$olar $torm$





Solar Panels and Local Government

IMLA Annual Conference 2021

Presented by
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Allen Garner Law, LLC

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Objectives: Explore the Sun and Solar Storms



HOMEOWNERS: INCENTIVES, NET METERING, INSTALLATION RESTRICTIONS



BUSINESSES: INCENTIVES, NET METERING, IMPACT



UTILITIES – BENEFITS, REBATES, COSTS



POLICIES - REGULATIONS, TAXES, IMPACTS

Homeowners and Solar:

Sunshine:

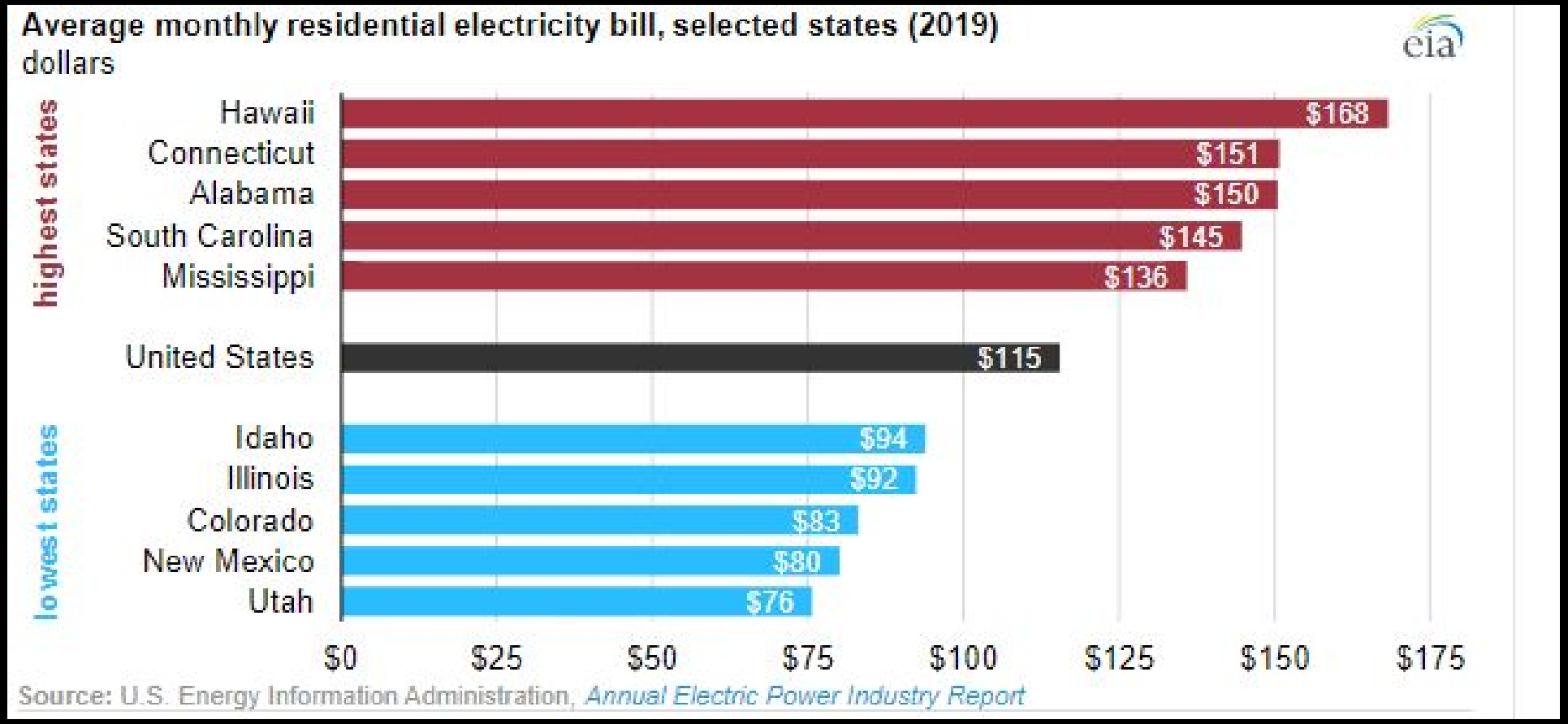
- Rebates
- Tax Incentives
- Net metering

Storms:

- Code compliance
- Permits
- HOA Restrictions

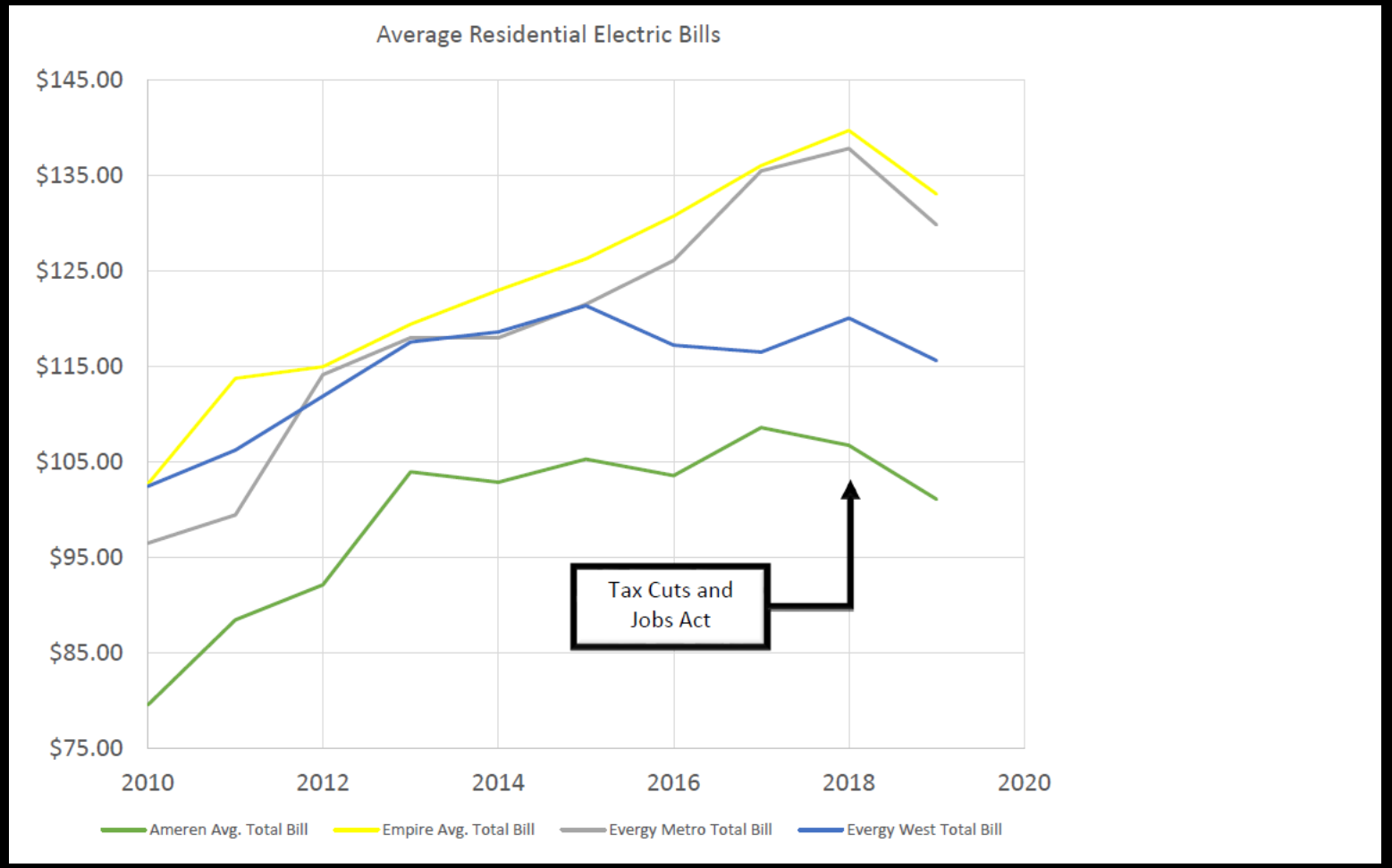


Average Cost of Residential Electric Bills



Today in Energy, December 15, 2020, eia.gov

Average Cost of MO Residential Electric Bill



Annual Report of the Missouri Office of the Public Counsel, assuming monthly usage of 1,000kWh

Homeowners: Benefits of Solar

Federal Solar Tax Credit: homeowners can deduct 26% of cost of solar installations from federal taxes

State example:

MO SB 564 (2018): provides solar rebates. At least 25 cents per kWH, up to 50 cents per kWh

Net metering regulations in **41** states and DC

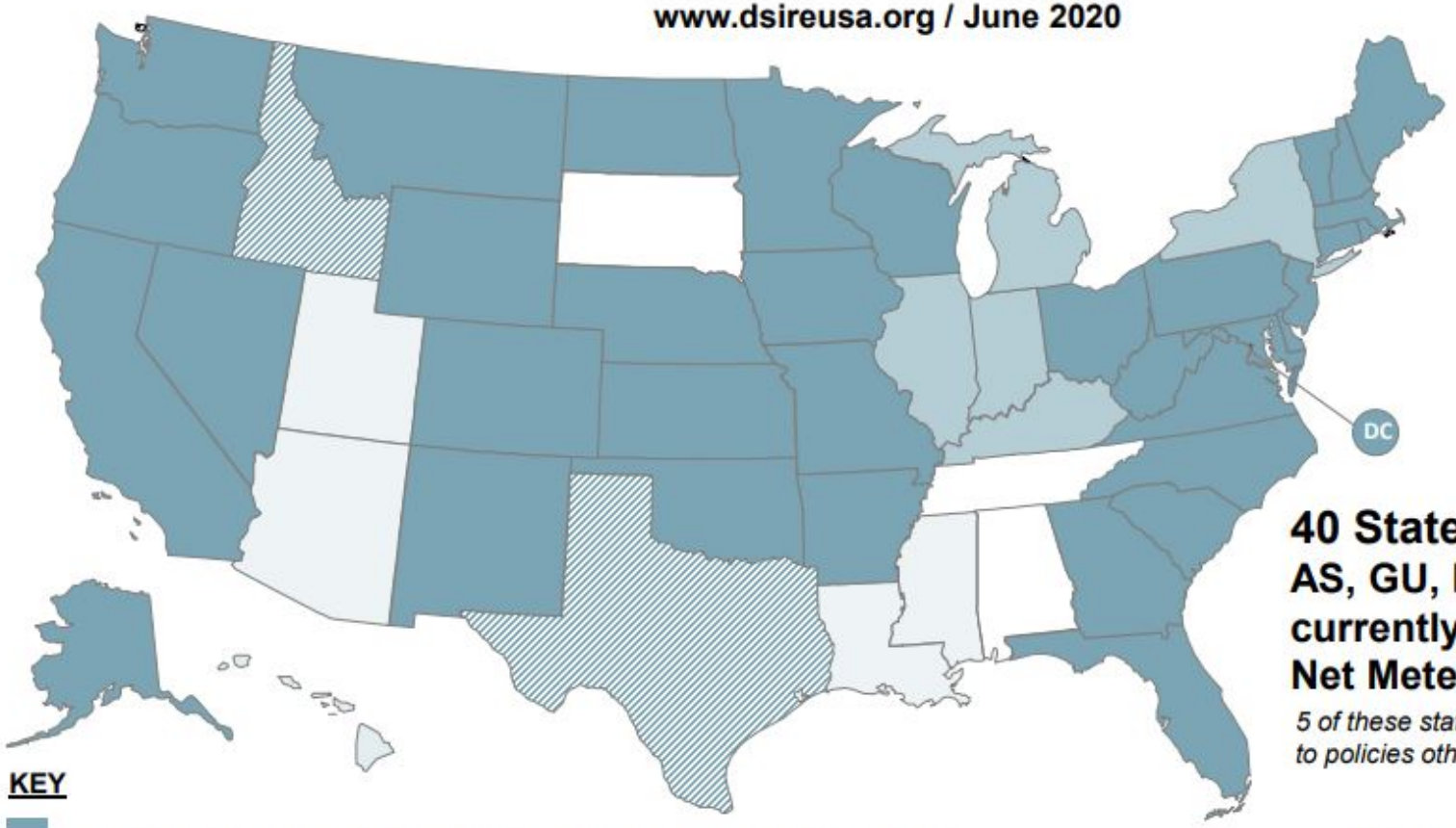
As the cost of electricity increases and the cost of installing solar panels decreases….

DSIRE® | NC CLEAN ENERGY TECHNOLOGY CENTER

DSIRE insight

Net Metering

www.dsireusa.org / June 2020



40 States + DC, AS, GU, PR, & USVI currently have mandatory Net Metering rules

5 of these states are in transition to policies other than net metering

KEY

- State-developed mandatory rules for certain utilities (35 states + DC+ 4 territories)
- In transition to statewide distributed generation compensation rules other than net metering (5 states)
- Statewide distributed generation compensation rules other than net metering (5 states)
- No statewide mandatory rules, but some utilities allow net metering (2 states)

U.S. Territories:

AS PR
VI GU

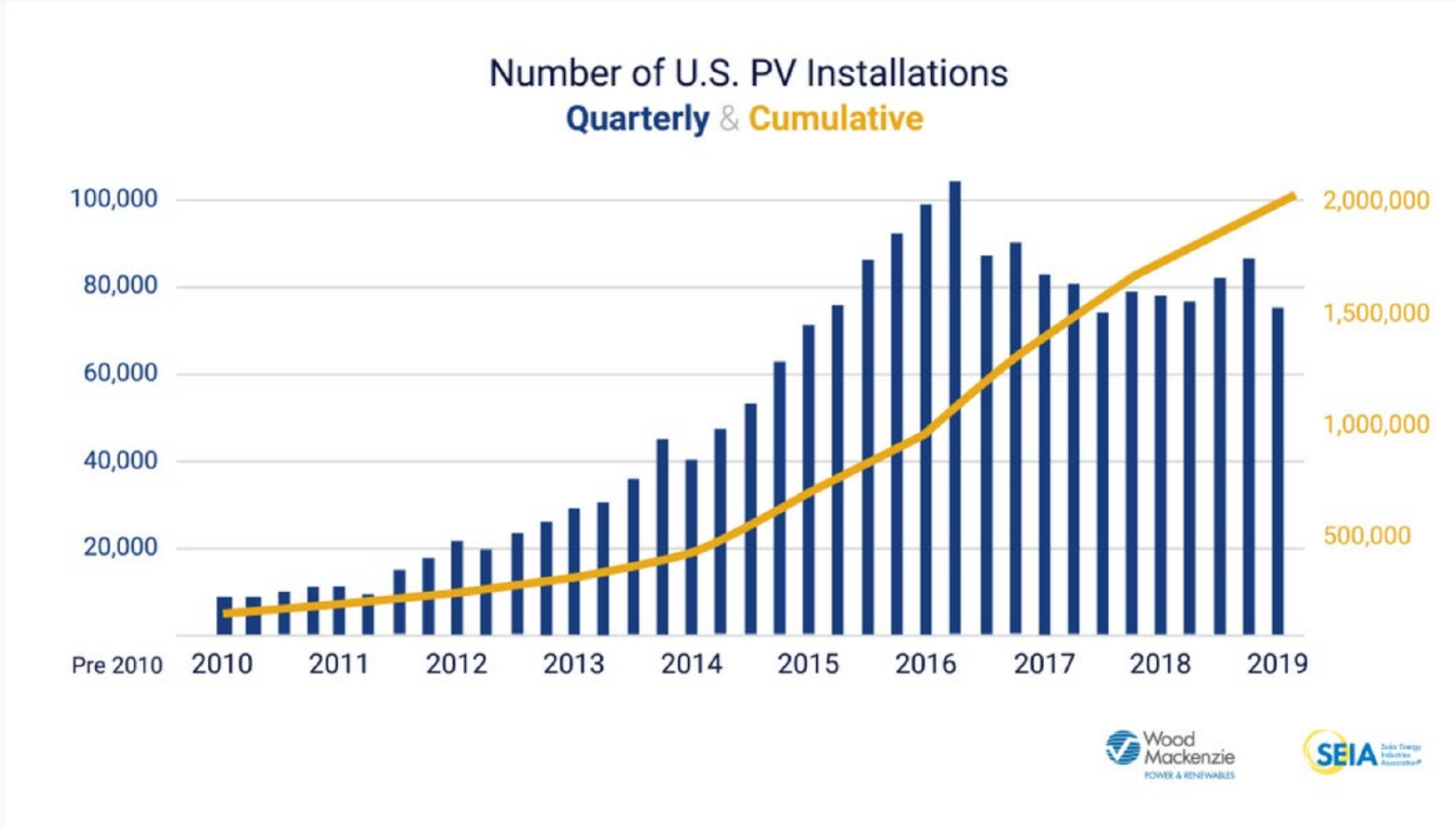
Cost to homeowners

2019 Cost for 5 kW System	
Out of pocket cost	$13,515 - $18,285
Net 20-year savings	$29,016 - $39,257
Payback period	10 – 13.5 years
Electricity bill offset	72 – 98%
Source: https://www.energysage.com/solar-panels/mo/ *Costs do not include tax rebates or other incentives*	

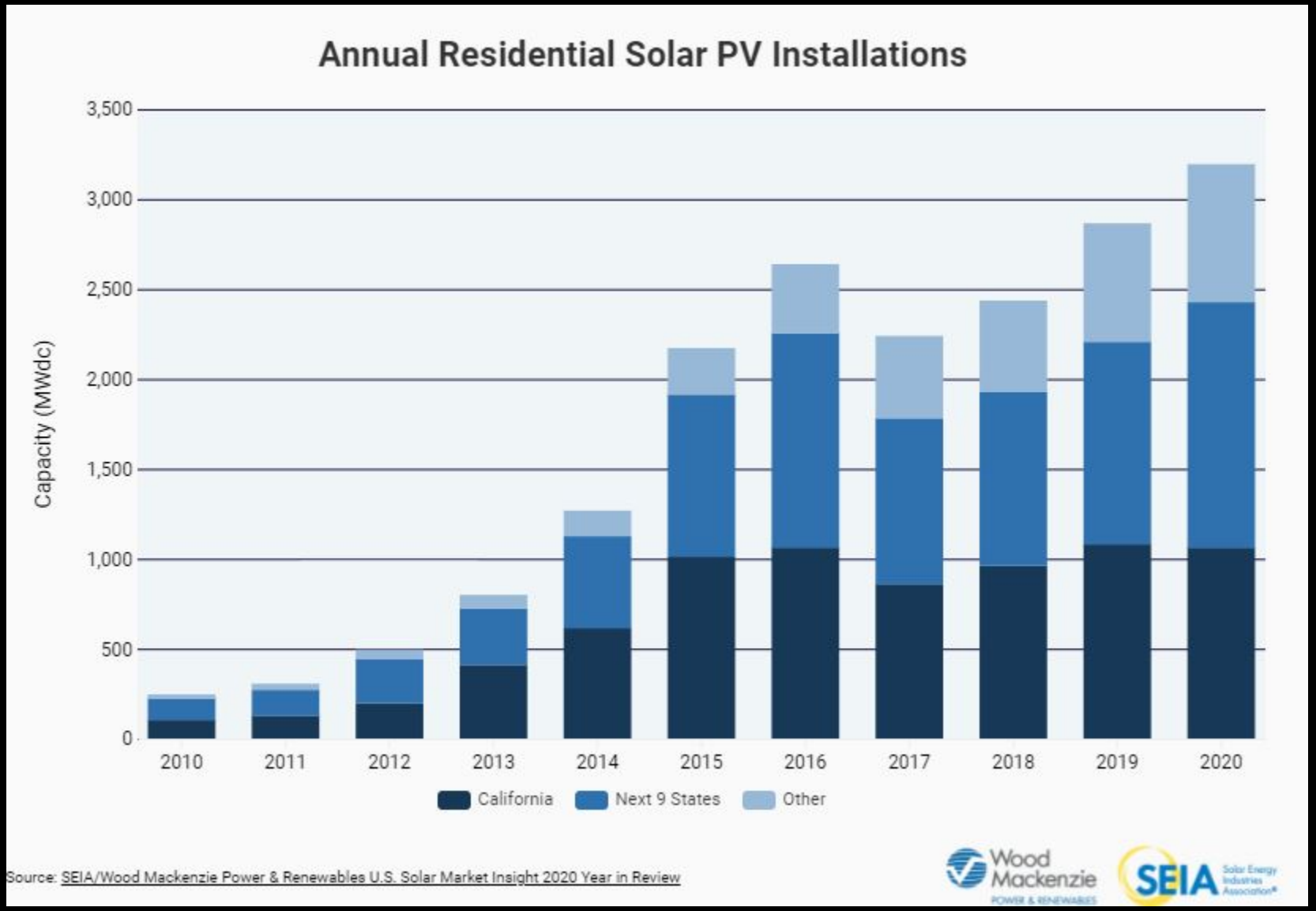
Further breakdown of Solar panel costs:

2019 Cost for 5 kW System		26% federal tax credit
Out of pocket cost	$13,515 - $18,285	$10,001 – $13,531
Net savings	$1,451 - $1,963 avg/year	$29,016 - $39,257 20 years
Payback period	10 – 13.5 years (no tax credit)	**6.8 – 9.3** years with 26% tax credit
Electricity bill offset	72 – 98%	72 – 98%
Source: https://www.energysage.com/solar-panels/mo/		

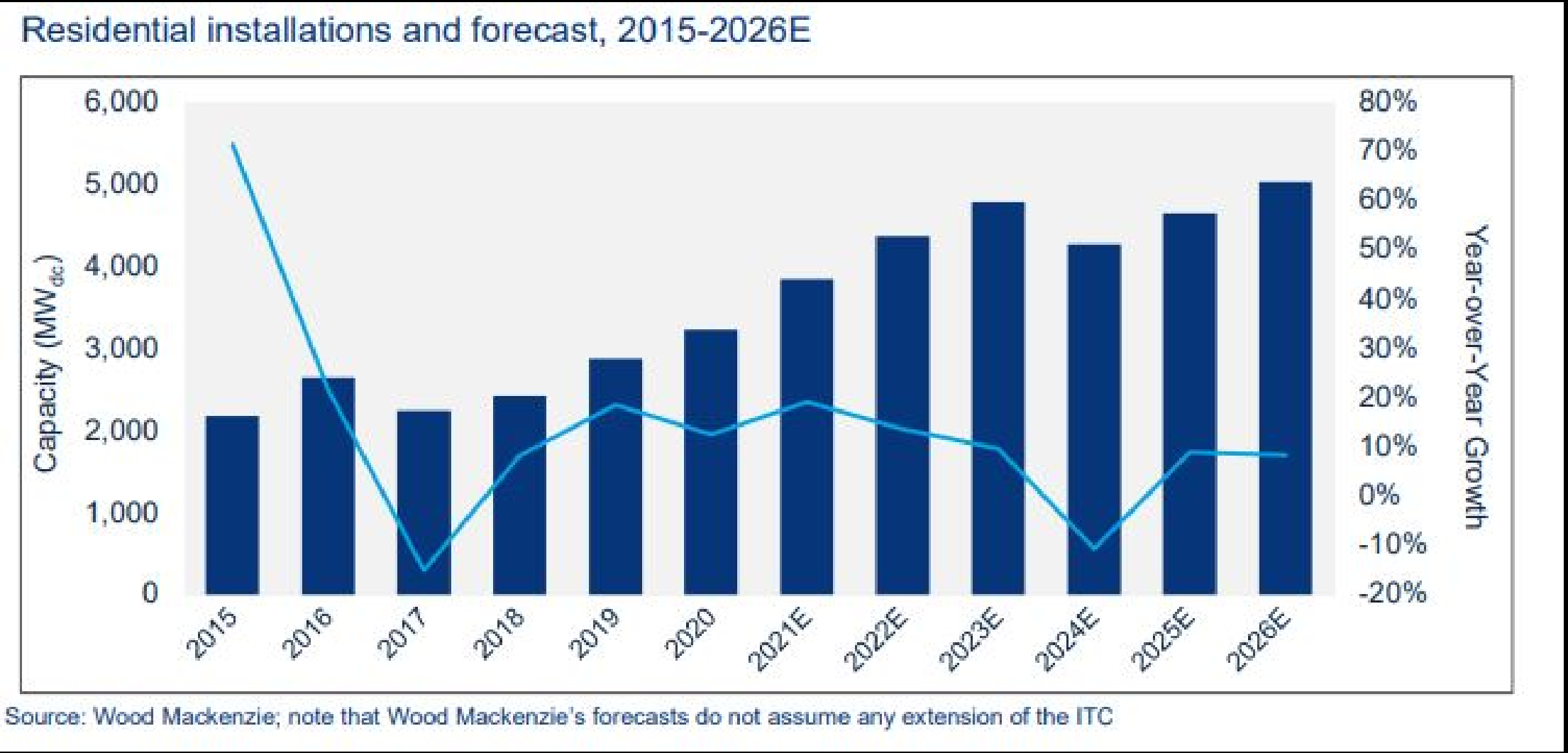
Growth of Solar Panels in U.S.



Residential Solar through 2020

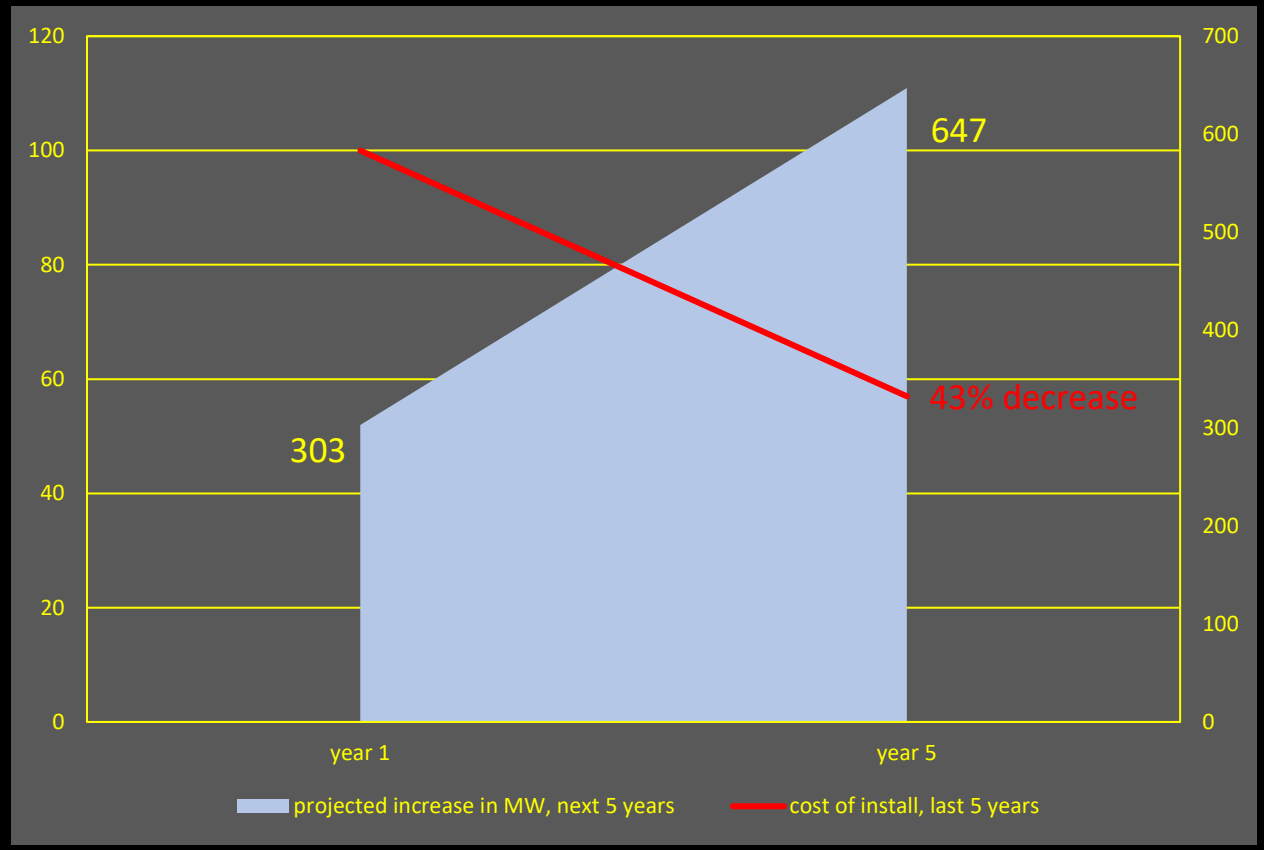


Growth Projections



Source: Wood Mackenzie; note that Wood Mackenzie's forecasts do not assume any extension of the ITC

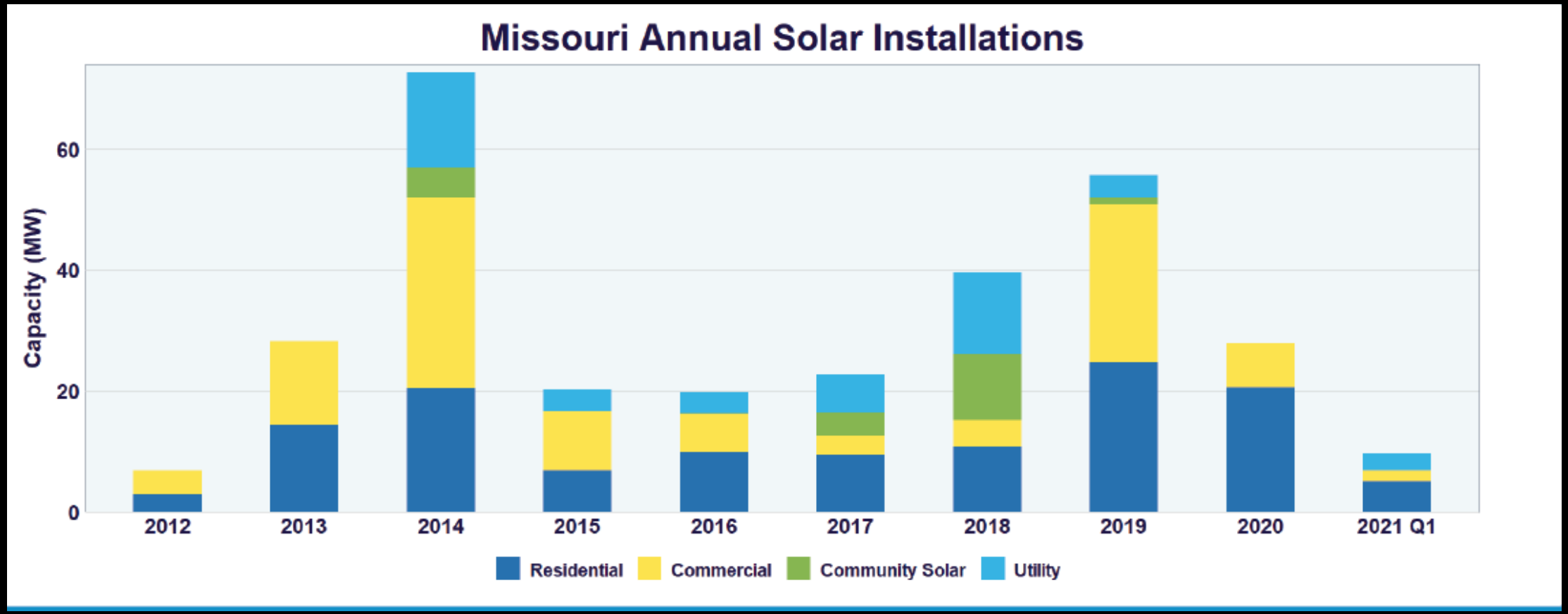
Popularity Increasing, Cost Decreasing



The amount of electricity generated from utility-scale and small-scale solar photovoltaic (PV) installations in the state is increasing and has ***more than tripled since 2014***. More than three-fourth of the state's solar power comes from customer-sited, small-scale generating systems, many of which are installed on rooftops at both businesses and homes.

All data from SEIA/Wood Mackenzie Power & Renewables, Solar Market Insight© unless otherwise noted: https://www.seia.org/smi

Solar Installations in Missouri



All data from SEIA/Wood Mackenzie Power & Renewables, Solar Market Insight© unless otherwise noted: https://www.seia.org/smi

Solar in Missouri, continued

National Ranking: 34th (36th in 2020)

Missouri Homes Powered by Solar: 33,187

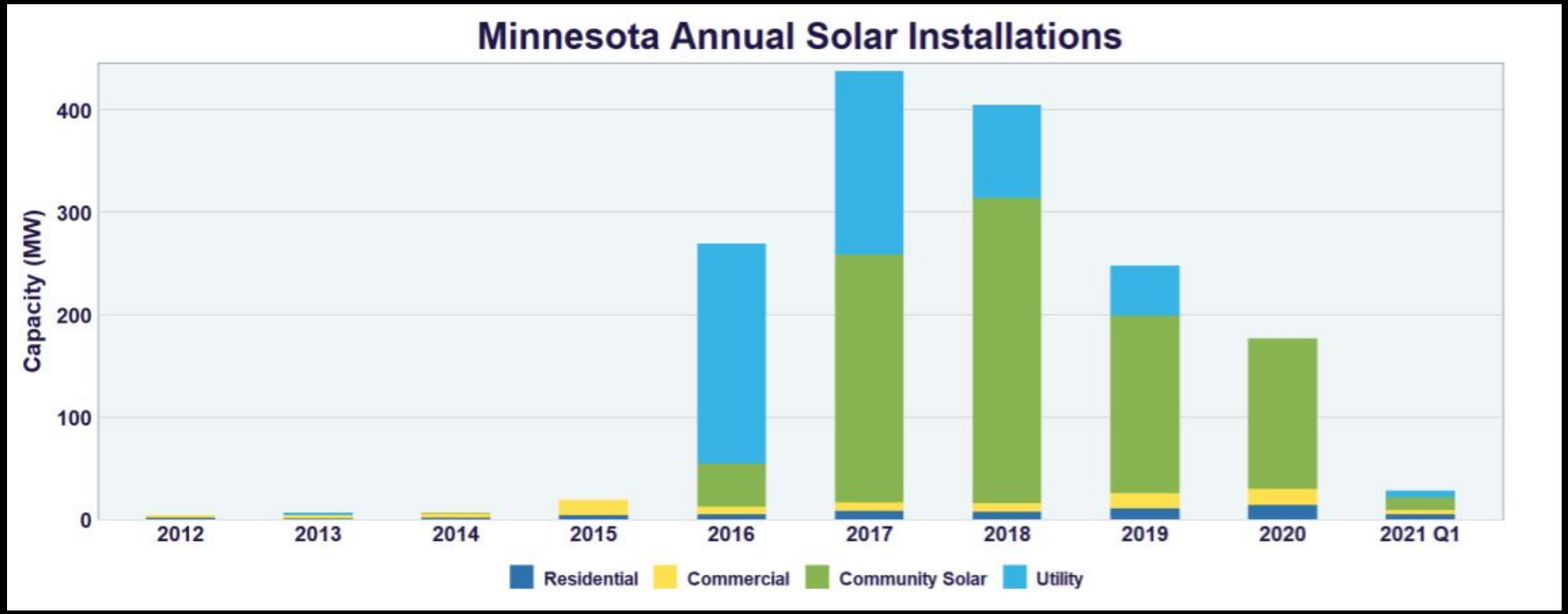
Solar Companies in MO: 119 (18 Manufacturers, 48 Installers/Developers, 53 others

Total Solar Investment in MO: $774 Million ($71.54 Mil in 2020)

Percentage of MO Electricity from Solar: 0.65%

All data from SEIA/Wood Mackenzie Power & Renewables, Solar Market Insight© unless otherwise noted: https://www.seia.org/smi

Solar Installations in Minnesota



All data from SEIA/Wood Mackenzie Power & Renewables, Solar Market Insight© unless otherwise noted: https://www.seia.org/smi

Solar in Minnesota, continued

National Ranking: 15th (21st in 2020)

MN Homes Powered by Solar: 215,771

Solar Companies in MN: 153 (34 Manufacturers, 51 Installers/Developers, 68 others

Total Solar Investment in MN: $2,398.61 Million ($264.1 Mil in 2020)

Percentage of MN Electricity from Solar: 3.43%

All data from SEIA/Wood Mackenzie Power & Renewables, Solar Market Insight© unless otherwise noted: https://www.seia.org/smi

Storms for Homeowners

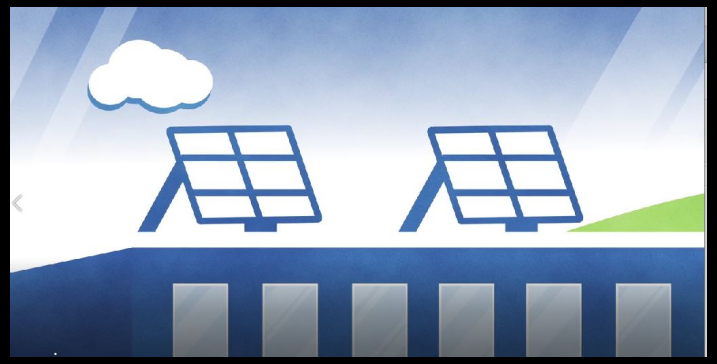
- Code compliance, other charges:
  - Building Permits
  - Utility charges for special meters and any other equipment required



- HOA Communities: In Missouri, court decisions have been mixed.
  - 488 SW3D 190 – WD Court of Appeals upheld the Circuit Court of Buchanan County's decision in favor of HOA (4/19/2016 WD decision)
  - 14SL-CC03614 – St. Louis Circuit Court found in favor of property owners -no violation of HOA rules (decision 7/11/2018)

Business and Solar

- Tax incentives also exist for businesses
- Impact is exponentially greater due to size of electric bills.
- Just imagine your largest local business….



But wait, there's more….

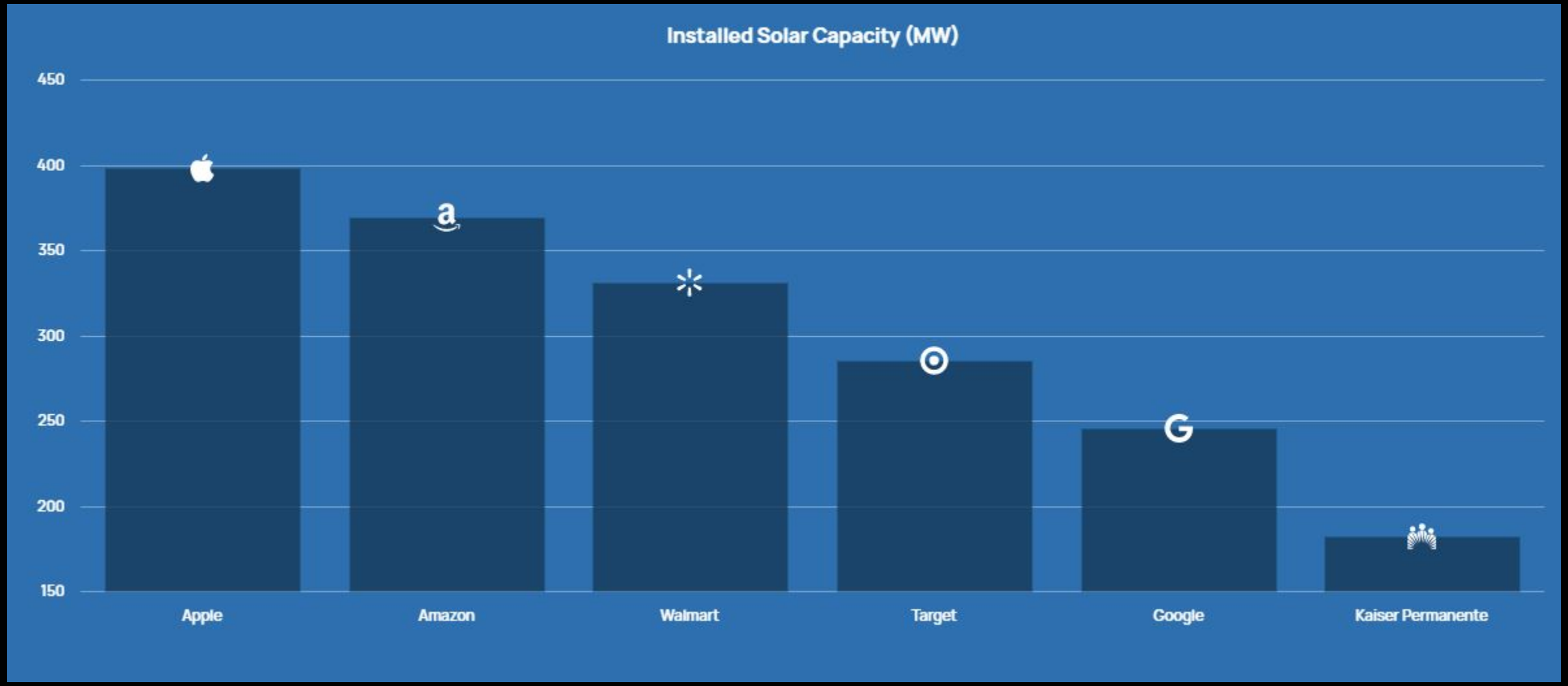


Google Earth

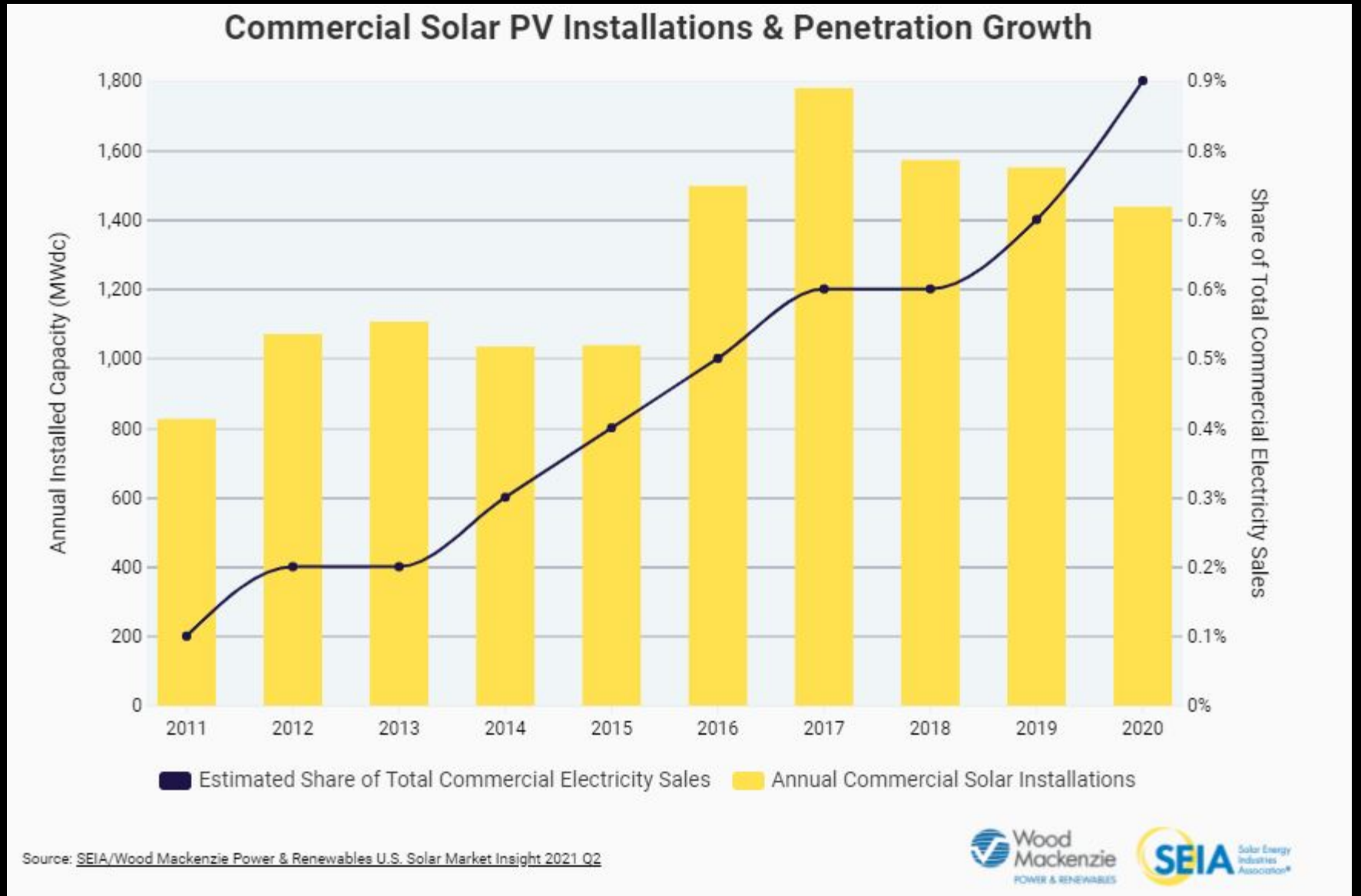
Familiar Symbol Near Phoenix Skyharbor Airport



Companies Leading Solar Installations 2019

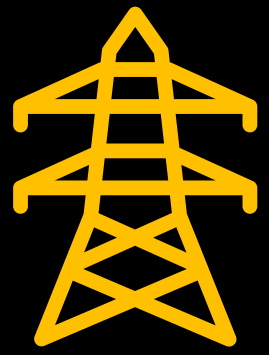


Commercial Solar Impact

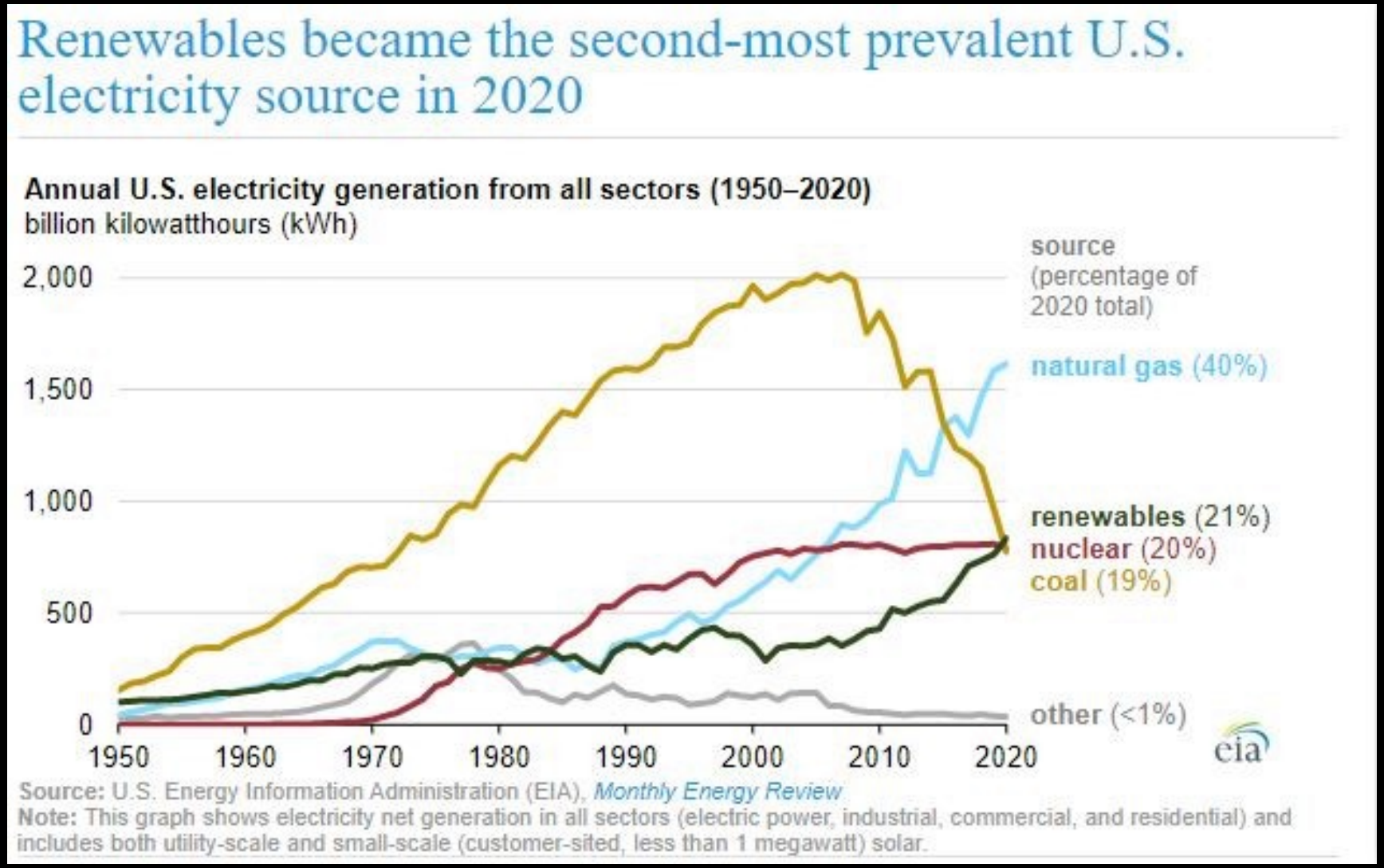


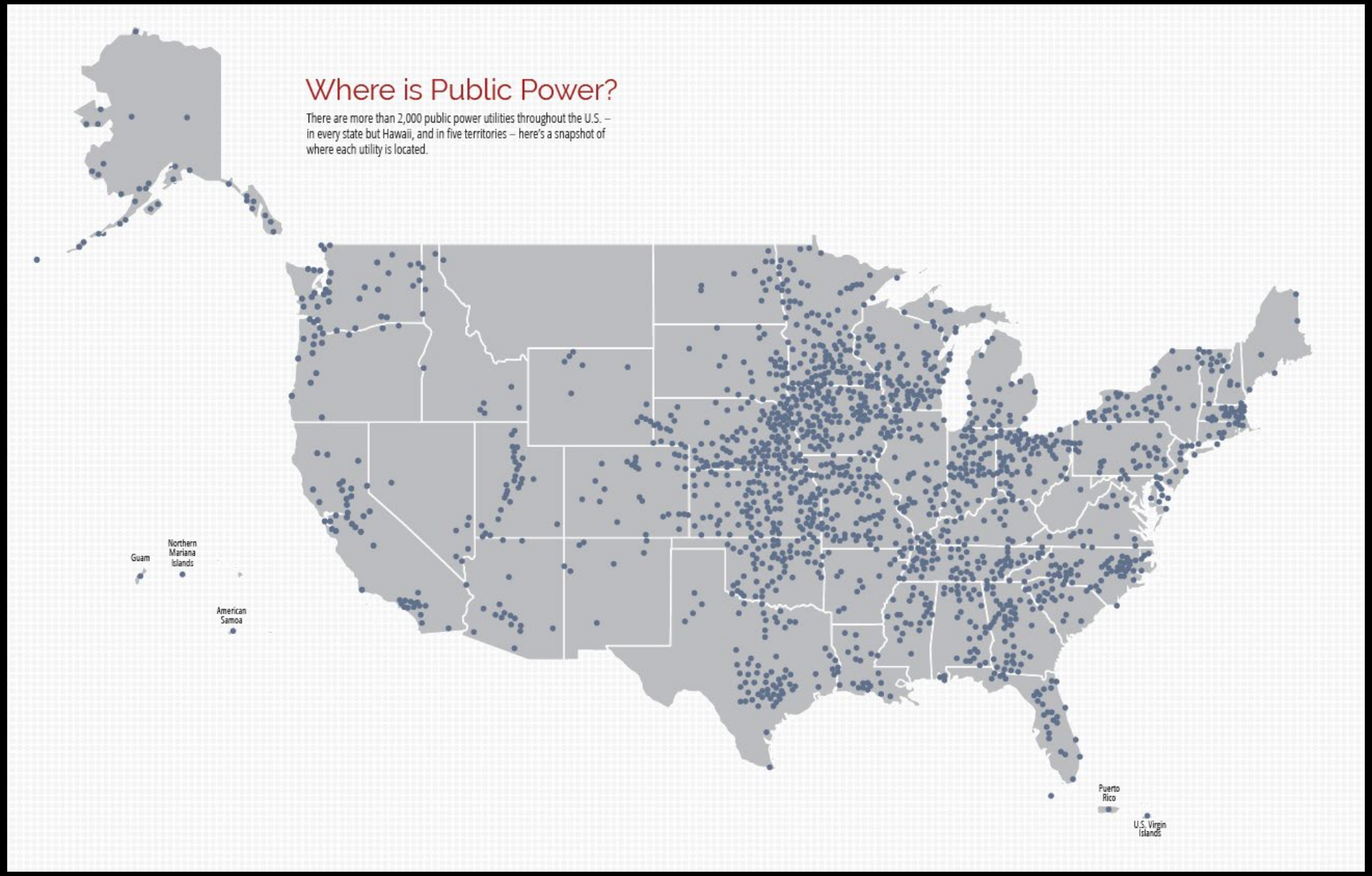
What about the Electric Utility?

- Private Power Companies:
  - Offer incentives required by federal and state regulations
  - Net metering is required
  - Profit Margins affected
  - Taxes to local governments impacted
- Public Power Generators:
  - Not “for-profit” (much smaller profit margins)
  - Net metering is required
  - (what) profit margins affected
  - PILOT fees impacted

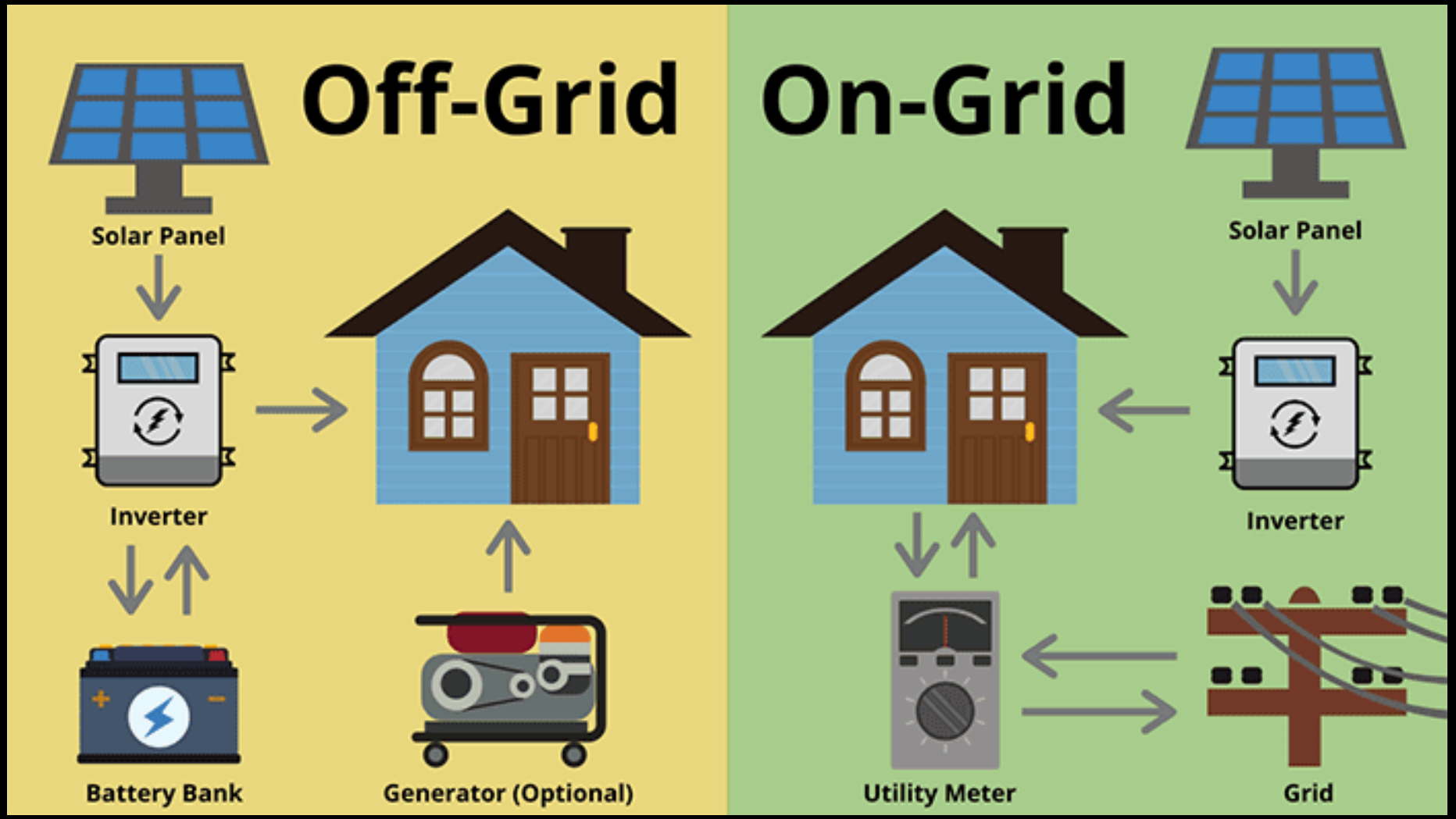


Electricity Sources



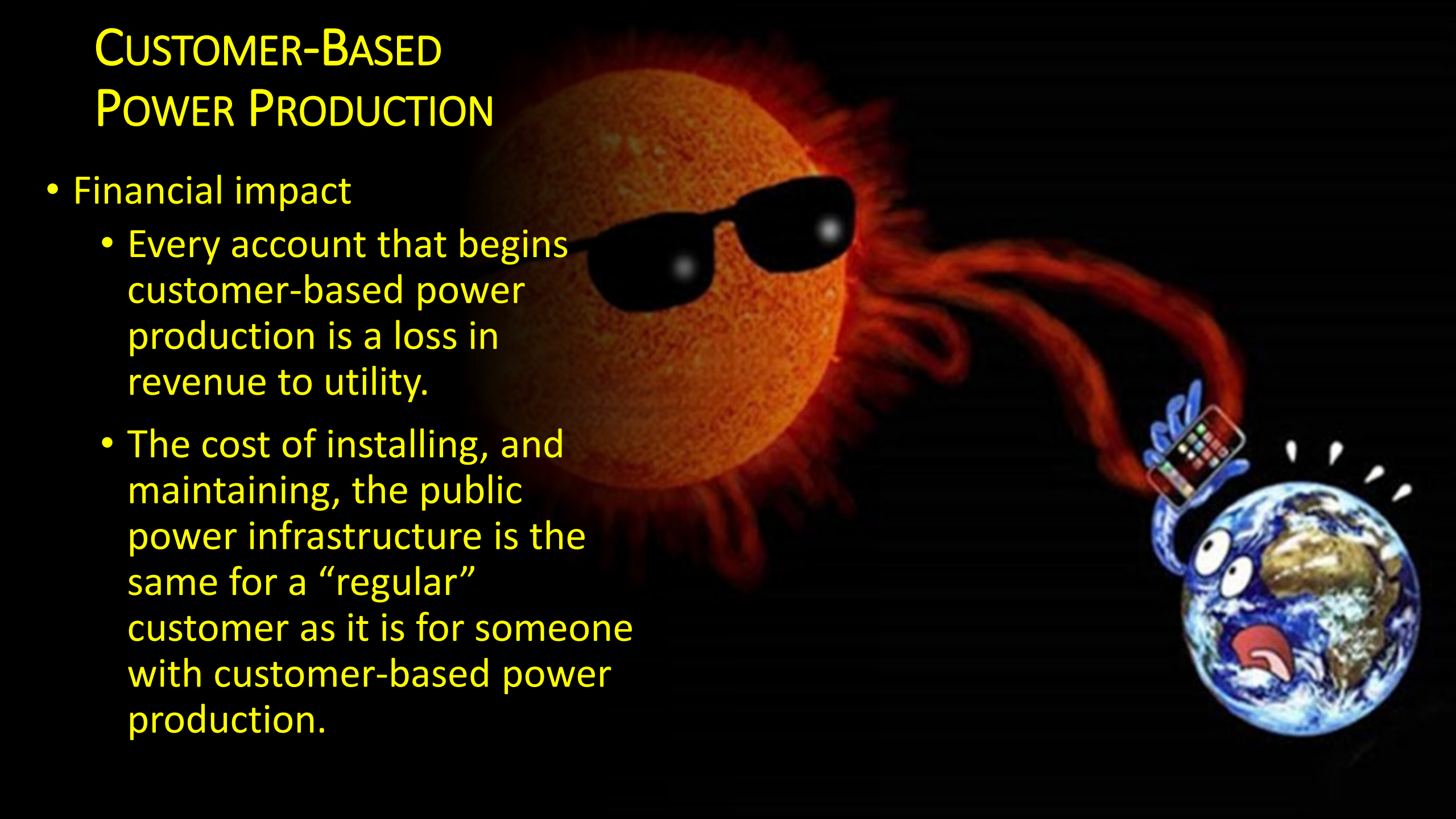


https://www.publicpower.org/system/files/documents/MAP-%20Where%20is%20Public%20Power.pdf.

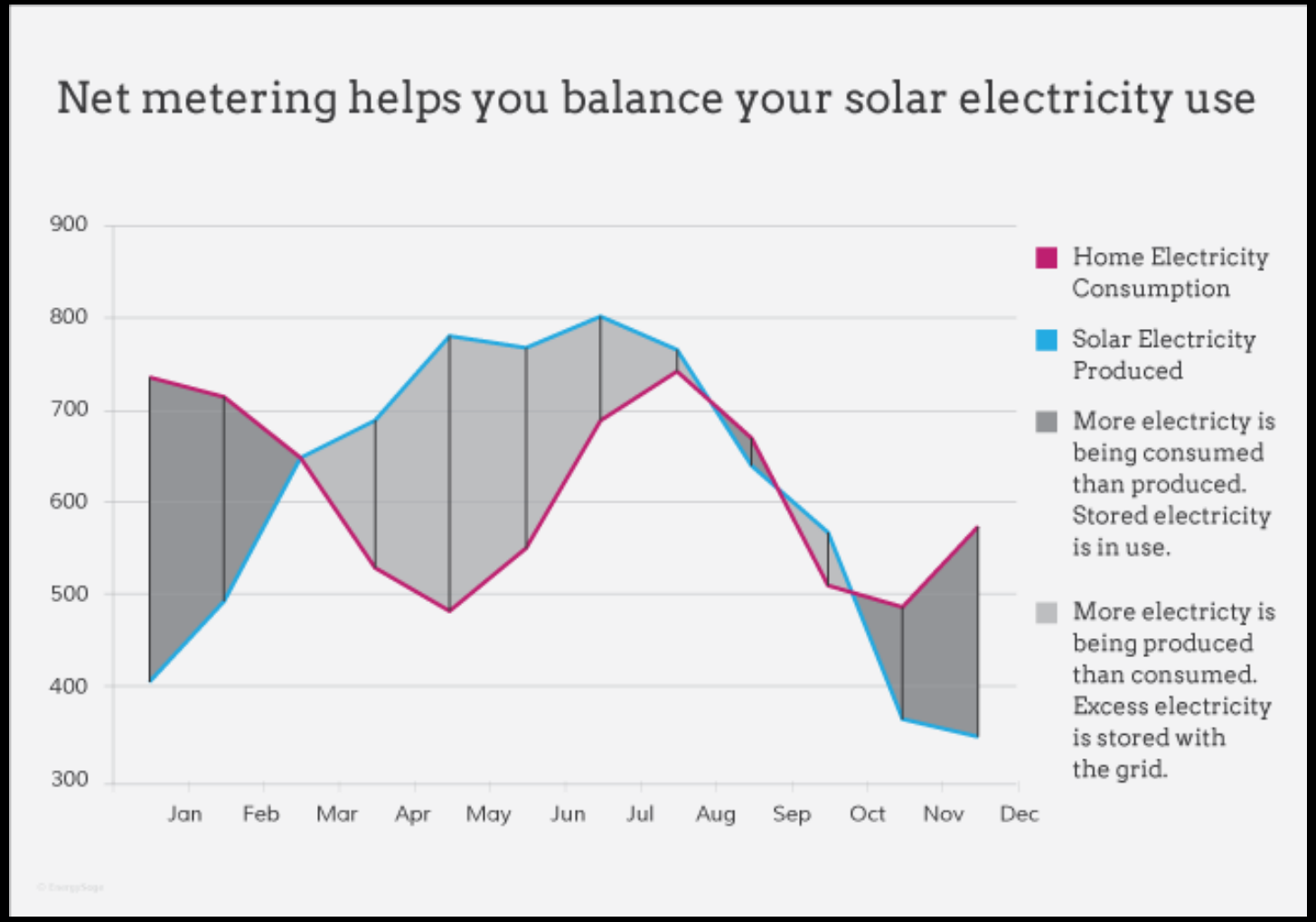

Off-Grid
Solar Panel
Inverter
Battery Bank
Generator (Optional)
On-Grid
Solar Panel
Inverter
Utility Meter
Grid

Customer-Based Power Production

- Financial impact
  - Every account that begins customer-based power production is a loss in revenue to utility.
  - The cost of installing, and maintaining, the public power infrastructure is the same for a “regular” customer as it is for someone with customer-based power production.

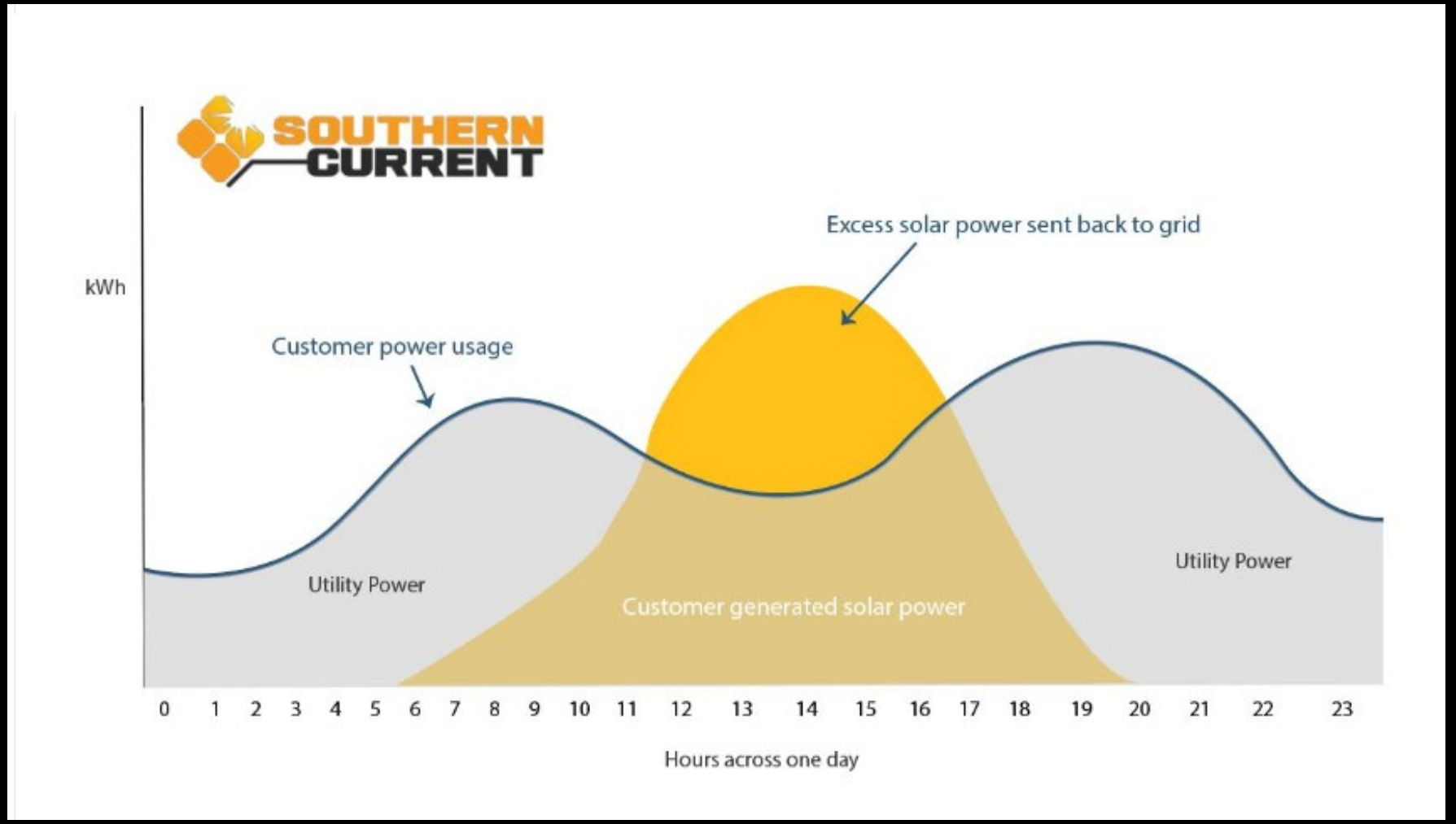


Net Metering



www.energysage.com/solar/101/net-metering-for-home-solar-panels/?rc=seia.

Net Metering



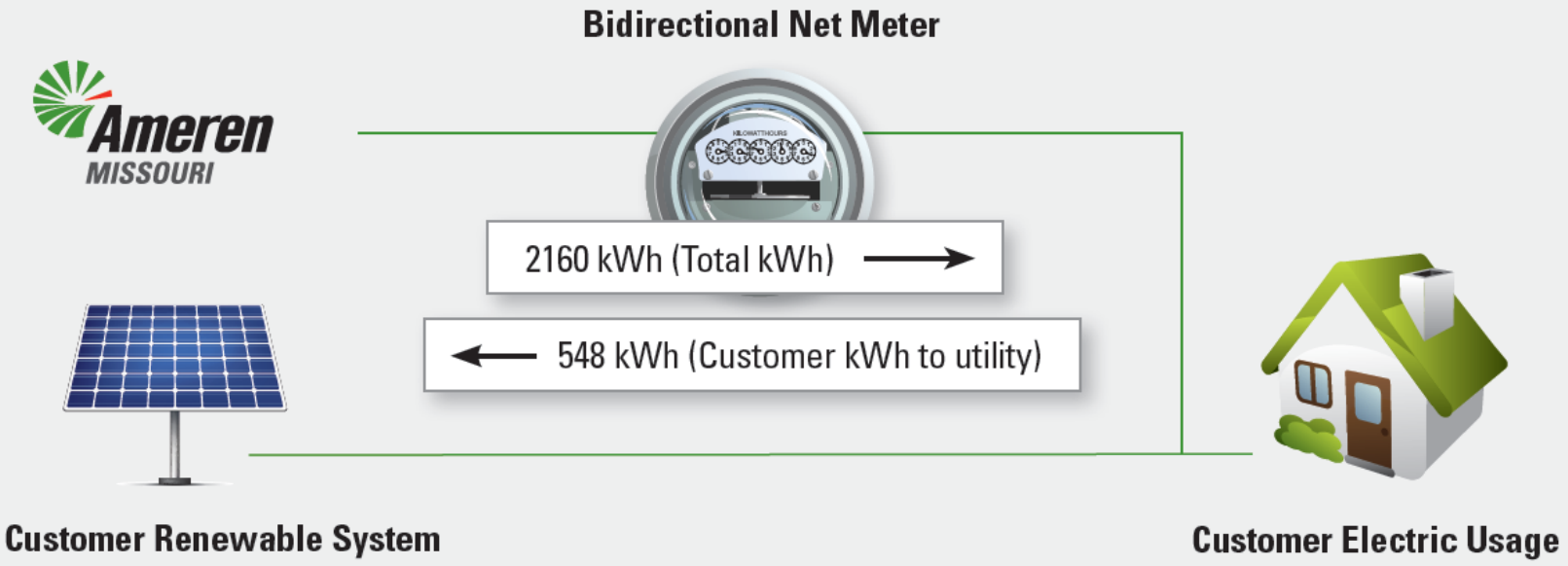
https://southerncurrentllc.com/tag/net-metering/

Net Metering Example

METERING DIAGRAM

Bidirectional Net Meter

— measures how much electricity a customer receives from Ameren Missouri and how much renewable energy a customer's system supplies to our power grid.



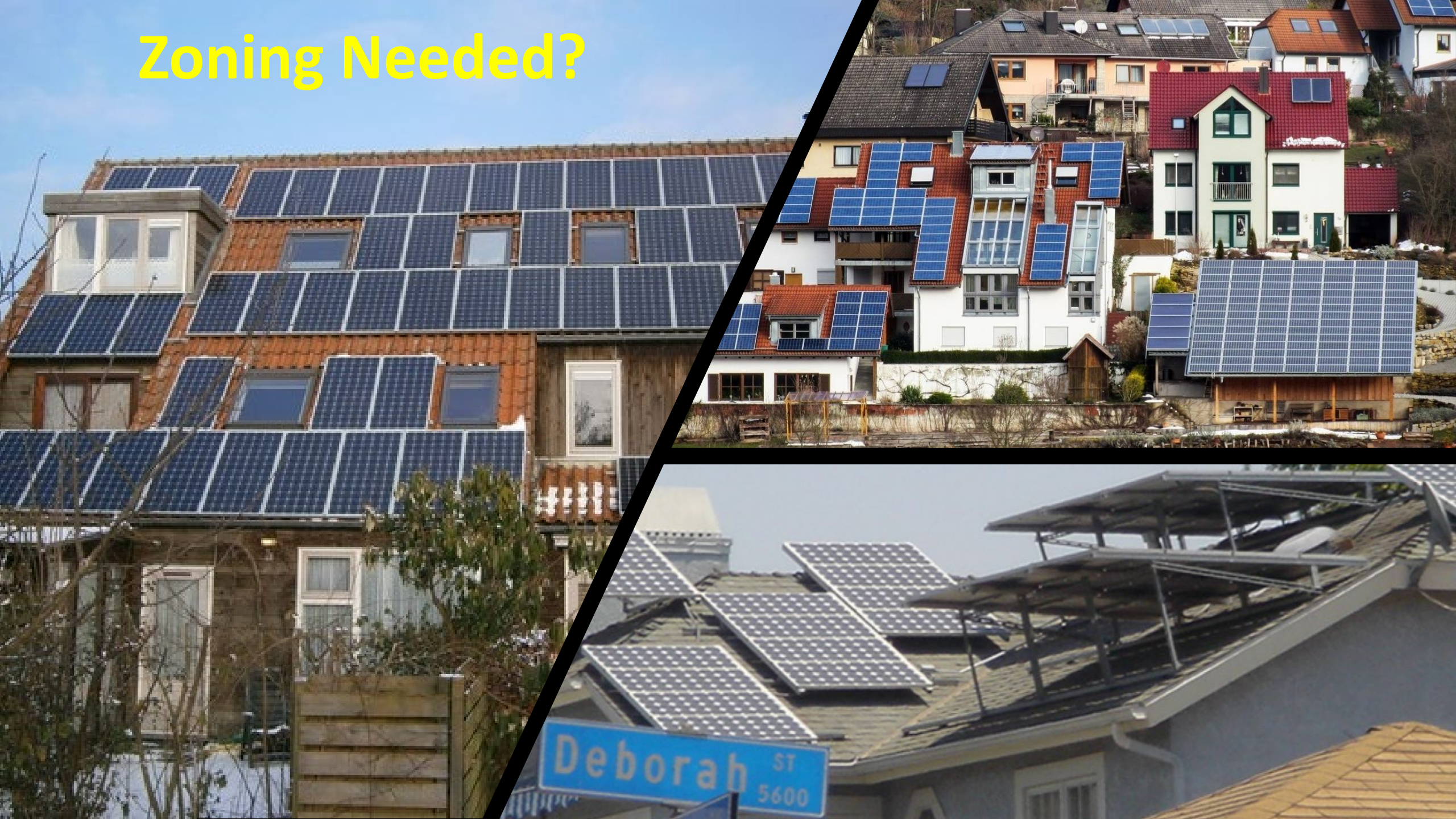
In this example, taxes are reduced about $4 per month. Average $50 per year in taxes PER residential customer, with predicted growth of solar use for residences AND businesses.

Policies and Solar:

- Regulations
- Taxes
- Impacts



Zoning Needed?

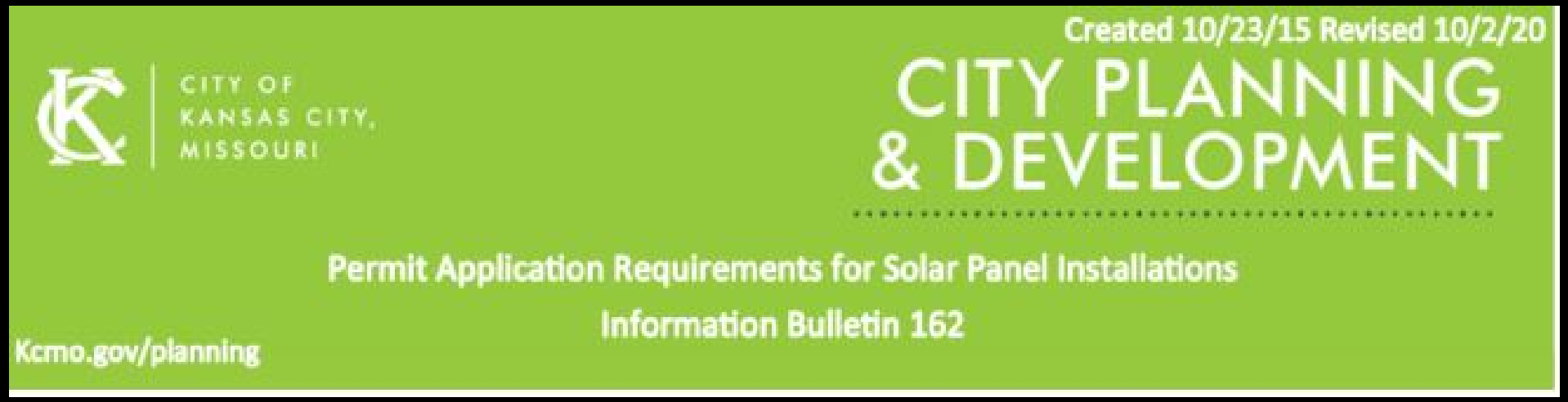


Zoning and Solar: Issues to Consider

Danger of NOT including in City Codes: A gap leaves the municipality and solar owners vulnerable

Aesthetics	By-right Solar PV	Trees
Setback for Ground-mounted Solar	Height	Historic/Special Use Districts

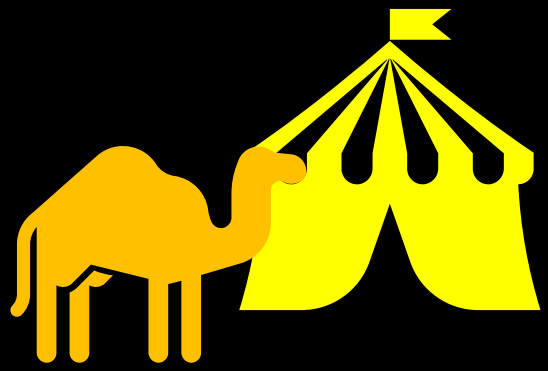
Resources for Codes and Permits



KCMO also has an online plan review called CompassKC, allowing the plan review and permit process to be conducted online.

Solar Permitting Tool launched July 15, 2021

- SolarApp+ jointly launched by National Renewable Energy Laboratory (NREL) and US Department of Energy designed to “streamline and automate rooftop solar permits.”
- SolarApp+ is a tool to automate the plan review process.
- The App is free for participating public entities, but there is a charge to the contractor, in addition to any local permit fees.

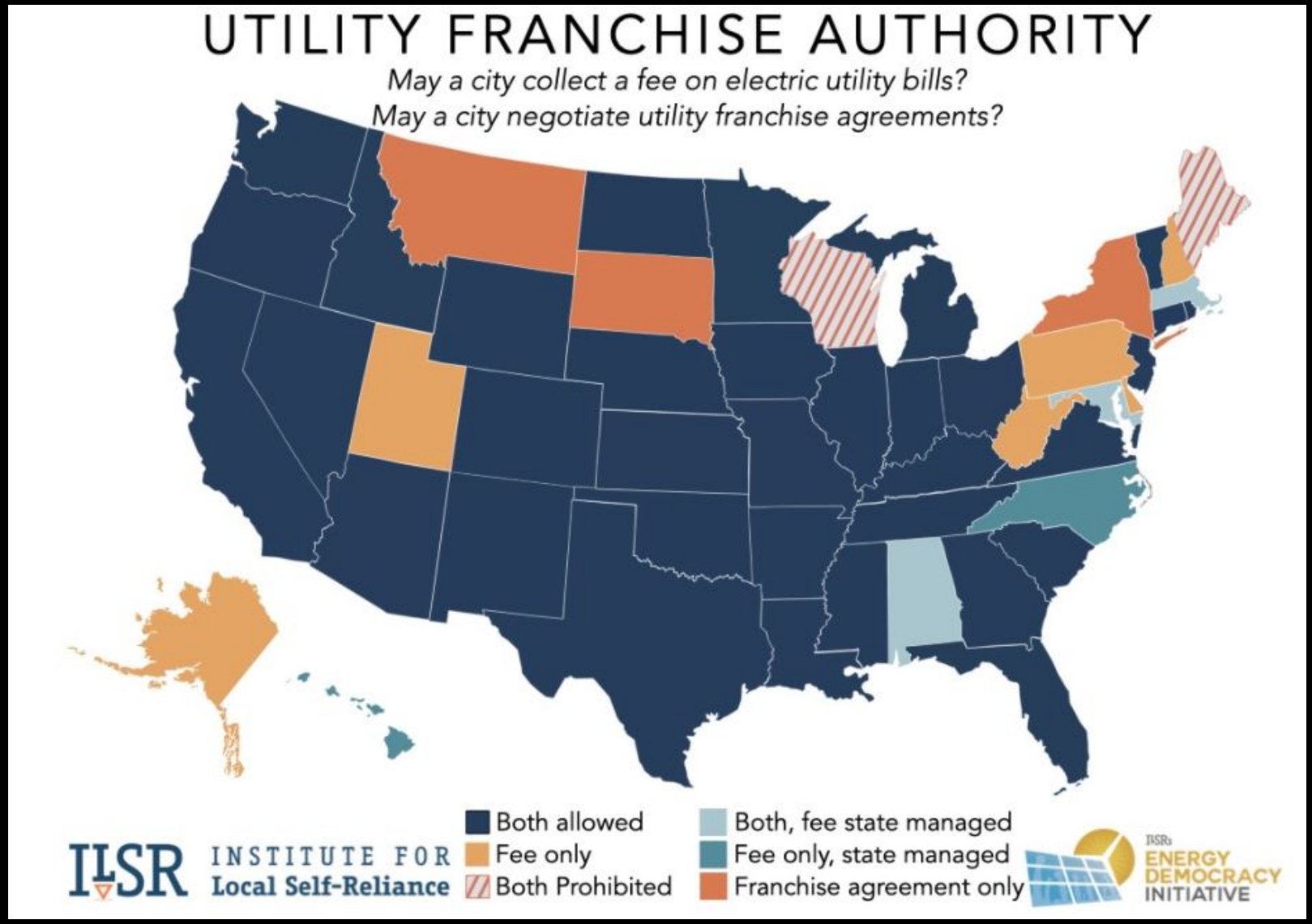




S.2657 – American Energy Opportunity Act

- Original bill sustained an unsuccessful floor vote in March 2020
- However…
- A modified version of the bill was attached to the omnibus appropriations legislation for fiscal year 2021 was passed by congress on Dec. 21 and signed by President Trump Dec. 27, 2020.
- Senate amendment to H.R. 133 - United States-Mexico Economic Partnership Act [Consolidated Appropriations Act, 2021]
  - Division Z – Energy Act of 2020 - Section 3004 – Solar Energy Research and Development - $300M funding for FY21 through FY25.

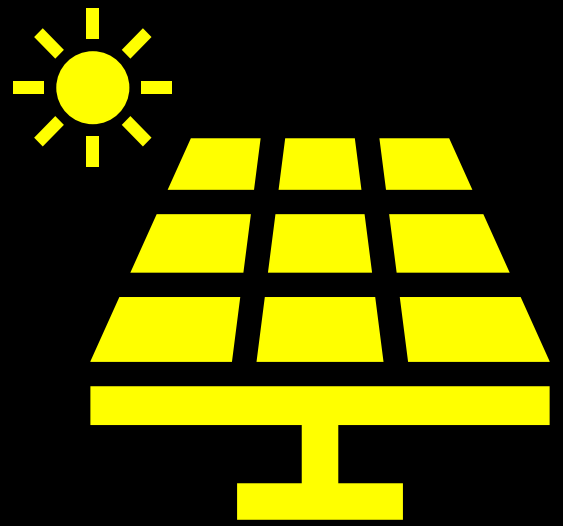
Franchise and Other Taxes



Considerations for Policy Makers

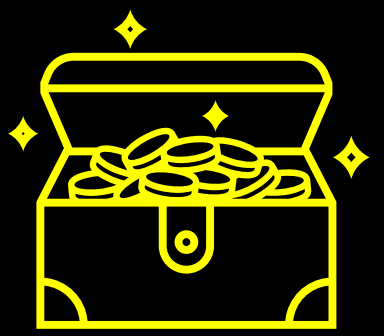
- What does the future hold?
  - Will home based power production facilities become more common?
  - Empirically, there seems to be a direct correlation between increasing home-based power production facilities and tax incentives.





Considerations for Policy Makers

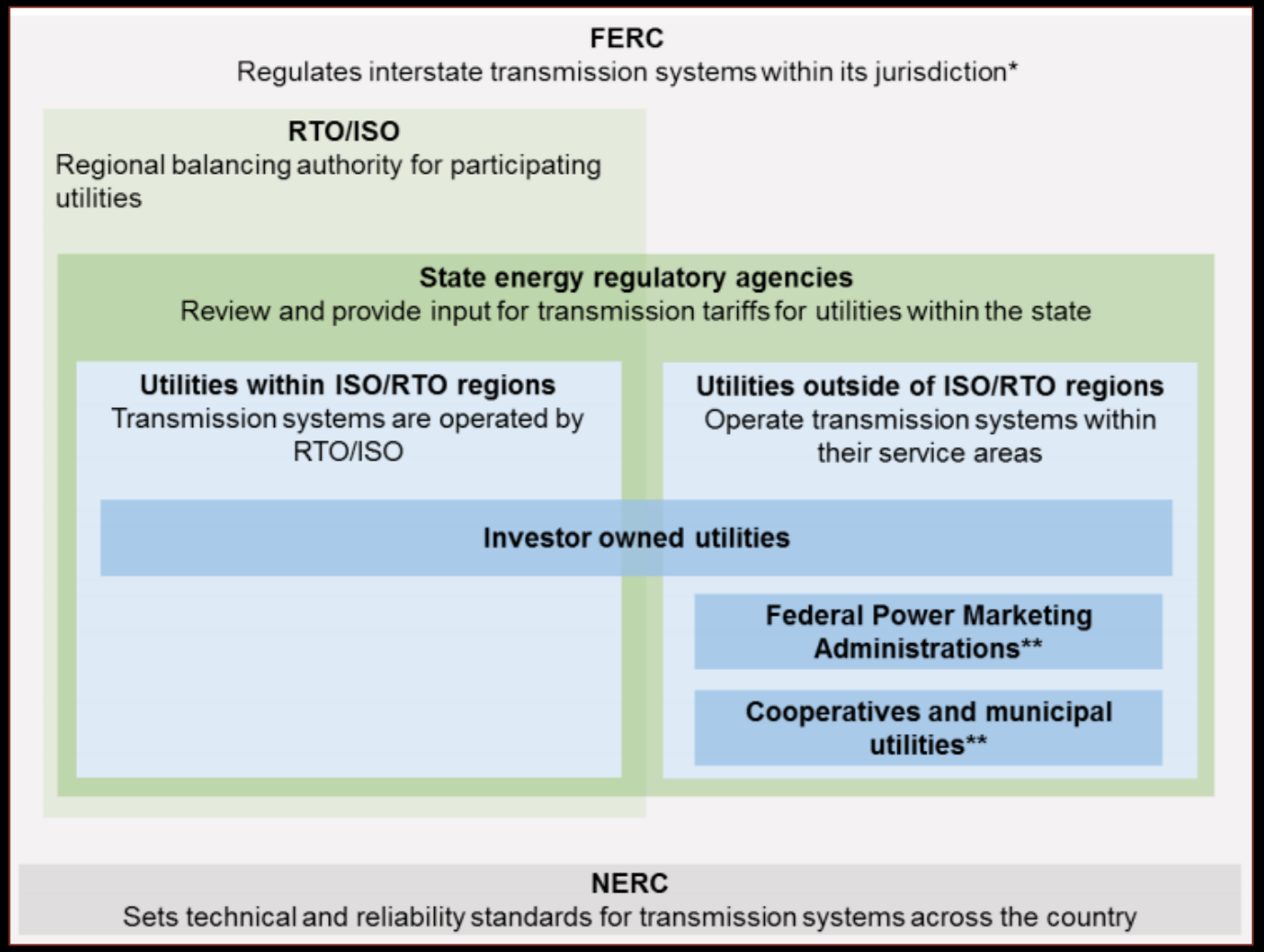
- What are the possible implications to public power in America, specifically rural/small-town America?
  - Are municipally-owned power providers going to be put out of business?
  - Will this trend lead to increased privatization?



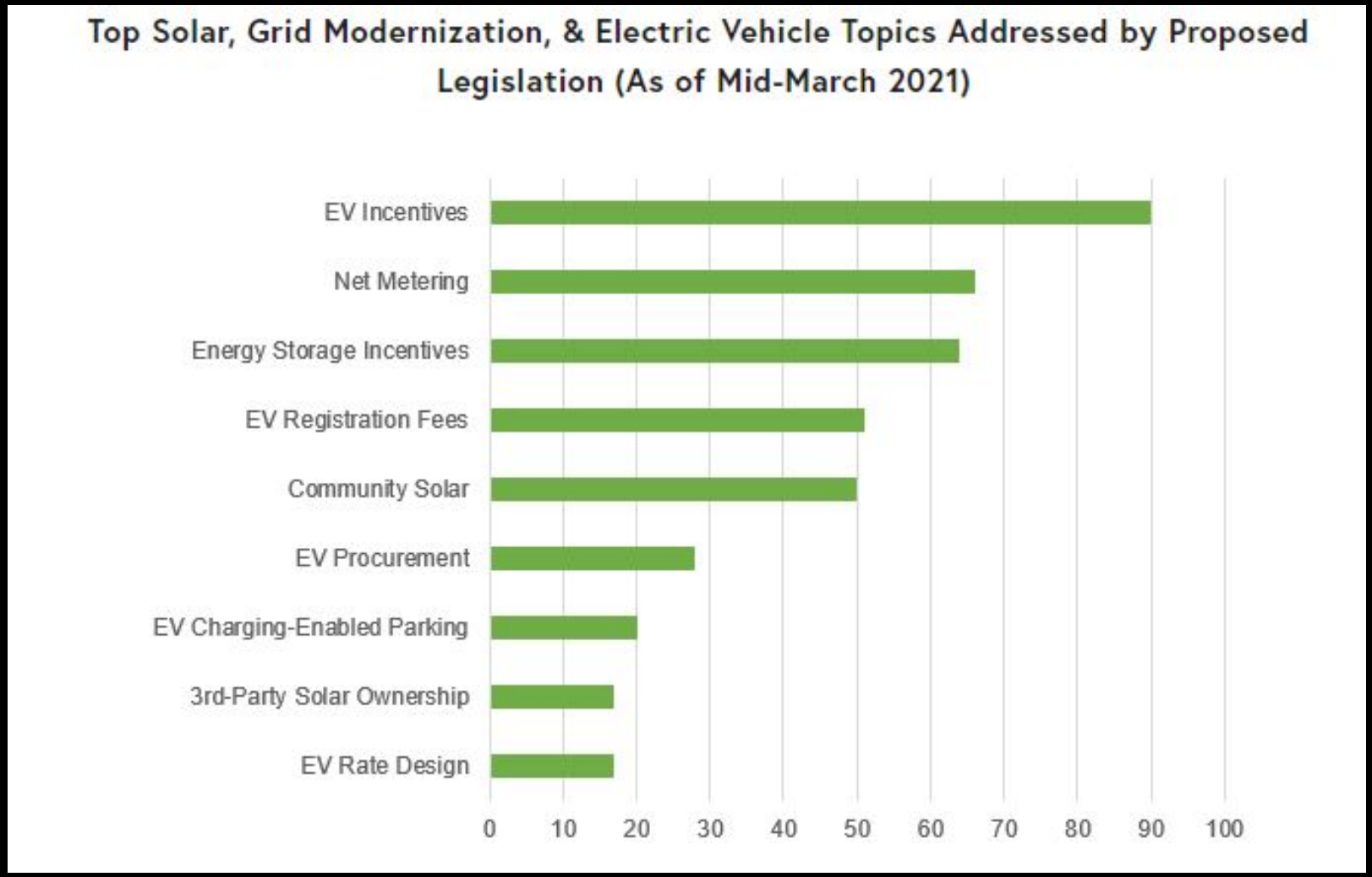
Legal

- Who ultimately has the jurisdiction here?
  - Federal
    - Federal Energy Regulatory Commission (FERC)
  - State
- Interconnection Requirements:
  - FERC and NERC set the national interconnection and reliability technical standards
  - No unified set of interconnection requirements in the United States
    - Generators under 20 MW
    - State government, typically though the public utilities commission, regulates interconnection

LEGAL - Jurisdictions for transmission regulation in the United States



State Legislative Highlights, 2021:



Recent Bills Introduced:

All States Search included “Net Metering” – 393 results on Legiscan

https://legiscan.com/gaits/search?sort=desc&order=Status&state=ALL&keyword=net%20metering

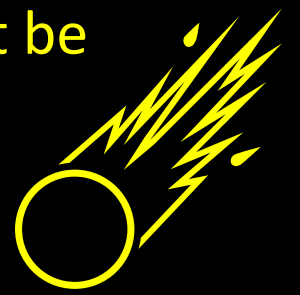
Match	State	Bill	Status	Summary/Title	Last Action
				[Detail] [Text] [Discuss]	
99%	MD	HB584	Pass 100%	Prohibiting the Public Service Commission from prohibiting the construction or operation of multiple net metered solar generating facilities located on contiguous lots that are owned by a local government solely because the capacity of the combined n... [Detail] [Text] [Discuss]	**2021-05-30** Enacted under Article II, Section 17(c) of the Maryland Constitution - Chapter 624
99%	RI	S0022	Pass 100%	Amends the maximum allowable capacity for net metering systems in the Block Island Utility District and Pascoag Utility District. [Detail] [Text] [Discuss]	**2021-07-09** Signed by Governor
99%	RI	H5503	Pass 100%	Amends the maximum allowable capacity for net metering systems in the Block Island Utility District and Pascoag Utility District. [Detail] [Text] [Discuss]	**2021-07-09** Signed by Governor
99%	IN	SB0249	Intro 25%	Net metering for electricity generation. Amends the statute concerning distributed electricity generation as follows: (1) Provides that an electricity supplier's net metering tariff must be made and remain available to customers until the earlier of:... [Detail] [Text] [Discuss]	**2021-01-26** To Senate Utilities Committee
99%	CO	SB261	Pass 100%	Concerning measures to increase the deployment of renewable energy generation facilities to meet Colorado's energy needs, and, in connection therewith, raising the allowable capacity of customer-sited renewable energy generation facilities, givi... [Detail] [Text] [Discuss]	**2021-06-21** Governor Signed
99%	CA	AB1139	Intro 25%	Net energy metering. [Detail] [Text] [Discuss]	**2021-06-03** Ordered to inactive file at the request of Assembly Member Lorena Gonzalez.
99%	UT	SB0245	Fail 100%	Net Metering Amendments [Detail] [Text] [Discuss]	**2021-03-05** Senate/ filed in Senate file for bills not passed

LEGAL – SOLAR ENERGY = *NO* EMINENT DOMAIN

Section 442.012 (RsMO 1979**).** Solar energy is a property right — eminent domain not permitted — easement requirements.

1. Right to utilize solar energy is a property right but eminent domain may not be used to obtain such property right.

2. Solar easements shall include, but not be limited to: The vertical and horizontal angles, expressed in degrees, at which the solar easement extends over the real property subject to the solar easement and any terms or conditions or both under which the solar easement is granted or will be terminated. Easements for solar light shall be considered a negative easement and cannot be acquired by prescription but must be negotiated expressly.



Other Considerations

- What can public utilities do to “future proof”?
  - Should public power providers begin to embrace home-based power production as an inevitability?
  - Is there benefit to taking a larger role in the beginning, rather than waiting until home-based power production becomes a normal part of life?

- What are the legal considerations that need addressed moving forward?
  - What limitations can be put in place? How much can a municipally-owned power provider really limit a home-based power producer?
  - Should public power providers be taking a more offensive stance with lawmaking?

Other Considerations

- What does the future hold?
  - Will home based power production facilities become more common?
  - Empirically, there seems to be a direct correlation between increasing home-based power production facilities and tax incentives.

- What are the possible implications to public power in America, specifically rural/small-town America?
  - Are municipally-owned power providers going to be put out of business?
  - Will this trend lead to increased privatization?

Resources

- https://energy.mo.gov/resources/solar
- https://mpua.org/page/ordinances
- https://www.energysage.com/solar-panels/mo/
- https://www.eia.gov/state/analysis.php?
- https://www.seia.org/state-solar-policy/
- https://legiscan.com/gaits/search?
- https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/Integrating-Solar-into-Local-Development-Regulations.pdf

Sources

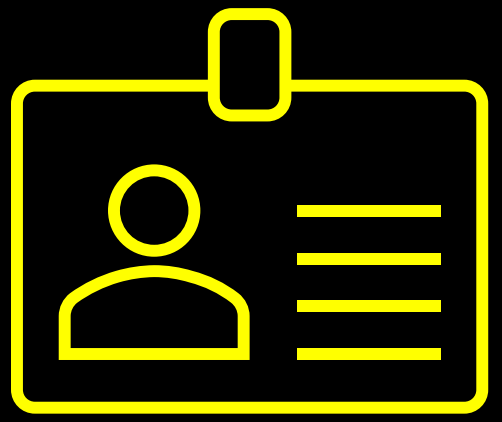
- https://www.eia.gov/todayinenergy/detail.php?id=48896 – July 28, 2021 sources of electricity
- https://programs.dsireusa.org/system/program/maps - Net metering regulatory maps
- https://www.nrel.gov/state-local-tribal/basics-net-metering.html - Net metering
- https://www.eia.gov/todayinenergy/detail.php?id=46276 – December 15, 2020 residential bill
- https://www.energy.gov/eere/solar/homeowners-guide-federal-tax-credit-solar-photovoltaics
- https://www.energysage.com/solar-panels/mo/ - Prices calculated to state examples – Missouri used in example.
- SEIA, National Solar Database: https://www.seia.org/research-resources/national-solar-database
- https://www.solarmeansbusiness.com/
- SEIA/Wood Mackenzie Power & Renewables U.S. Solar Market Insight 2021 Q2
- https://www.dsireinsight.com/blog/2021/3/26/2021-legislative-update-solar-energy-storage-and-electric-vehicles-on-the-agenda
- https://ilsr.org/energy/utility-franchise-fees/
- https://legiscan.com/gaits/search?sort=desc&order=Status&state=ALL&keyword=net%20metering
- https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/Integrating-Solar-into-Local-Development-Regulations.pdf

Sources, cont:

- https://solsmart.org/solar-energy-a-toolkit-for-local-governments/#Table-Of-Contents
- https://www.nrel.gov/docs/fy17osti/66120.pdf Clean Energy in City Codes study

Contact Information

- Allen Garner
- Allen Garner Law, LLC
- allen@allengarnerlaw.com



Session Description

With Acknowledgment and thanks for information and inspiration from Drew Graham

This session is designed to examine issues surrounding installation, operation, incentives, restrictions, regulations, and the financial considerations connected to the use of solar panels to produce electricity. Included in the session will be an overview of the single user systems, the ability and limits of local government regulations, the role of state and federal governments, and issues around HOA's. The presentation will look at issues from the perspectives of homeowners, utilities, governments, and policy makers. The session will follow the money flow into incentives, disincentives, impacts on public and private utilities, and residential/business power cogeneration impact on tax revenue for local governments.