0 MW) (19,706 Acres)
- Pre-Application (402.2 MW) (3,745 Acres)

A photograph of a row of Tesla cars parked under a large, modern solar panel canopy. The canopy is made of white metal frames and solar panels, extending over the parking area. The cars are parked in a row, and the background shows a green landscape with trees and a blue sky with clouds. The text "INFLATION REDUCTION ACT Consumer Spending" is overlaid in white on the image.

INFLATION REDUCTION ACT Consumer Spending

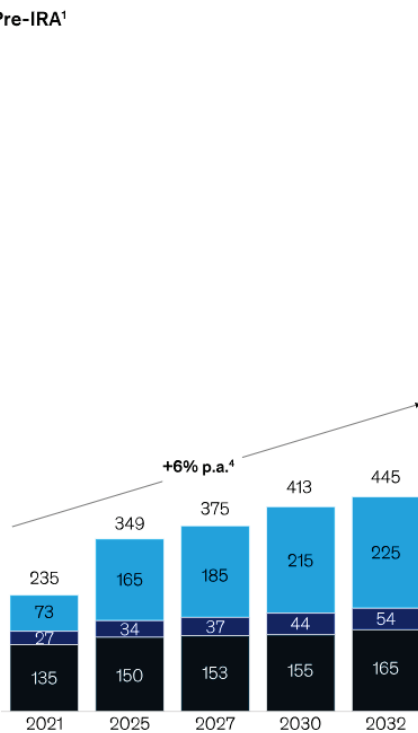
Projected Impact of 2022 IRA

Forecasted Renewables Impact to Energy Market

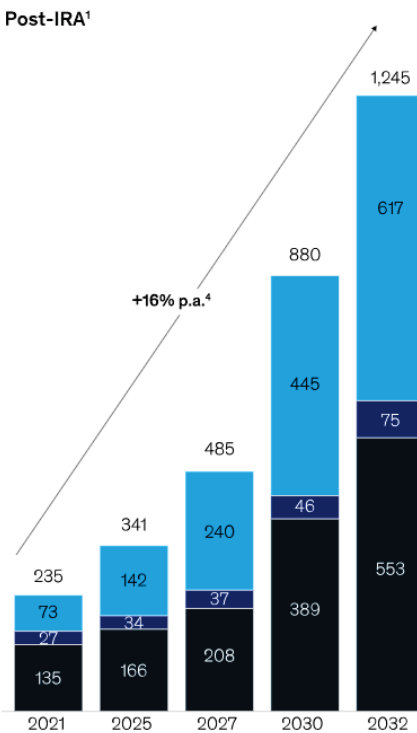
Projections of US installed solar and wind capacity, gigawatts

■ Onshore wind ■ Storage² ■ Solar PV³

Pre-IRA¹



Post-IRA¹



The projected capacity of solar, storage and onshore wind has almost tripled thanks to the Inflation Reduction Act

Through 2032 Solar PV generation is forecasted to grow 8x through 2032.

In 2021 Solar PV generation accounted for ~5% of installed power in the U.S.

¹Inflation Reduction Act.
²Includes lithium ion and existing hydro-pumped storage.
³Photovoltaics.
⁴Per annum.

Solar Tax Credits – Consumers

Pre-IRA

	2022	2023	2024	2025	2026	2027	2028	2029	2030
ITC for Solar*	26%	22%	10%	10%	10%	10%	10%	10%	10%
ITC for Stand-Alone Storage	0%	0%	0%	0%	0%	0%	0%	0%	0%
PTC for Solar (\$/kWh)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Source: SEIA Summary of Inflation Reduction Act (H.R. 5376)

Solar Tax Credits – Consumers

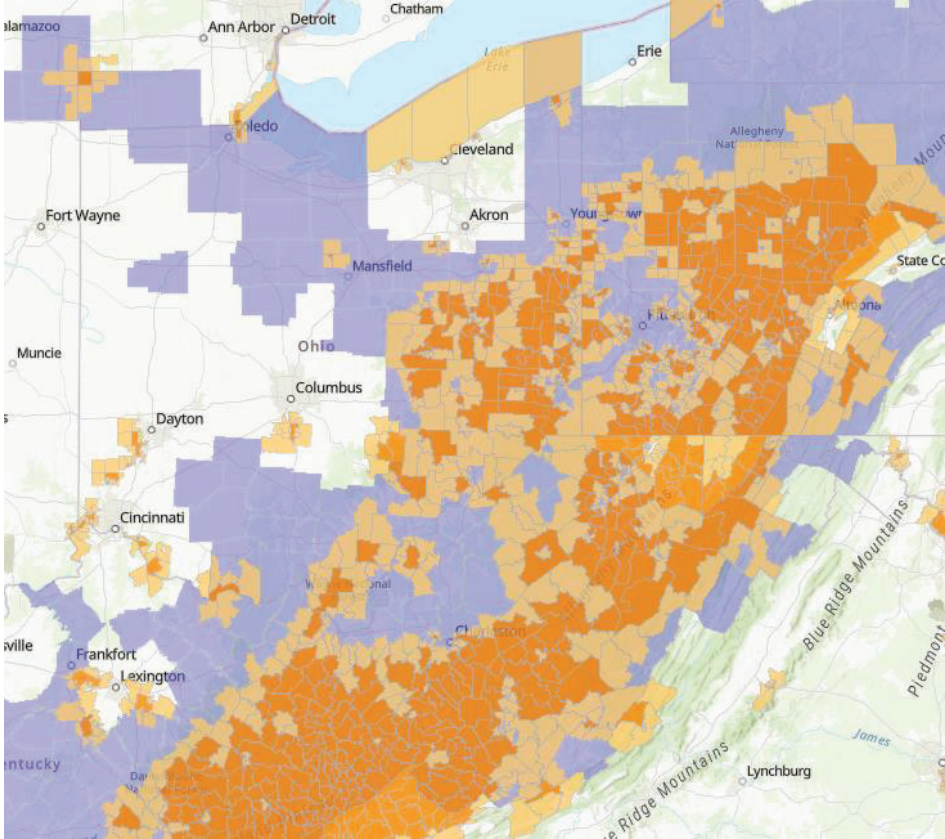
Inflation Reduction Act of 2022 – ITC Amount

Projects Under 1 MWac	ITC %
Base ITC	30%
Bonus for Meeting Domestic Content Minimums	10%
Bonus for Siting in an "Energy Community"	10%
Allocated Low-Income Bonus	
Low-income Community as Defined by the New Markets	10%
Qualified Low-Income Residential Building Project or Qualified	
Low-Income Economic Benefit Program	20%

Projects Over 1 MWac	<u>Not Meeting</u> Labor Requirements	<u>Meeting</u> Labor Requirements
Base ITC	6%	30%
Bonus for Meeting Domestic Content Minimums	2%	10%
Bonus for Siting in an "Energy Community"	2%	10%
Allocated Low-Income Bonus (projects under 5MWac)		
Low-income Community as Defined by the New Markets	10%	10%
Qualified Low-Income Residential Building Project or Qualified		
Low-Income Economic Benefit Program	20%	20%

Solar Tax Credits – Consumers

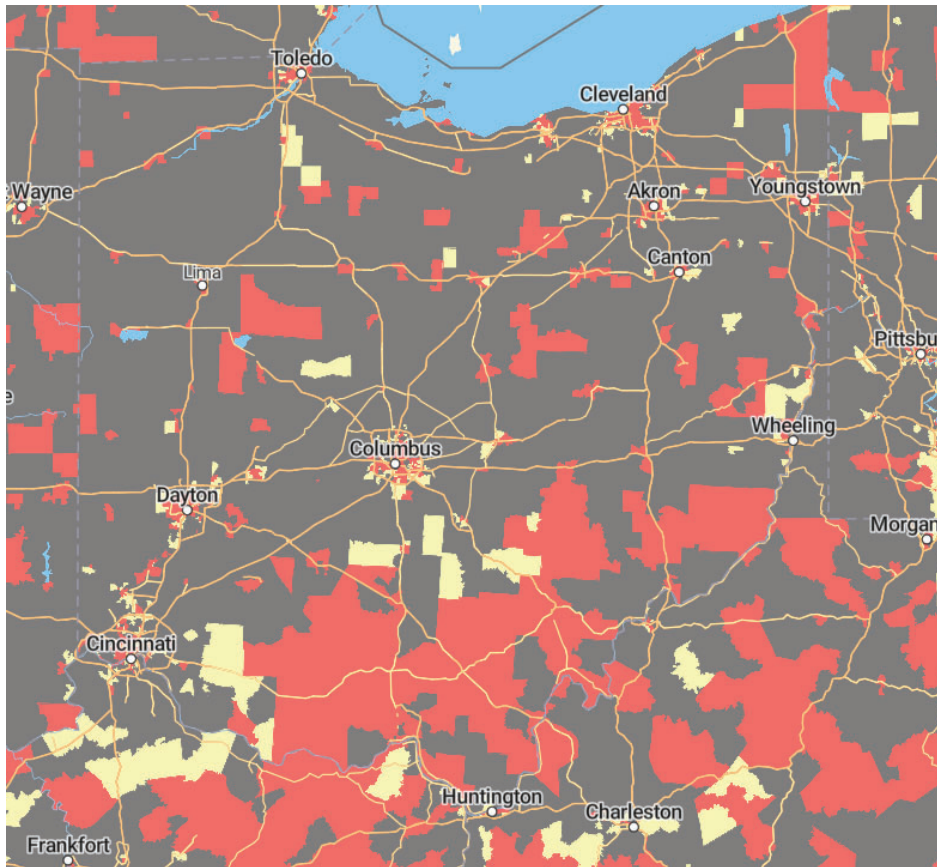
Energy Community



Energy Community zones qualify for a **+10%** additional ITC.

Solar Tax Credits – Consumers

Low income areas



New Markets Tax Credit (NMTC) Program Eligibility, Severe Distressed Status, and Non-Metropolitan Status, for CY 2019, using 2011-2015 eligibility data. ⓘ
Source: CDFI Fund and PolicyMap

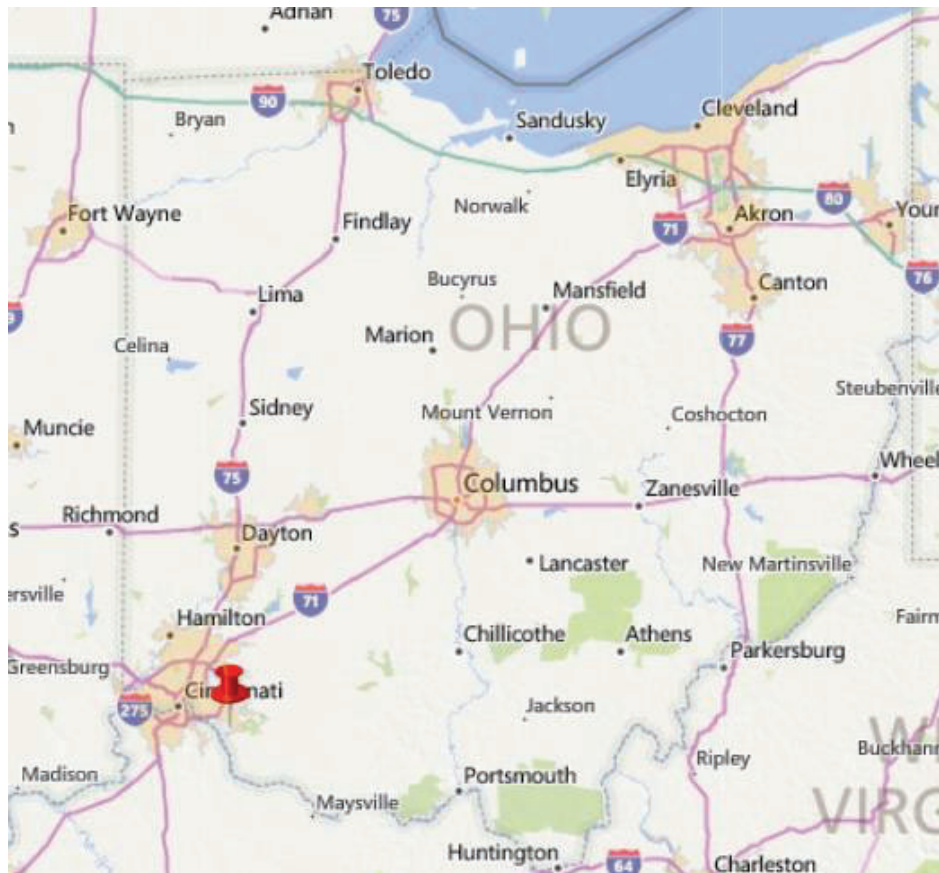
- Insufficient Data
- Severe Distress or Non-Metropolitan
- Eligible
- Not Eligible

Shaded by: Census Tract, 2010


Zones designated in Red/Yellow may qualify for **+10%** additional ITC.

REAP Grants

United States Department of Agriculture



Map Legend

 Ineligible Areas

Small Businesses

Combines with IRA

Up to **50%** of project Cost

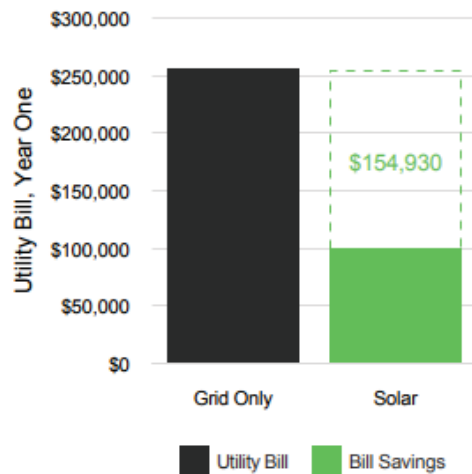
Up to **\$1M**

Example Project Financials

Solar PV System Cost and Incentives

Solar PV System Cost	\$2,953,728	
Federal Tax Credit	(\$886,118)	-30%
Federal - MACRS Bonus Depreciation	(\$928,947)	-31%
State (OH) Depreciation	(\$147,686)	-5%
Net Solar PV System Cost	\$990,977	34%

ELECTRIC BILL



Cash Breakeven = 6 years

Years	Cash			PV Generation (kWh)	State Taxes Income Decrease (State (OH) Depreciation)	Federal Taxes		Total Cash Flow	Cumulative Cash Flow
	Project Costs	New Inverters	Electric Bill Savings			Income Decrease (Federal - MACRS Bonus Depreciation)	Federal Tax Credit		
Upfront	-\$2,953,728	-	-	-	-	-	-	-\$2,953,728	-\$2,953,728
1	-	-	\$154,930	1,924,716	\$29,537	\$631,684	\$886,118	\$1,702,270	-\$1,251,458
2	-	-	\$158,859	1,916,055	\$47,260	\$118,905	-	\$325,024	-\$926,434
3	-	-	\$162,885	1,907,394	\$28,356	\$71,343	-	\$262,584	-\$663,850
4	-	-	\$167,010	1,898,733	\$17,013	\$42,806	-	\$226,830	-\$437,020
5	-	-	\$171,236	1,890,071	\$17,013	\$42,806	-	\$231,055	-\$205,965
6	-	-	\$175,565	1,881,410	\$8,507	\$21,403	-	\$205,474	-\$491
7	-	-	\$179,999	1,872,749	-	-	-	\$179,999	\$179,508
8	-	-	\$184,542	1,864,088	-	-	-	\$184,542	\$364,050
9	-	-	\$189,195	1,855,427	-	-	-	\$189,195	\$553,245
10	-	-	\$193,961	1,846,765	-	-	-	\$193,961	\$747,206
11	-	-	\$198,843	1,838,104	-	-	-	\$198,843	\$946,049
12	-	-	\$203,843	1,829,443	-	-	-	\$203,843	\$1,149,892
13	-	-	\$208,964	1,820,782	-	-	-	\$208,964	\$1,358,856
14	-	-	\$214,209	1,812,120	-	-	-	\$214,209	\$1,573,065
15	-	-\$82,148	\$219,581	1,803,459	-	-	-	\$137,434	\$1,710,499
16	-	-	\$225,082	1,794,798	-	-	-	\$225,082	\$1,935,581
17	-	-	\$230,716	1,786,137	-	-	-	\$230,716	\$2,166,297
18	-	-	\$236,485	1,777,476	-	-	-	\$236,485	\$2,402,783
19	-	-	\$242,393	1,768,814	-	-	-	\$242,393	\$2,645,175
20	-	-	\$248,442	1,760,153	-	-	-	\$248,442	\$2,893,618
21	-	-	\$254,636	1,751,492	-	-	-	\$254,636	\$3,148,254
22	-	-	\$260,978	1,742,831	-	-	-	\$260,978	\$3,409,232
23	-	-	\$267,472	1,734,169	-	-	-	\$267,472	\$3,676,704
24	-	-	\$274,120	1,725,508	-	-	-	\$274,120	\$3,950,824
25	-	-	\$280,926	1,716,847	-	-	-	\$280,926	\$4,231,750
26	-	-	\$287,894	1,708,186	-	-	-	\$287,894	\$4,519,645
27	-	-	\$295,028	1,699,524	-	-	-	\$295,028	\$4,814,672
28	-	-	\$302,330	1,690,863	-	-	-	\$302,330	\$5,117,002
29	-	-	\$309,805	1,682,202	-	-	-	\$309,805	\$5,426,807
30	-	-	\$317,456	1,673,541	-	-	-	\$317,456	\$5,744,263
Totals:	-\$2,953,728	-\$82,148	\$6,817,386	53,973,857	\$147,686	\$928,947	\$886,118	\$5,744,263	-

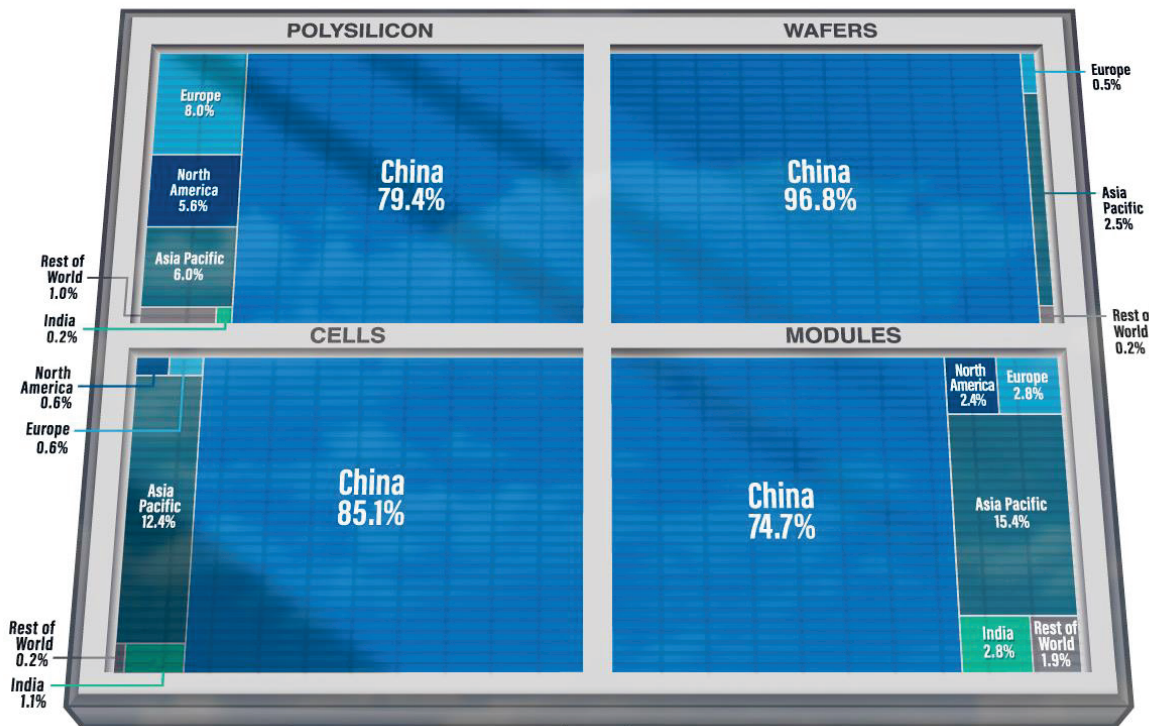


INFLATION REDUCTION ACT
Driving Manufacturing investments

Solar Panel Manufactured Components

Domestic vs. Foreign Content

Share of Manufacturing Capacity by Country/Region in 2021



~5.6%
Solar Polysilicon
Manufactured in U.S.

<1%
Solar Wafer
Manufactured in U.S.

<1%
Solar Cells
Manufactured in U.S.

~2.4%
Solar Modules
Manufactured in U.S.



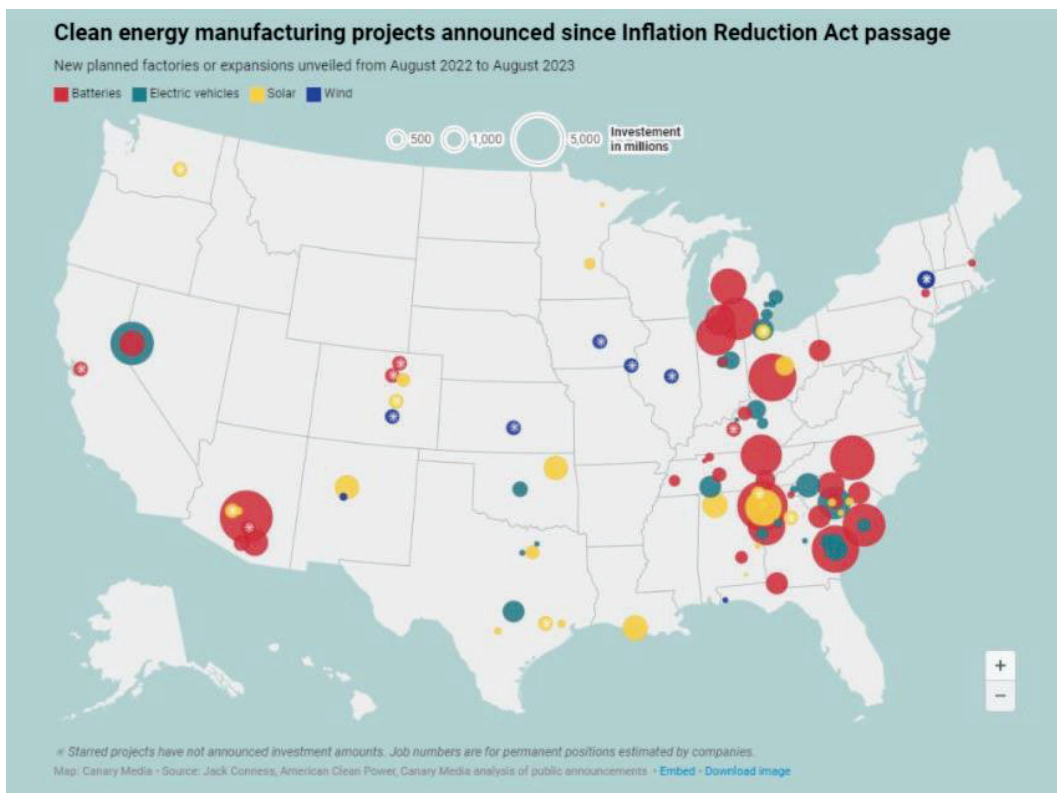
China made up 55% of global solar panel manufacturing capacity in 2010, with its share rising to 84% in 2021.



The total value of global solar PV related trade increased by more than 70% YoY to reach over \$40B in 2021.

Post IRA Renewable Investments

Solar, Wind, EV's, and Batteries



In the 12 months since the IRA was passed:

100+

New Cleantech manufacturing facilities announced

\$80 Billion

In Private Investments in manufacturing

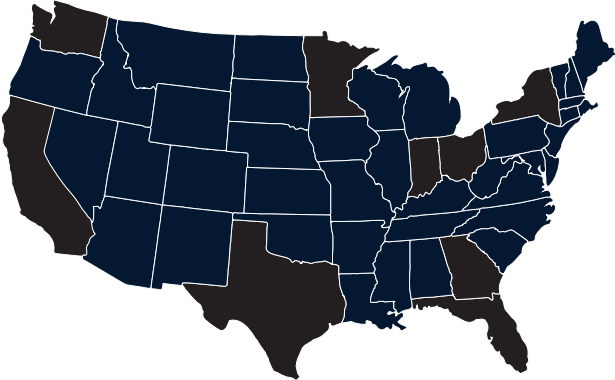
~1 Million

New manufacturing jobs will be created in the next decade

Solar Panel Manufacturers in the U.S.

2023 – 32GW Predicted

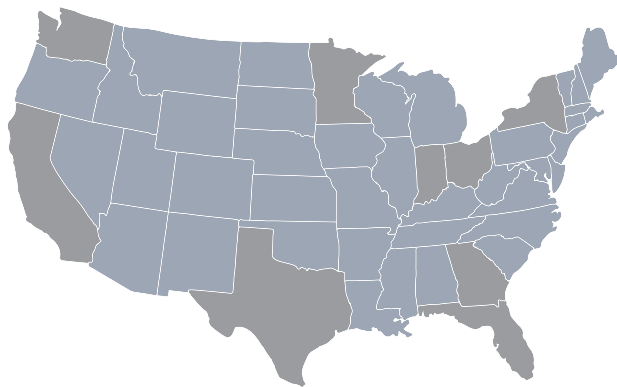
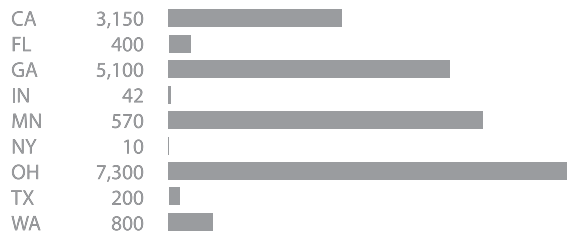
17.5GW Manufacturing Potential by EOY 2023



Solar Panel Manufacturers in the U.S.

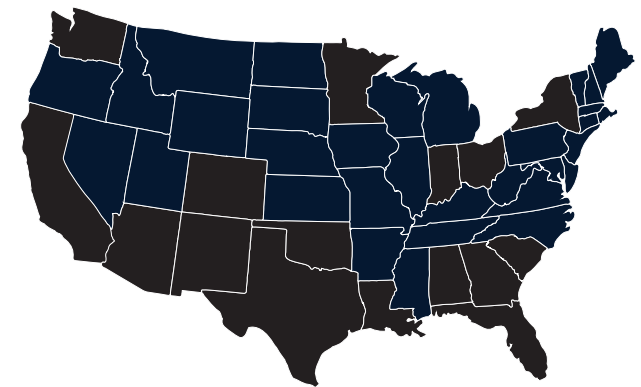
2023

17.5GW Manufacturing Potential by EOY 2023



2025 - 73GW expected demand

53.3GW Manufacturing Potential by EOY 2025



Solar Tax Credits – Manufacturers

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Solar											
PV Modules	7 ¢/Wdc	7 ¢/Wdc	7 ¢/Wdc	7 ¢/Wdc	7 ¢/Wdc	7 ¢/Wdc	7 ¢/Wdc	5.3 ¢/Wdc	3.5 ¢/Wdc	1.8 ¢/Wdc	0.0 ¢/Wdc
Thin-Film PV Cells	5 ¢/Wdc	5 ¢/Wdc	5 ¢/Wdc	5 ¢/Wdc	5 ¢/Wdc	5 ¢/Wdc	5 ¢/Wdc	3.8 ¢/Wdc	2.5 ¢/Wdc	1.3 ¢/Wdc	0.0 ¢/Wdc
Crystalline Silicon PV Cells	4 ¢/Wdc	4 ¢/Wdc	4 ¢/Wdc	4 ¢/Wdc	4 ¢/Wdc	4 ¢/Wdc	4 ¢/Wdc	3.0 ¢/Wdc	2.0 ¢/Wdc	1.0 ¢/Wdc	0.0 ¢/Wdc
Crystalline Silicon PV Wafers	\$12/m2	\$12/m2	\$12/m2	\$12/m2	\$12/m2	\$12/m2	\$12/m2	\$9/m2	\$6/m2	\$3/m2	\$0/m2
Solar Grade Polysilicon	\$3/kg	\$3/kg	\$3/kg	\$3/kg	\$3/kg	\$3/kg	\$3/kg	\$2.25/kg	\$1.50/kg	\$0.75/kg	\$0/kg
Polymer Backsheets	\$0.40/m2	\$0.40/m2	\$0.40/m2	\$0.40/m2	\$0.40/m2	\$0.40/m2	\$0.40/m2	\$0.30/m2	\$0.20/m2	\$0.10/m2	\$0/m2
Inverters*											
Central Inverter	0.25 ¢/Wac	0.25 ¢/Wac	0.25 ¢/Wac	0.25 ¢/Wac	0.25 ¢/Wac	0.25 ¢/Wac	0.25 ¢/Wac	0.19 ¢/Wac	0.13 ¢/Wac	0.06 ¢/Wac	0.00 ¢/Wac
Utility Inverter	1.50 ¢/Wac	1.50 ¢/Wac	1.50 ¢/Wac	1.50 ¢/Wac	1.50 ¢/Wac	1.50 ¢/Wac	1.50 ¢/Wac	1.13 ¢/Wac	0.75 ¢/Wac	0.38 ¢/Wac	0.00 ¢/Wac
Commercial Inverter	2.00 ¢/Wac	2.00 ¢/Wac	2.00 ¢/Wac	2.00 ¢/Wac	2.00 ¢/Wac	2.00 ¢/Wac	2.00 ¢/Wac	1.50 ¢/Wac	1.00 ¢/Wac	0.50 ¢/Wac	0.00 ¢/Wac
Residential Inverter	6.50 ¢/Wac	6.50 ¢/Wac	6.50 ¢/Wac	6.50 ¢/Wac	6.50 ¢/Wac	6.50 ¢/Wac	6.50 ¢/Wac	4.88 ¢/Wac	3.25 ¢/Wac	1.63 ¢/Wac	0.00 ¢/Wac
Microinverter	11.00 ¢/Wac	11.00 ¢/Wac	11.00 ¢/Wac	11.00 ¢/Wac	11.00 ¢/Wac	11.00 ¢/Wac	11.00 ¢/Wac	8.25 ¢/Wac	5.50 ¢/Wac	2.75 ¢/Wac	0.00 ¢/Wac
Trackers											
Torque tube or longitudinal purlin	\$0.87/kg	\$0.87/kg	\$0.87/kg	\$0.87/kg	\$0.87/kg	\$0.87/kg	\$0.87/kg	\$0.65/kg	\$0.44/kg	\$0.22/kg	\$0.00/kg
Structural fasteners	\$2.28/kg	\$2.28/kg	\$2.28/kg	\$2.28/kg	\$2.28/kg	\$2.28/kg	\$2.28/kg	\$1.71/kg	\$1.41/kg	\$0.57/kg	\$0.00/kg
Batteries											
Electrode active materials**	10%	10%	10%	10%	10%	10%	10%	7.5%	50%	2.5%	0%
Cells (\$/kWh)	\$35	\$35	\$35	\$35	\$35	\$35	\$35	\$26.3	\$17.5	\$8.8	\$0
Modules (\$/kWh)	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$7.5	\$5	\$2.5	\$0
Modules that don't use cells (\$/kWh)	\$45	\$45	\$45	\$45	\$45	\$45	\$45	\$33.8	\$22.5	\$11.3	\$0
Critical Materials**	10%	10%	10%	10%	10%	10%	10%	7.5%	5%	2.5%	0%

Solar Tax Credits – Manufactures

Ohio as a leader?!





Seth Parker
CEO
sparker@melinksolar.com

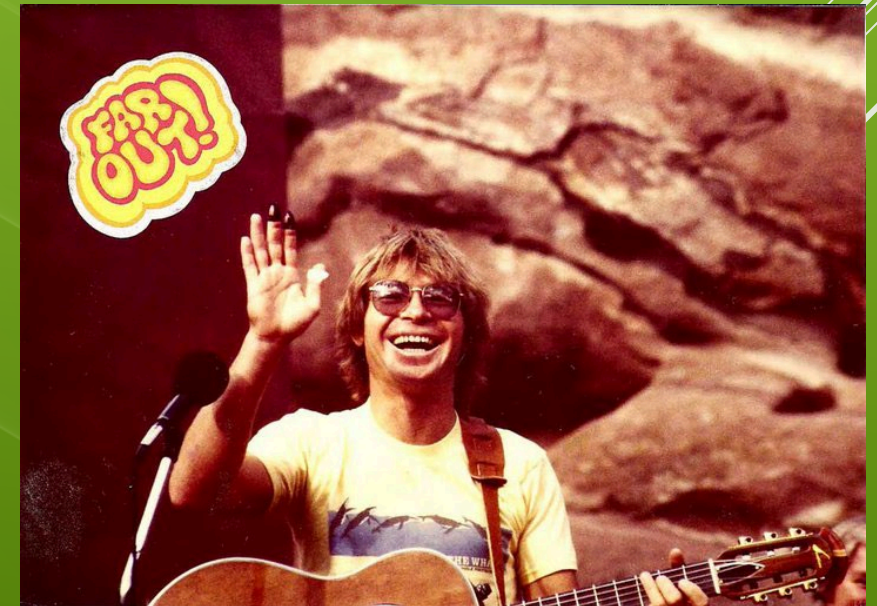
I LIKE A GOOD DEAL

Why We Went Solar, And Why You Should, Too



Jeff Bohrer, M.S., P.E.
Director of Mount Saint John Facilities

- ▶ My family valued saving money and getting a good deal.
 - ▶ Like Cola
- ▶ I love a good sale!
- ▶ Saving energy = Saving money
 - ▶ Using less energy
 - ▶ Using renewable energy
- ▶ What started out as saving energy to save money became so much more.
 - ▶ Environmental Biologist
 - ▶ Inconvenient Truth
 - ▶ Realized saving energy also = helping earth and its people
 - ▶ Less energy = less coal and gas burned = less CO₂
- ▶ So, I could save money, and save the planet?



A FRUGAL UPBRINGING



- ▶ 2006 Geothermal
- ▶ 2008 Solar Thermal
- ▶ 2011 PV Solar - 4.08 kW
- ▶ Saving Grid Energy=Saving \$\$ and Saving the Planet. That's a good deal!

A GOOD DEAL AT HOME



*So Why Is It A
Good Deal??*

- ▶ Installed in 2023
- ▶ Melink was the General Contractor.
- ▶ 3 acres
- ▶ 1,920- 445 Watt panels locally made by Toledo-based First Solar
- ▶ 850 kW of DC power at peak sun
- ▶ More than we need during the day, so the electricity is going back into the grid as a credit for night time and cloudy days
- ▶ 1.1 million kWh per year-- net zero annually
- ▶ Fence over 1/4 mile long
- ▶ Longest row of solar panels is 301 ft
- ▶ Panels 3 ft off the ground 8 ft tall
- ▶ 20° fixed tilt



A GOOD DEAL AT WORK

▶ Two Scenarios

- ▶ \$1.06M invest at 6% compounded annually for 30 years
 - ▶ \$6.1M 👍
- ▶ Use \$1.06M to buy 850kW solar array and invest the blended electricity \$\$ savings each year at 6% over a 30-year period.

▶ **\$14.2M!!!!**

- ▶ Consider solar as a diversification to the investment portfolio with large potential financial gains.
- ▶ The Marianists did just this to pay for the system.

Investment Principle (Cost of solar)	\$ 1,062,708.00
Term (yrs)	30
Investment Annual Interest Rate (%)	6
Annual Electric Usage (kWh)	1125833
Annual Electric Energy Cost Increase (%)	3
Starting Electric Blended Rate (\$/kWh)	0.1140



WHY THE MARIANISTS WENT SOLAR-DIVERSIFY INVESTMENTS



Cash Purchase - W/ Inverters Option Cash Flow

Years	Cash				PV Generation (kWh)	Total Cash Flow	Cumulative Cash Flow
	Project Costs	New Inverters	Direct Pay ITC	Electric Bill Savings			
Upfront	-\$1,771,180	-	-	-	-	-\$1,771,180	-\$1,771,180
1	-	-	\$708,472	\$130,144	1,137,273	\$838,616	-\$932,564
2	-	-	-	\$133,647	1,133,861	\$133,647	-\$798,917
3	-	-	-	\$137,242	1,130,449	\$137,242	-\$661,675
4	-	-	-	\$140,932	1,127,038	\$140,932	-\$520,743
5	-	-	-	\$144,721	1,123,626	\$144,721	-\$376,022
6	-	-	-	\$148,610	1,120,214	\$148,610	-\$227,412
7	-	-	-	\$152,602	1,116,802	\$152,602	-\$74,810
8	-	-	-	\$156,700	1,113,390	\$156,700	\$81,890
9	-	-	-	\$160,906	1,109,978	\$160,906	\$242,797
10	-	-	-	\$165,224	1,106,567	\$165,224	\$408,021
11	-	-	-	\$169,656	1,103,155	\$169,656	\$577,677
12	-	-	-	\$174,205	1,099,743	\$174,205	\$751,882
13	-	-	-	\$178,875	1,096,331	\$178,875	\$930,757
14	-	-	-	\$183,668	1,092,919	\$183,668	\$1,114,425
15	-	-\$42,720	-	\$188,587	1,089,508	\$145,867	\$1,260,292

Mount Saint
John

CASH FLOW

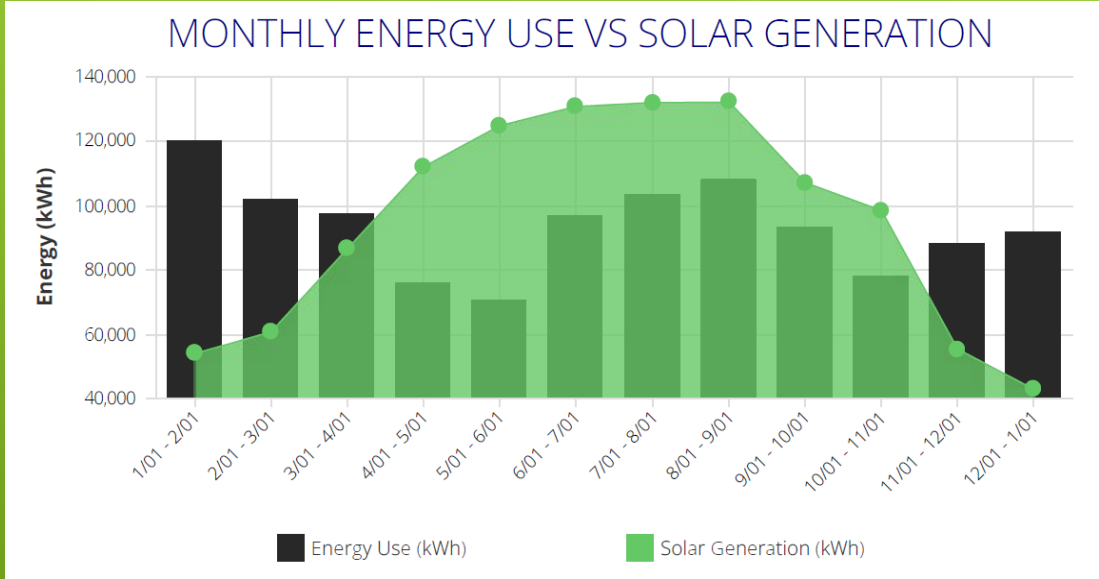
Cash Purchase -
W/ Inverters
Option

WHY THE MARIANISTS WENT SOLAR-ROI

- 7.6 year payback period
- 3.6 year payback period incl. depreciation potential

- ▶ Simple payback-no interest included
- ▶ Assumed 3% annual electric rate escalation
- ▶ Assumed \$0.114/kWh initial electric rate
- ▶ Source: Melink report to MSJ





Source: Melink report to MSJ

Usage Detail

Meter	Meter	Billing Period	Billing	Meter Reading		Usage	Rate	Rate Description	
Service	Use	From	To	Days	Previous	Current	Multiplier		
1857939	Actual	08/02/23	09/05/23	34		57,867	787	Primary	
	Received	08/02/23	09/05/23	34		80,924			
	Net	08/02/23	09/05/23	34		-23,057			
	Current Kw Demand Set On Aug 14 At 10:30am						188.8		
	Current Kvar Demand						116.6		
	Power Factor 85.08%								
	Billed Kw Demand At 75%, Set In Feb 2023						224.6		
	Billed Kvar Demand Set In Feb 2023						103.1		

Emergency Service
877-4OUTAGE
877-468-8243

Online Anytime
aesohio.com

AES Ohio Customer Service
800-253-5801

Please detach and return only this portion with your check made payable to AES Ohio

aesohio.com

NO PAYMENT DUE

Account Number 2601825199

PROMPT AMOUNT pay by 10/03/2023 \$0.00

LATE AMOUNT pay after 10/03/2023 \$0.00

Amount Enclosed \$ _____

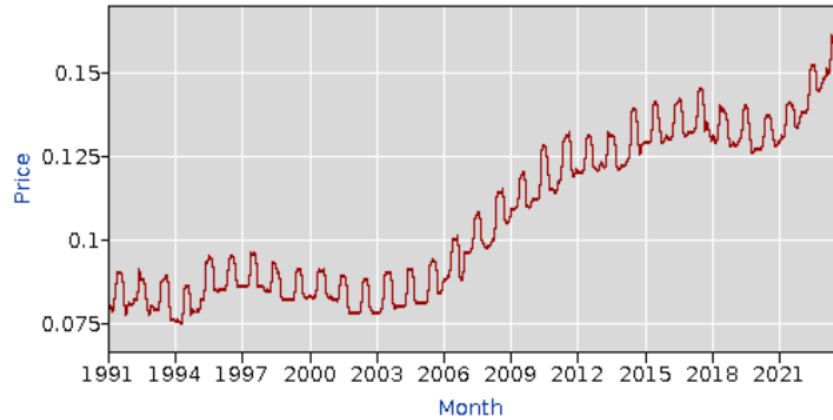
MOUNT SAINT JOHN
4435 E PATTERSON RD
DAYTON OH 45430

AES OHIO
PO BOX 2631
DAYTON, OH 45401-2631

WHY THE MARIANISTS WENT SOLAR- OPERATING COST REDUCTION

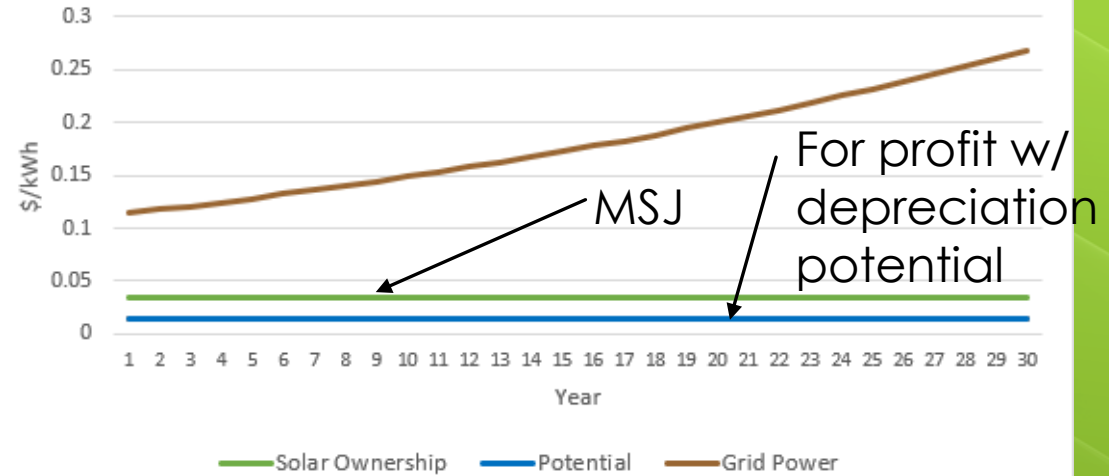


Series Title: Electricity per KWH in Midwest urban, average price, not seasonally adjusted
Area: Midwest
Item: Electricity per KWH



<https://data.bls.gov/pdq/SurveyOutputServlet>

30-Year Costs of Electricity

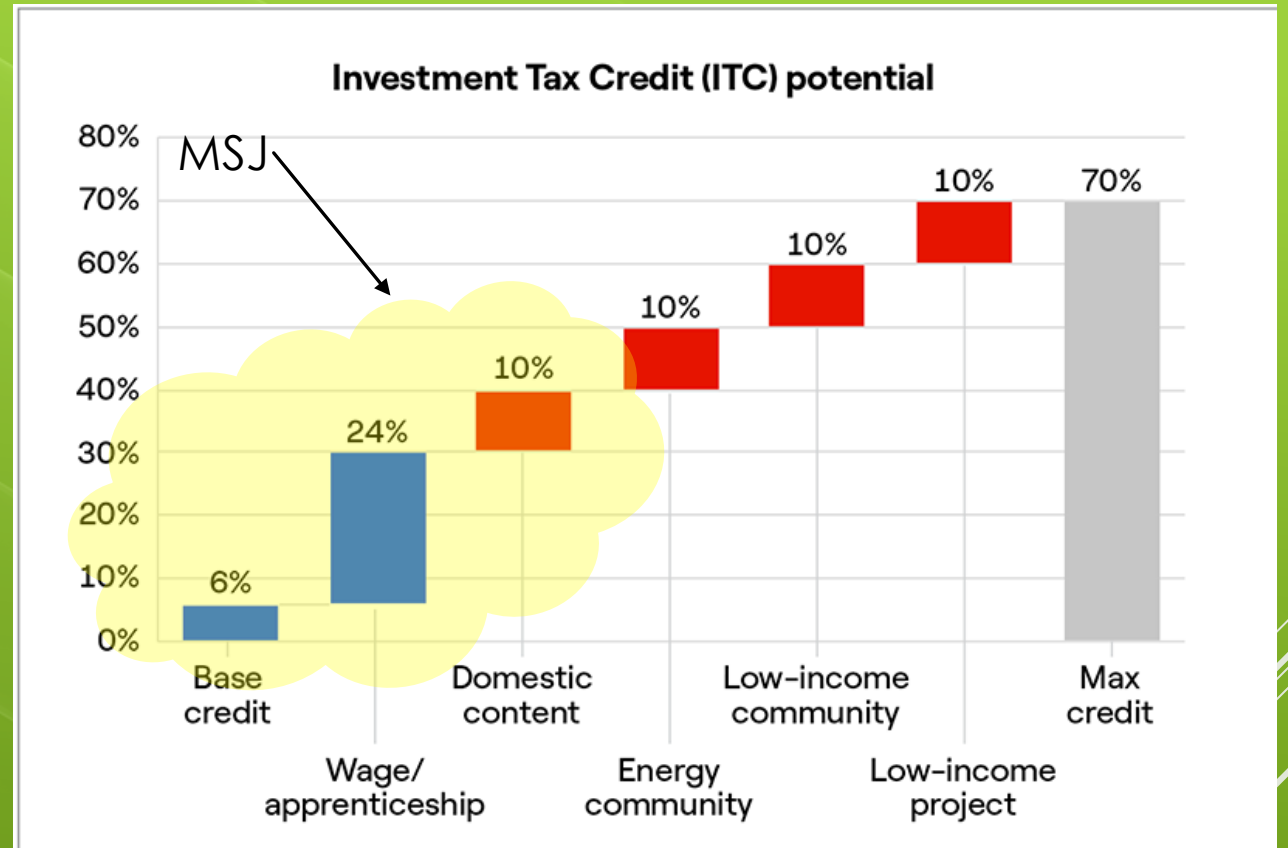


Source: Melink graph

- ▶ Historical average annual electrical increase in the Midwest is 2.8% over the past 30 years, with the increase rate being an average of 4.1% per year since 2006.
- ▶ Levelized Cost of Energy (LCOE) over 30 years for MSJ is \$0.034/kWh
- ▶ LCOE over 30 years for a for profit with depreciation potential is \$0.015/kWh

WHY THE MARIANISTS WENT SOLAR- GUARDING AGAINST VOLATILE ENERGY PRICES

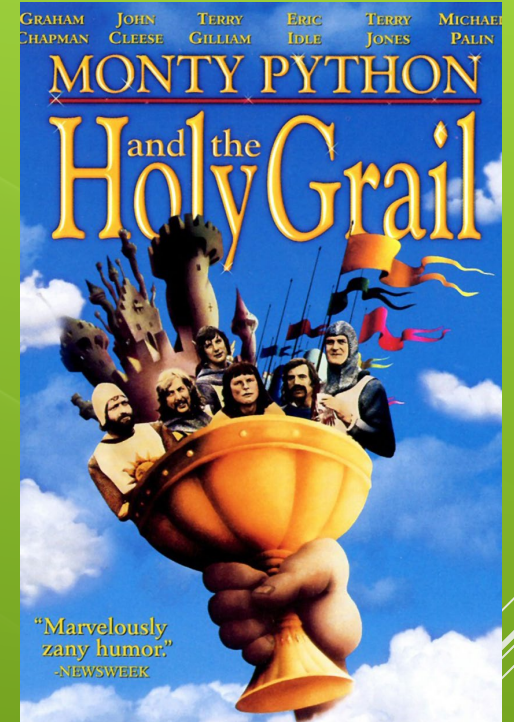
- ▶ The IRA Act of 2022
 - ▶ Allows non-profits to take direct payment
 - ▶ Through 2033 without decreasing percentages
- ▶ The Marianists are receiving a 40% direct payment credit from the government, lowering their \$1.77M project to \$1.06M.



<https://www.enelnorthamerica.com/insights/blogs/maximizing-inflation-reduction-act-of-2022-bonus-tax-credits>

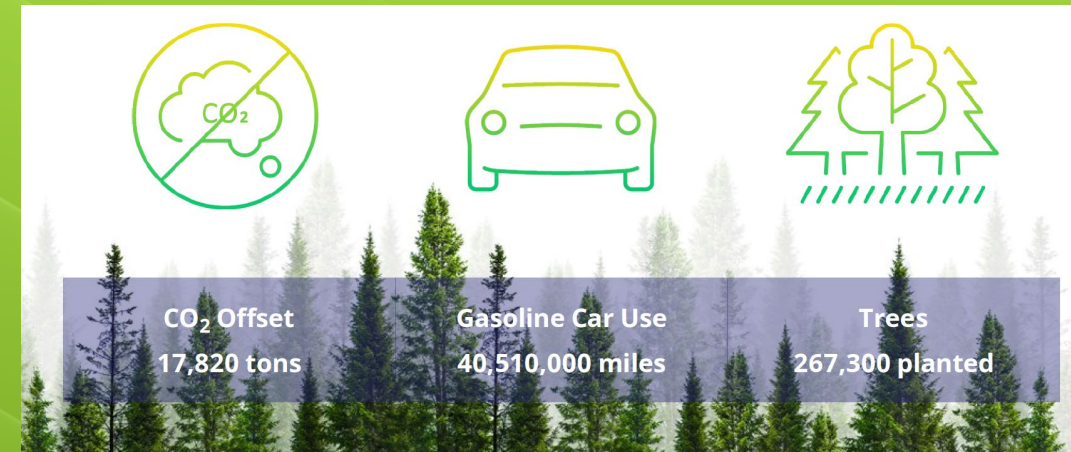
WHY THE MARIANISTS WENT SOLAR-HISTORIC FINANCIAL HELP

- ▶ 2011 my installed system cost after 30% tax credit
 - ▶ \$4.55/Watt
- ▶ 2022 MSJ installed system cost after 40% tax credit
 - ▶ \$1.24/Watt
- ▶ That's 73% lower in 11 years!!!!
- ▶ This means the manufacturing cost of solar is below the holy grail of \$1/Watt
 - ▶ The target manufacturing cost for solar to compete with coal-burning electricity on the grid or (grid-parity)



WHY THE MARIANISTS WENT SOLAR- COSTS ARE WAY DOWN

MSJ 30-Year Effect of Solar



Source: Melink report to MSJ

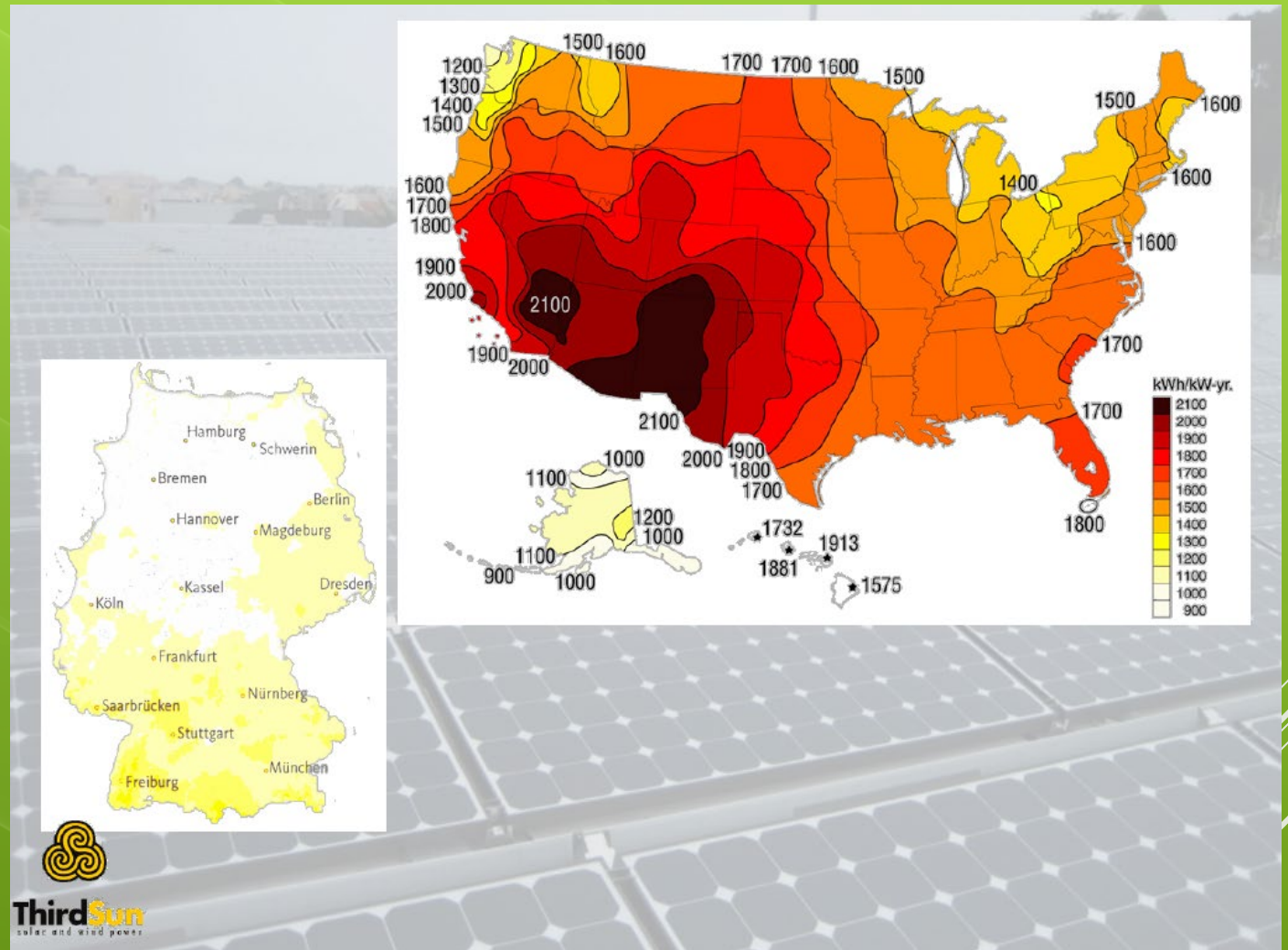
- ▶ Reducing CO₂ helps reduce the amount of heat trapping gas in the air.
- ▶ Over emission of gases like CO₂ are the cause of climate change.
- ▶ Fossil fuel usage emits large amounts of CO₂.
- ▶ In the Catholic religion-Laudato Si Action Platform and the Marianist Family Encounters Project-- challenge us to provide real and lasting solutions to the ecological crisis.
- ▶ Solar is part of the response to the challenge of climate change.
 - ▶ Investing in solar reduces emissions of those climate changing gases.

WHY THE MARIANISTS WENT SOLAR-ENVIRONMENTAL

- ▶ Mount Saint John hosts hundreds of high school students and visitors to campus each year.
 - ▶ Bergamo Retreat Center
 - ▶ MEEC
 - ▶ Hiking trails
 - ▶ Grotto
- ▶ Example to other organizations of what is possible

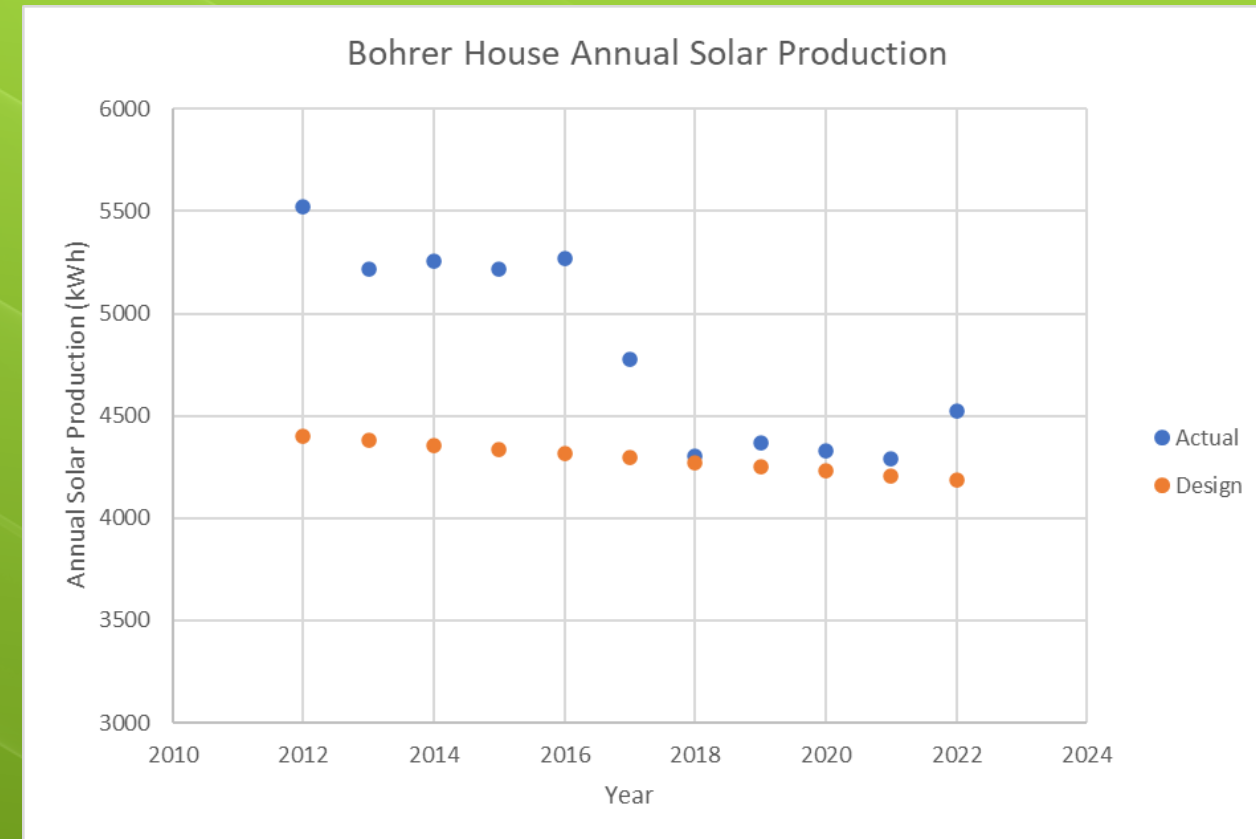


WHY THE MARIANISTS WENT SOLAR- EDUCATION AND LEADERSHIP



SOLAR—HERE? IN OHIO?

- ▶ Assumed solar production rates are based on historical data.
- ▶ A good contractor will error on the side of predicting less solar rather than more.
- ▶ My experience
 - ▶ Home
 - ▶ Solar production
 - ▶ System payback
 - ▶ SREC's and energy cost
 - ▶ MSJ Production
 - ▶ June 78%, July 101%, August 101%



ARE THOSE PROMISES FOR REAL?

- ▶ **Diversify your Investments!**
 - ▶ \$6M vs. \$14.2M
- ▶ **ROI**
 - ▶ 7.6 years; 3.6 years
- ▶ **Lower your electricity bill and make it predictable.**
 - ▶ Do not Pay; LCOE = \$0.034/kWh and \$0.015/kWh
- ▶ **Prices are way down.**
 - ▶ \$1/Watt Holy Grail
- ▶ **The time is now—IRA**
 - ▶ 30%-70% tax credit
- ▶ **Care for the Earth**
 - ▶ Reduce CO₂ gas emissions
- ▶ **Leadership and Education**
- ▶ **Bottom line—It's a good deal!!!**



SO, WHY SHOULD YOU GO SOLAR?

- ▶ Jeff Bohrer, M.S., P.E.
- ▶ Director of Mount Saint John Facilities
- ▶ 4435 E. Patterson Rd., Dayton, OH 45430
- ▶ jbohrer@sm-usa.org
- ▶ 937-429-0795
- ▶ www.mountsaintjohn.org

THANK YOU!!





Seth W. Parker, CEO, Melink Solar
5130 River Valley Rd., Milford, OH 45150
513-965-7348 **sparker@melinkcorp.com**

Seth Parker holds a B.A. in Economics from Wittenberg University and a M.S. in Renewable and Clean Energy from the University of Dayton. In his professional career, Seth spent years performing energy audits and working with the states largest energy users to implement energy efficiency programs. Seth has spent the last 8-years working at Melink Solar, helping customers become energy independent and achieve net-zero energy by implementing cost effective solar PV systems.

Melink Solar is a national design/build Solar PV company serving commercial building owners and utilities. Melink strives to help clients reduce their energy consumption and produce clean, renewable energy, in order to achieve net-zero energy status, lower operating cost, and discover the HR/PR benefits of going green.



Jeff Bohrer
Director of Facilities
Mount Saint John
Beavercreek, OH
jbohrer@sm-usa.org

Jeff Bohrer is a civil engineer by training with a masters degree in dam engineering. He became passionate about energy efficiency, and renewable energy after he moved on from civil engineering into teaching. He used his home as a laboratory, adding a ground source heat pump and PV solar, and installed solar thermal himself and have been enjoying an almost net zero home for over 10 years. He developed a Renewable Energy Engineering course for high school students that was added to the curriculum during his tenure as a high school physics teacher.

Jeff's facilities background took off in earnest when he became the Director of Property Management and Real Estate for the Archdiocese of Cincinnati. He promoted and helped parishes implement energy efficiency strategies and renewable energy projects to the point where the Archdiocese was seen as a leader in promoting care for the earth practices.

Jeff is now the Director of Mount Saint John Facilities at the 160 acre, 8 building campus to maintain and plan and implement for the future. He oversaw a \$4M major renovation to the retreat center where he served as the project designer and general contractor and a \$1.7M solar array installation that makes the campus net zero on an annual basis.