

# Solar Energy Planning & Regulation

GHAR Panel Discussion

6/9/26



PLANNING DEPARTMENT  
Cumberland County

# Planning Stakeholders

Federal

State

County  
•Advisory to municipalities

**Municipality**  
•2653 in PA  
•33 in Cumberland

**Power**



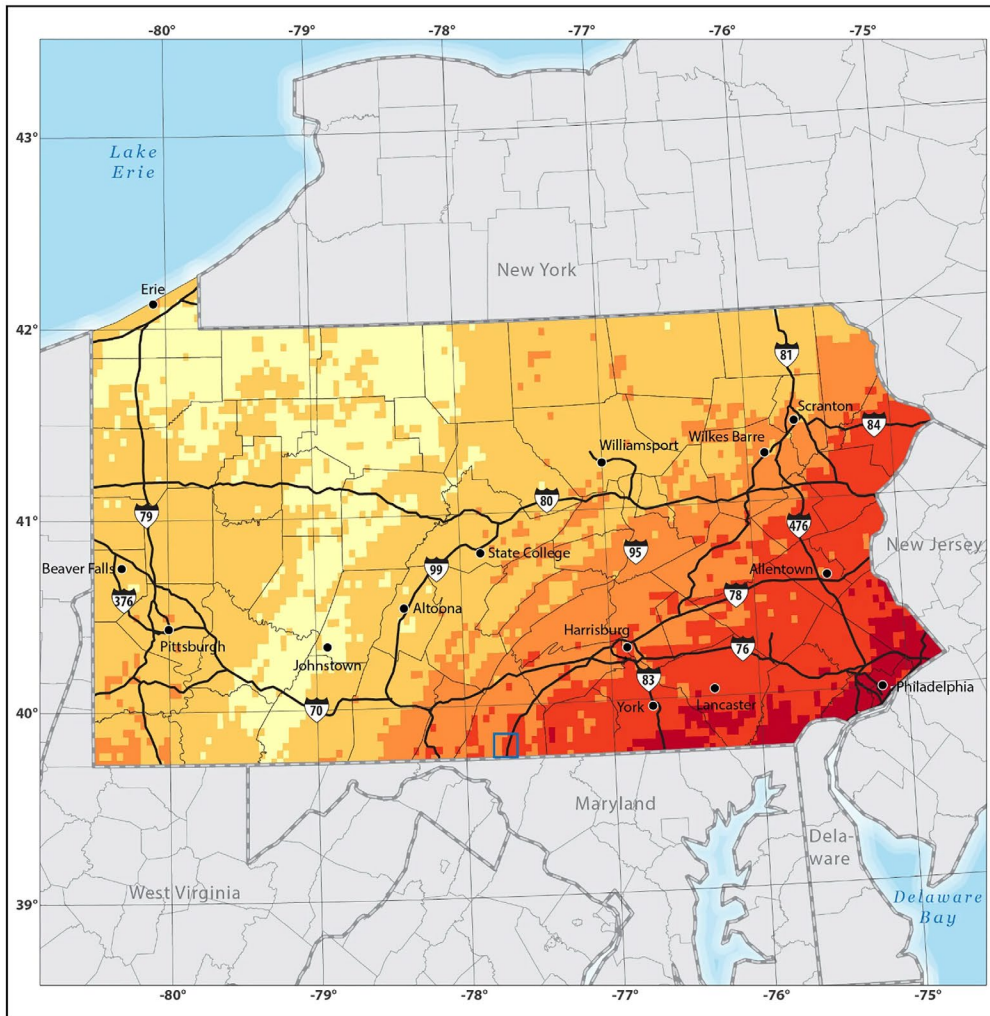
# Background

- CCPC works daily with our 33 municipalities
- Required by law to review and comment on:
  - All subdivision and land development plans
  - New or changes to municipal ordinances
  - New or updates to comprehensive plans
- Assist municipalities in writing plans/ordinance

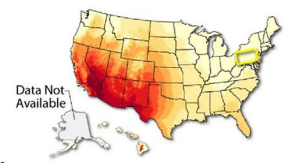
# Background

- Developed initial guidance in 2011
- Updated guidance in 2019, 2023, and 2026
- Guidance shared statewide DEP and adopted by many county municipalities

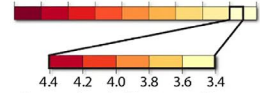
Cumberland County Planning Department Alternative Energy Series	
Solar Energy Systems (Solar Farms) 2023 Model Ordinance	
<b>INTRODUCTORY NOTES ON THIS MODEL</b>	
<p>This model ordinance was developed by the Cumberland County Planning Department using a variety of ordinances from municipalities in the county and around the state and from ordinances in surrounding states. The intent of this model is to permit medium to large scale solar energy systems (solar farms) in the Municipality while protecting the health, safety and welfare of the residents.</p> <p>Municipalities are not recommended to implement this entire ordinance without modification. Rather, municipalities should review this ordinance, examine their local situation, and adopt the regulations that make the most sense for their municipality. The following table provides an explanation of the suggestions found in the model ordinance.</p>	
How to Use the Model Ordinance	
Text within the model ordinance:	Suggestions for the Municipality:
Regular Text	This language is recommended to be included in the Municipal Ordinance. The language should be reviewed as some modifications may be necessary.
<i>“OR”</i>	There are multiple ways to regulate this language. The Municipality should carefully consider both options and make the best selection.
<i>Italicized text</i>	The Municipality may or may not choose to implement this language. This language is considered optional.
<i>“XX (20-30)”</i>	There is a range of options for this requirement. The data range shown in parenthesis was found in other ordinances, research documents or other sources.
<i>“XX”</i>	This is a sample figure based on research and other ordinances. The Municipality should consider this figure and tailor the language as appropriate.



## Direct Normal Solar Resource of Pennsylvania

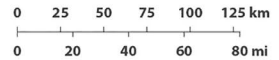


Fifty-state Resource Range (kWh/m<sup>2</sup>/Day)  
8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 0.5



Pennsylvania Resource Range

This data provides annual average daily total solar resource averaged over surface cells of 0.038 degrees in both latitude and longitude, or, nominally, 4 km in size. The insolation values represent the resource available to concentrating systems, and were created using the PATMOS-X algorithms for cloud identification and properties, the MMAC radiative transfer model for clear sky calculations, and the SASRAB model for cloud sky calculations. The data are averaged from hourly model output over 8 years (2005-2012).



This map was produced by the National Renewable Energy Laboratory for the U.S. Department of Energy.  
Nicholas Gilroy, April 4, 2017



# How to Regulate?

- Stand alone ordinances
- Subdivision and land development ordinance
- Zoning ordinance
- Do nothing

# What to Regulate?

<b>“Majors”</b>	<b>“Minors”</b>
Principal vs accessory system	Setbacks
Zoning district permitted	Height
Permitted by right, conditional use, or special exception	Impervious coverage
Lot size	Screening
Decommissioning	Glare

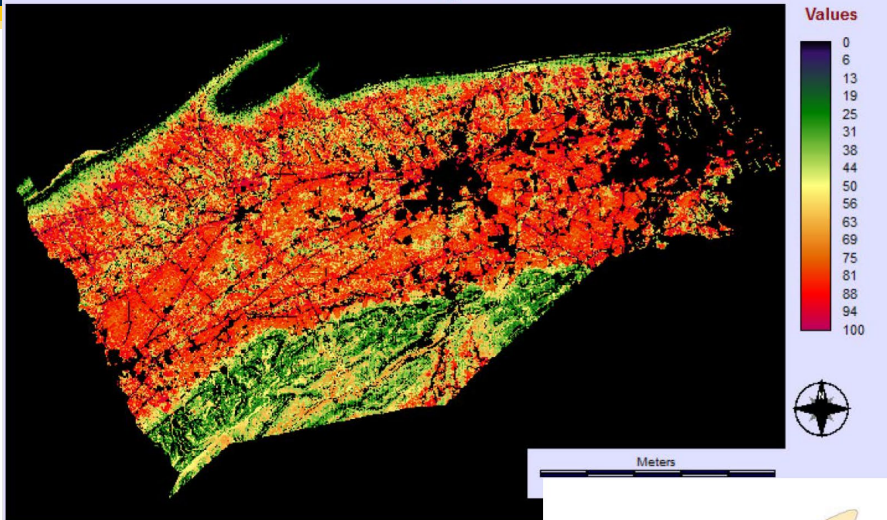
# Principal vs Accessory Use

<b>Principal Use</b>	<b>Accessory Use</b>
Only use on the lot	Secondary to another use on the lot
Energy generated for grid use or net metered	Energy used on-site
Ground mounted; 5-7 acres per MW	Ground or building mounted
Permitted in specified districts	Permitted in most, if not all, districts

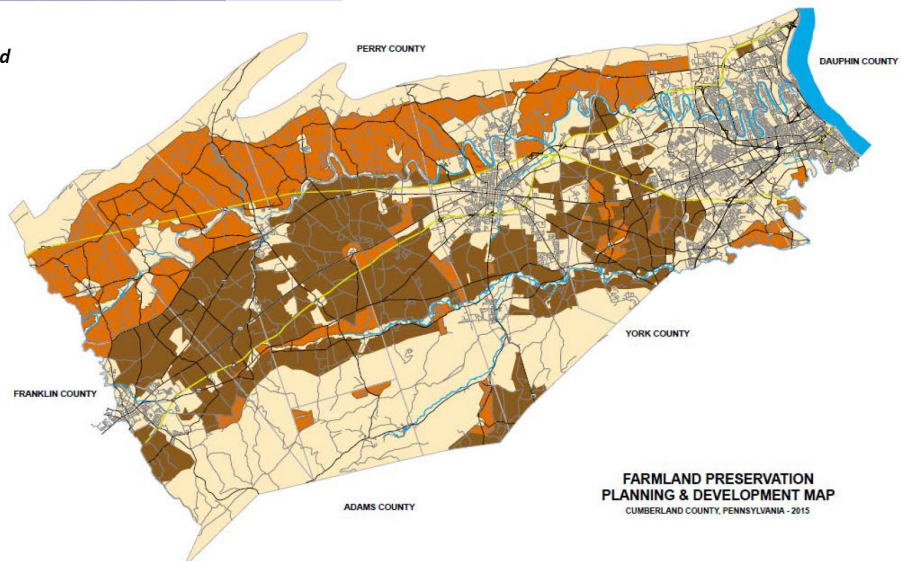
# Zoning Districts

- Principal solar often considered an “industrial” use
- Principal solar best suited to large flat tracts of undeveloped land
- Often compete with farmland or conservation areas

# Solar Suitability Scale



*Solar Farm Suitability Analysis in Cumberland County, PA and Broward County, FL*  
Andrea Huerfano\* and John Richards



# How Permitted?

- By right - if in compliance with zoning ordinance, permitted without additional hearings
- Conditional use - permitted use, but requires hearing with governing body to show compliance with general and express criteria
- Special exception - same as CU but approved by zoning hearing board

# Lot Size

- Typically, 5-7 acres per required MW for principal solar
- Low intensity use, but consumes considerable land area
- Maximum lot size may be set to limit overall impact



# Decommissioning

- Solar panel lifespan 25-30 years
- Rapidly changing market conditions
- What happens when use is no longer viable
- Set removal timeframe and potential financial security



# Regulating the Minors

<b>Regulation</b>	<b>Flexible Approach</b>	<b>Strict Approach</b>
Setbacks	Match zoning district	Increase for aesthetic/noise
Impervious coverage	Only foundation systems, equipment, roads	Panels are impervious
Screening	Match similar uses	Fencing and vegetation
Glare	Only for concentrated solar	Require study
Height	Match principal use	Match accessory use

# Agrivoltaics



# So What's the Problem?

- Aesthetics
- Glare?
- Noise?
- Safety?
- Competing land use priorities
- Political ideology



# The future...

- Federal policy changes vs market conditions
- Insatiable energy demands
- Battery energy storage systems

