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# PA Solar Ordinances: Local Regulation and National Trends

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**PRACTICE GREATNESS**



# Solar Zoning Ordinance Cataloguing

- Hosted at Penn State Dickinson Law in collaboration with Penn State Extension School and with support of Center for Energy Law and Policy
- Collect and review all 2500+ municipal/township zoning ordinances to identify regulation of solar energy systems, with a particular focus on:
  - Authorization of such facilities as a “right” or a “conditional use”
  - Requirements for such facilities, either through application of existing zoning requirements or special requirements
  - Definition of solar systems, both in terms of type of installation, scale of installation and purpose of installation
- Identify common practices within the commonwealth and across the U.S., with the aim of eventually preparing a library of information, including an updated model ordinance, for use by municipal/township officials

# Preliminary Results

Principal Use Solar Allowed	Accessory Use Solar Allowed	No Solar Guidance
5%	8%	87%
The zoning ordinance clearly allows for solar energy to be the principal use of the land for given districts, generally subject to approval (as a conditional use).	Accessory solar energy is permitted, often subject to various requirements. Principal use solar is either implicitly or explicitly prohibited.	These ordinances either fail to mention solar energy at all or only mention solar without specifying where or under what circumstances it is permitted.



# Why is Limited Guidance a Problem?

- In many ways solar projects are MORE challenging than either traditional energy or oil/gas projects
- Like oil/gas, solar projects involve a significant displacement of surface use, impact on top soil/ecosystems and are long-term (25+ years on average)
- Like energy projects, solar is part of regulated market with strict standards and limited margins
- So, solar has the challenges of natural resource extraction and the economic limitation of regulated energy projects
- Combined with the fact that these projects are happening in “new” energy communities, and you can understand why there are so many challenging legal issues



# Pennsylvania Solar by the Numbers



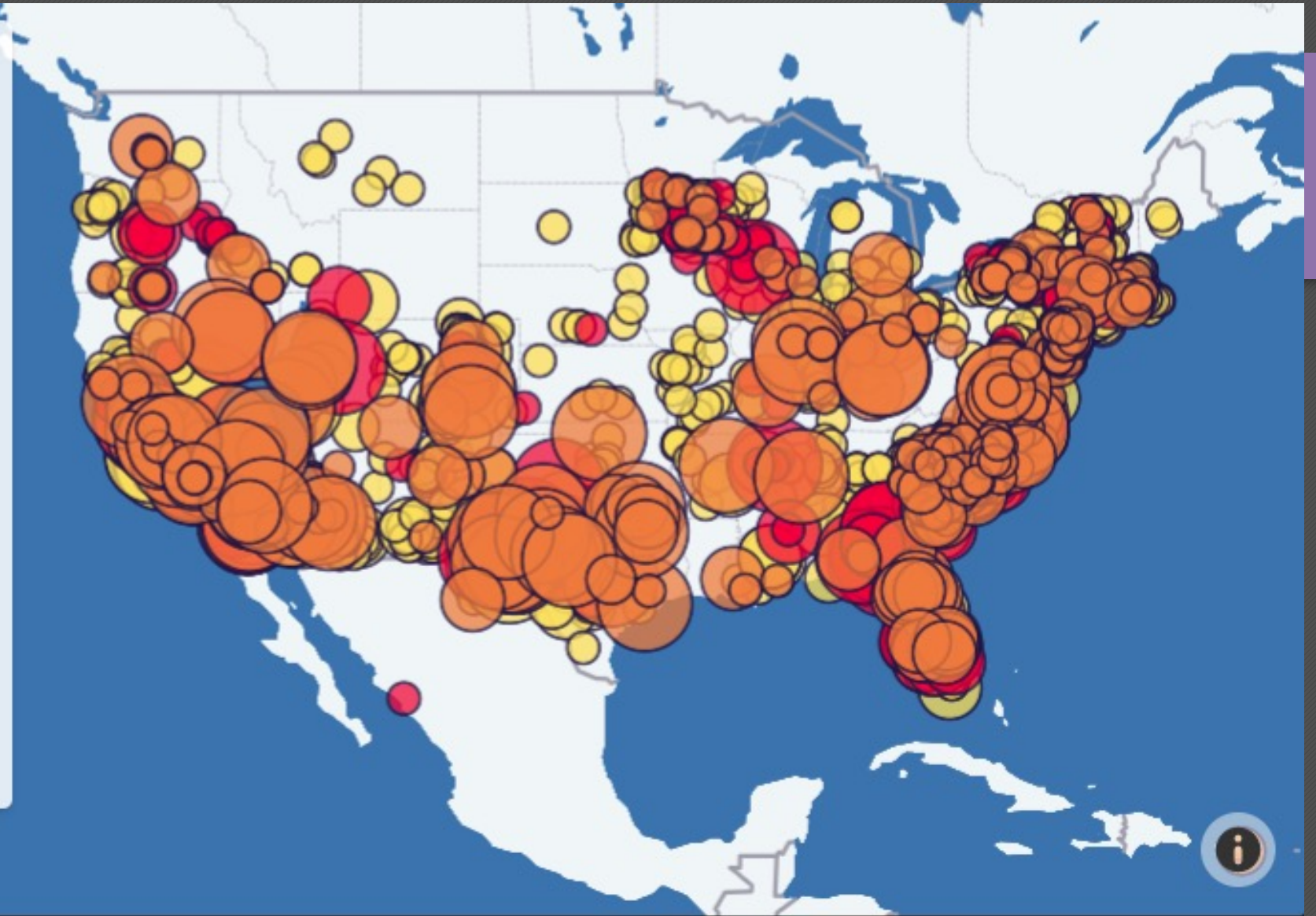
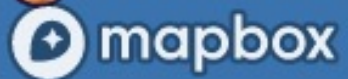
- Solar Companies: 500+
- Solar Jobs: 5,000+
- Solar Investment: Nearing \$2 Billion
- Price Competition: 40% Drop in the Last 5 Years
- Rank: 22<sup>nd</sup> (Installed Capacity)

## Project Status

- PV - Operating
- PV - Under Development
- PV - Under Construction

- CSP - Operating
- CSP - Under Development
- CSP - Under Construction

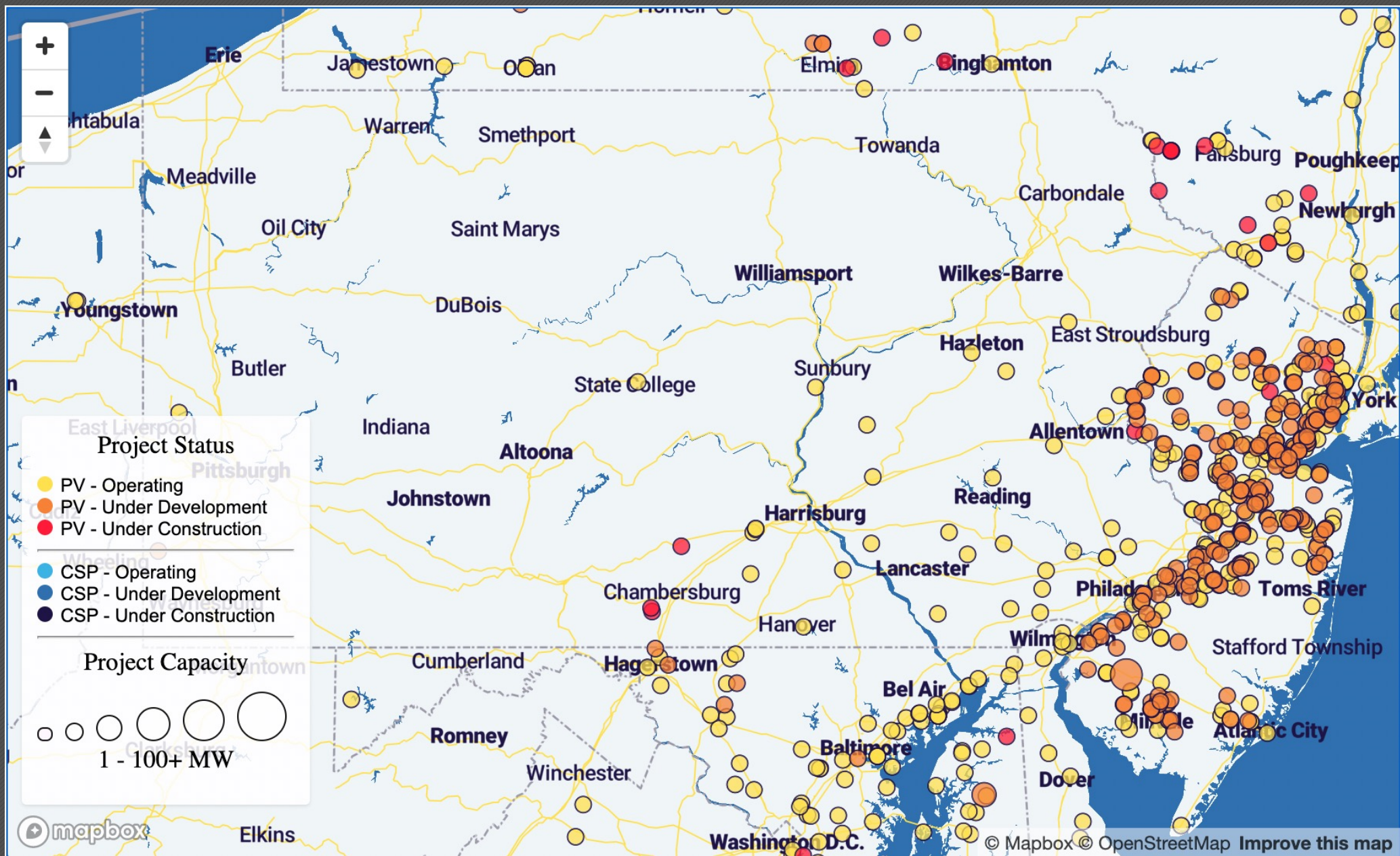
## Project Capacity



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Solar Energy Industries Association - Map of Major Solar Projects - <https://bit.ly/3pLbNTC>



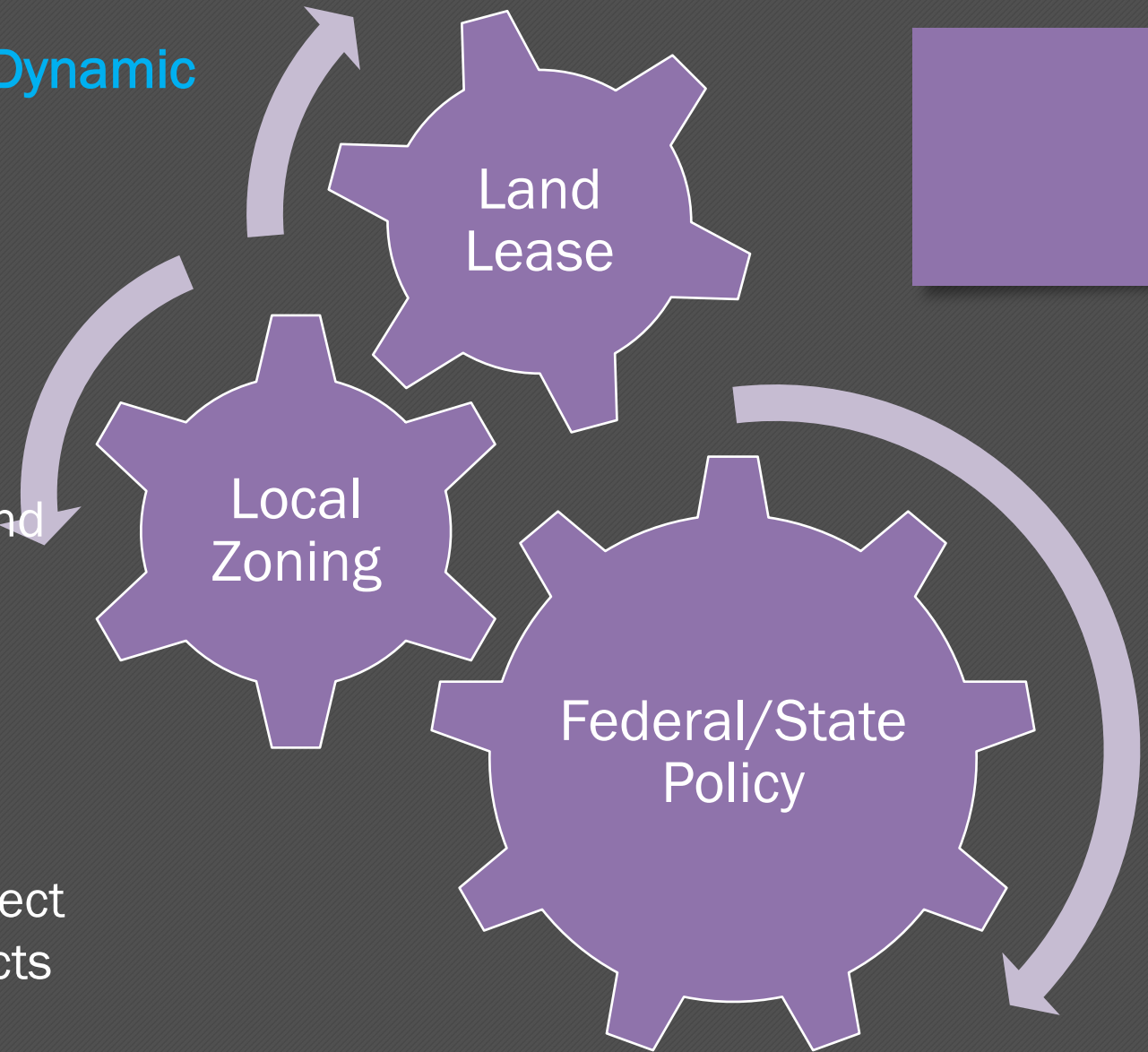






## The Regulatory Dynamic

- Federal/State Policy
  - Significant movement towards mandating decarbonization of the energy system
- Land Lease
  - Profit incentive for landowners to lease land for solar projects
  - Significant increase in financial capital driving scale and profit margins on solar projects
- Local Zoning
  - Quickly becoming the most important aspect of the legal framework around solar projects

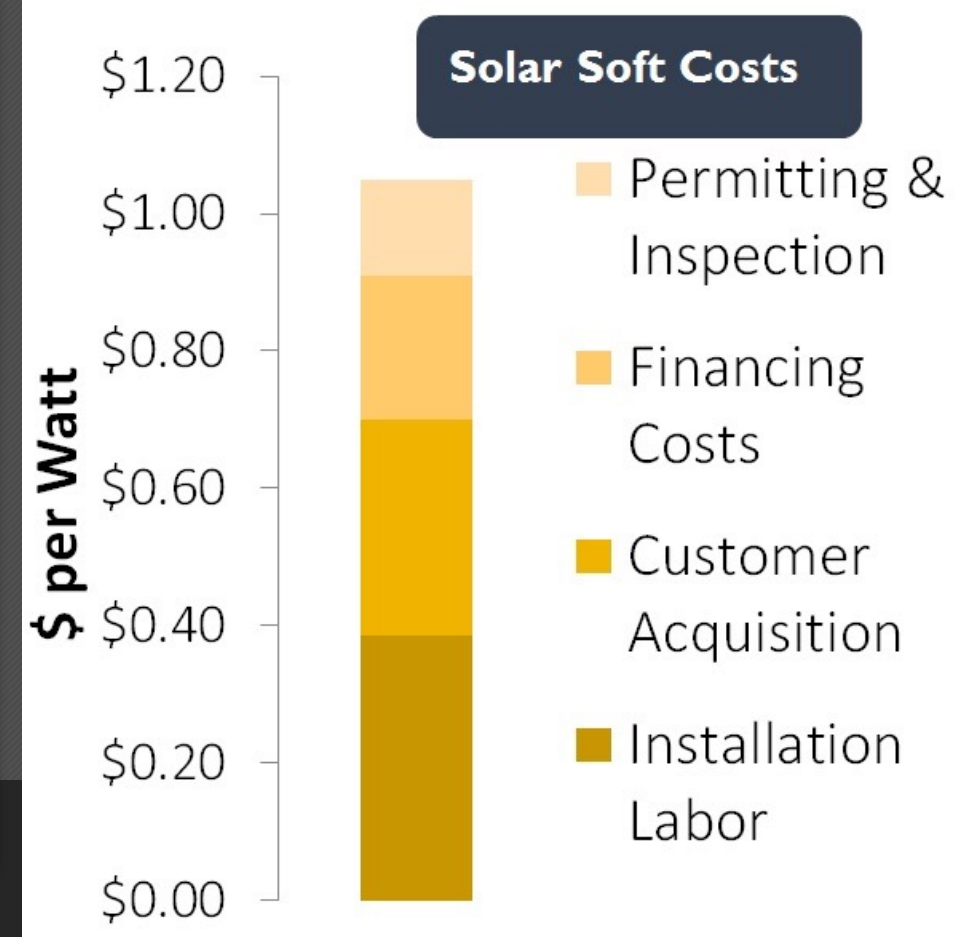
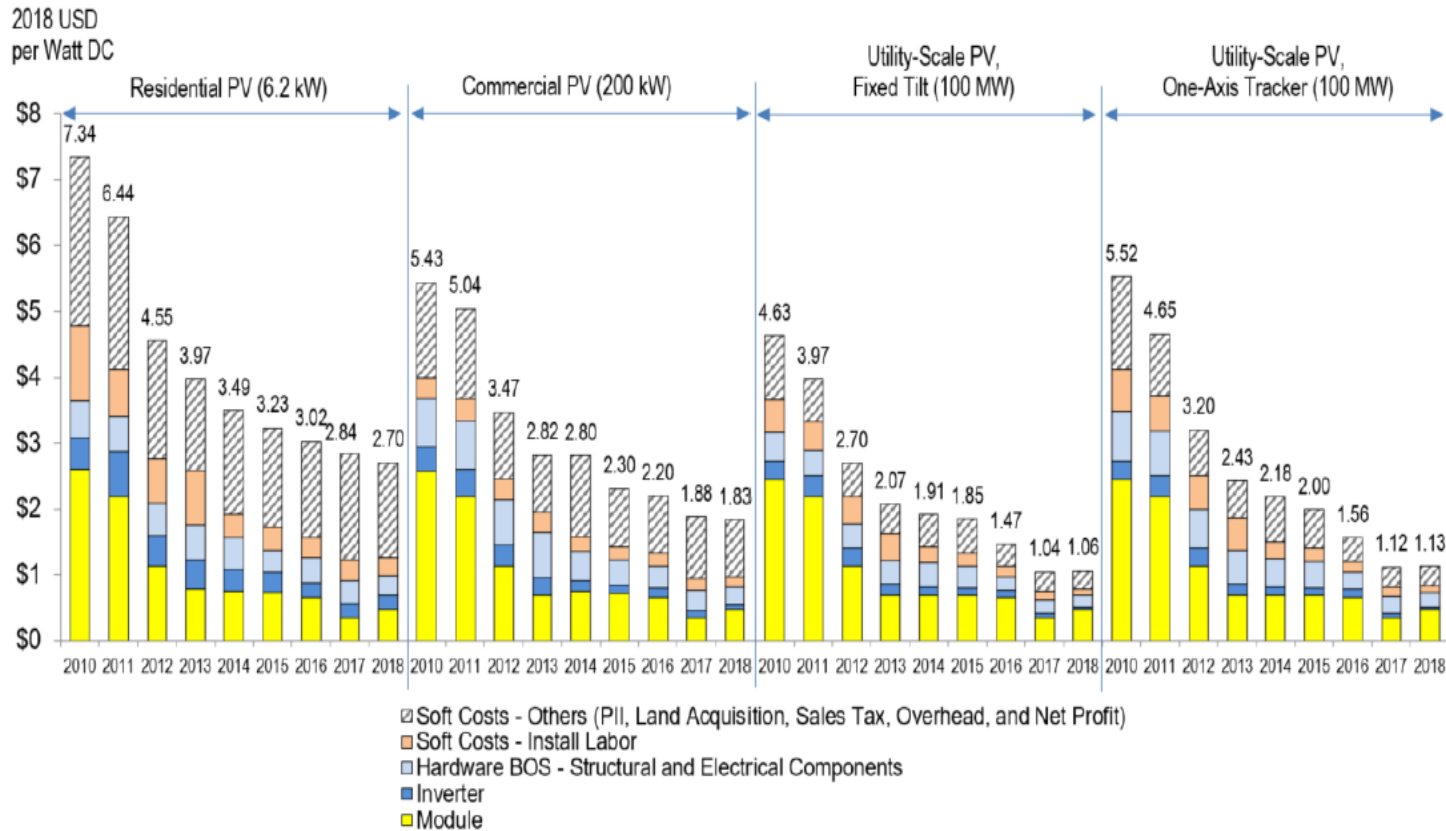




# The Benefit of Solar-Specific Ordinances

- The Grand Bargain

- Establishing specific guidance for solar projects at the local level helps officials, residents and investors by:
  - Reducing regulatory costs through predictable permitting procedures and fees
  - Building awareness amongst residents about the impacts/benefits of solar projects and reflecting their concerns in policy
  - Creating a consistent and manageable framework for officials to apply to projects despite variations across location, scale, technology and purpose



Soft Costs Increasingly Important



# Cost Impact on Local Regulation

*Based on regression analysis, we find that variations among and improvements in local regulatory processes can meaningfully affect residential PV installation prices. ... [W]hen considering variations not only in permitting practices, but also in other local regulatory procedures, price differences grow to \$0.64-0.93/W between the most-onerous and most favorable jurisdictions. For a typical 5-kW residential PV installation, these results correspond to a price impact of at least \$2500 (8%) between jurisdictions with scores in the middle 90 percent of the range. These results highlight the magnitude of cost reduction that might be expected from streamlining local regulatory regimes.*

# Common Elements of Solar Ordinances

- Accessory vs Non-Accessory/Principal Systems
- Setbacks & Height Limitations
- Lot/Parcel Size
- Glare/Reflection Mitigation
- Buffers/Screening
- Decommissioning
- Tax Credits/Incentives



# Accessory vs Non-Accessory/Principal Systems

**ACCESSORY SOLAR ENERGY SYSTEM:** An area of land or other area used for a solar collection system used to capture solar energy, convert it to electrical energy or thermal power and supply electrical or thermal power primarily for on-site use. An accessory solar energy system consists of one (1) or more free-standing ground, or roof mounted solar arrays or modules, or solar related equipment and is intended to primarily reduce on-site consumption of utility power or fuels.

## **SOLAR ENERGY SYSTEM (MAJOR):**

A commercially operated solar energy system that is principally used to convert solar radiation to electricity to supply electricity to off-site customer(s,) including but not limited to a Solar Farm.

“Solar Energy Farms” are systems which exist solely to generate energy for sale back into the energy grid system, rather than being consumed on site.

# Setbacks

## Setbacks

- a. PSES shall comply with the setbacks of the underlying zoning districts for principal structures.
- b. (XX feet) from adjacent residential districts or structures (some models propose a 20' minimum).

## 3. Height

- a. Ground mounted PSES shall not exceed 15 feet in height





# Lot/Parcel Size

## **GROUND MOUNTED PRINCIPAL SOLAR ENERGY SYSTEMS:**

1. Minimum lot size: The minimum lot size for every lot on which a SEF, or a component of a SEF, is proposed shall be one hundred (100) acres.

Principal Use. A Solar Energy System shall be permitted as a principal use subject to conditional use approval in the T- Township and A/C Agricultural/ Cluster Residential Districts only, subject to the following and as otherwise provided herein:

- (a) The maximum area occupied by a principal Solar Energy System on any lot shall be ten (10) acres;

# Glare/Reflection Mitigation

## *Glare*

- a. All PSES shall be placed such that concentrated solar radiation or glare does not project onto nearby structures or roadways.*
- b. The applicant has the burden of proving that any glare produced does not have significant adverse impact on neighboring or adjacent uses either through siting or mitigation.*



# Glare/Reflection Mitigation

- **Green:** Low potential for temporary after-image glare
- **Yellow:** Potential for temporary after-image glare
- **Red:** Potential for permanent eye damage glare

The results of this analysis predicted no glare for any receptor ([Table 82](#)).

Receptor	Green Glare (minutes / year)	Yellow Glare (minutes / year)	Red Glare (minutes / year)
Runway 17	0	0	0
Runway 35	0	0	0
Runway 3	0	0	0
Runway 21	0	0	0
Residences Single Story	0	0	0
Residences Two Story	0	0	0
Route Cars	0	0	0
Route Trucks	0	0	0

# Buffers/Screening

Solar farms shall be enclosed by perimeter fencing to restrict unauthorized access at a height of eight and a half (8.5) feet.

Vegetative screening of the system may be required as a part of the conditions of approval. It shall be based on the proximity of the system to residential buildings and to abutting public rights-of-way. The vegetation shall consist of canopy and conifer trees.

Starting to see proposed language incentivizing/encouraging pollinator friendly spaces...



# Decommissioning

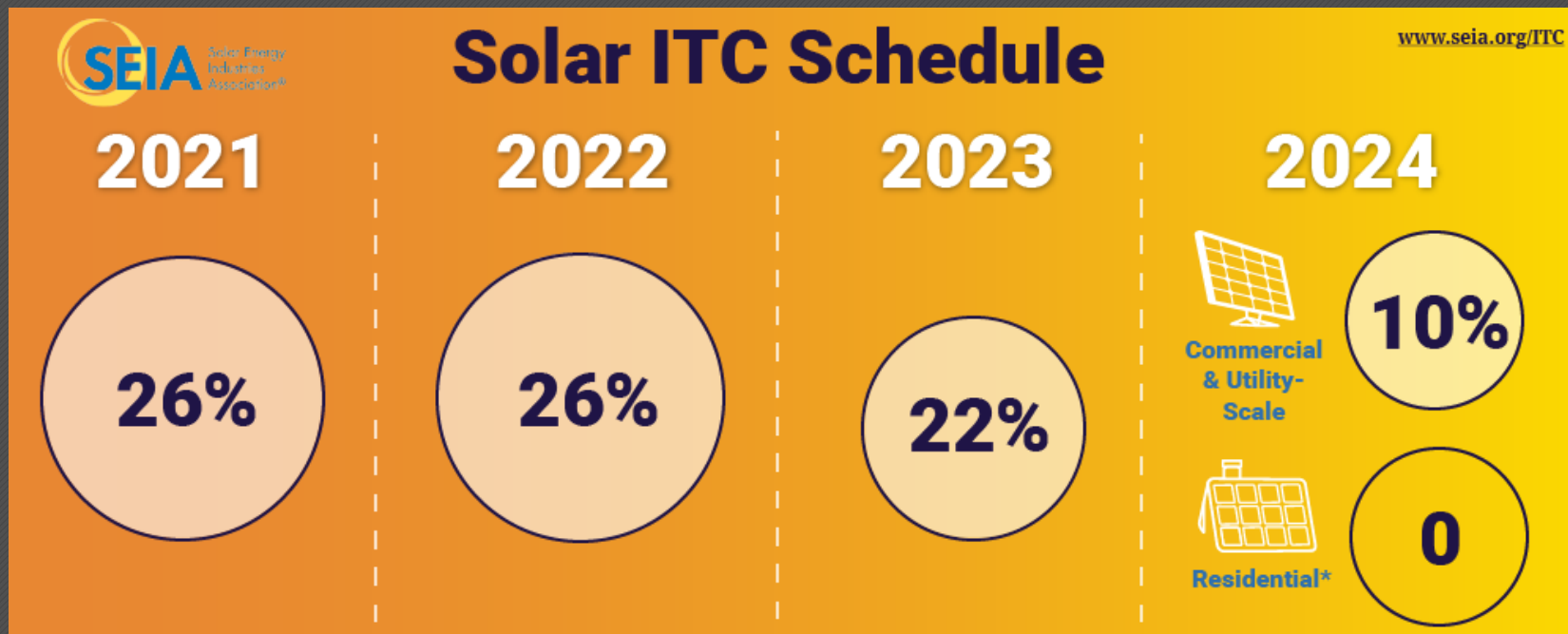
*At the time of issuance of the permit for the construction of the PSES, the owner shall provide financial security in the form and amount acceptable to the Borough/Township to secure the expense of dismantling and removing said PSES and restoration of the land to its original condition, including forestry plantings of the same type/variety and density as the original.*

## **Decommissioning Requirements**

Pursuant to 402(II)(10)(k) of the Ordinance, the Applicant estimates the cost of decommissioning the Solar Energy Facility will be approximately \$1,665,466 based on the current available information at the time of application. The Applicant will provide the required performance security at the time of application for a building permit or 30 days prior to site development, whichever occurs first. These dates may vary and are dependent on several factors including the review of the transmission line interconnection study. The interconnection agreement will be provided to the Township when it is completed and available to the Applicant.



# Tax Credits/Incentives



\*Some residential solar systems are financed using a lease mechanism that allows the homeowner to take advantage of the Section 48 commercial ITC





# Future-Proofing

- Given the rapid change in Solar technology, project design and project models, including forward looking language in ordinances allows local governments to be leaders rather than followers
- Example:

## SOLAR COLLECTION SYSTEM

A panel or other solar energy device, the primary purpose of which is to provide for the collection, inversion, storage, and distribution of solar energy for electricity generation, space heating, space cooling or water heating.





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