

An aerial photograph of a residential neighborhood with a heatmap overlay. The heatmap uses a color scale from dark purple (low solar potential) to bright yellow (high solar potential) to indicate areas suitable for solar panels. The houses are mostly yellow, while the streets and some larger buildings are purple or dark blue. A large yellow rectangle is overlaid on the center of the map, containing text.

# Solar Ordinances

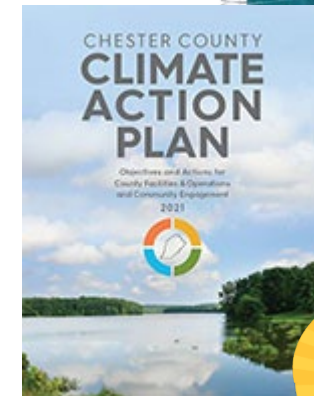
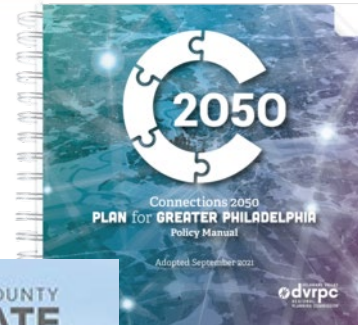
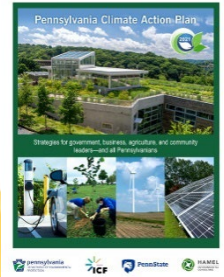
## Chester County Protect Forum

Liz Compitello, DVRPC  
4/19/22

Shade

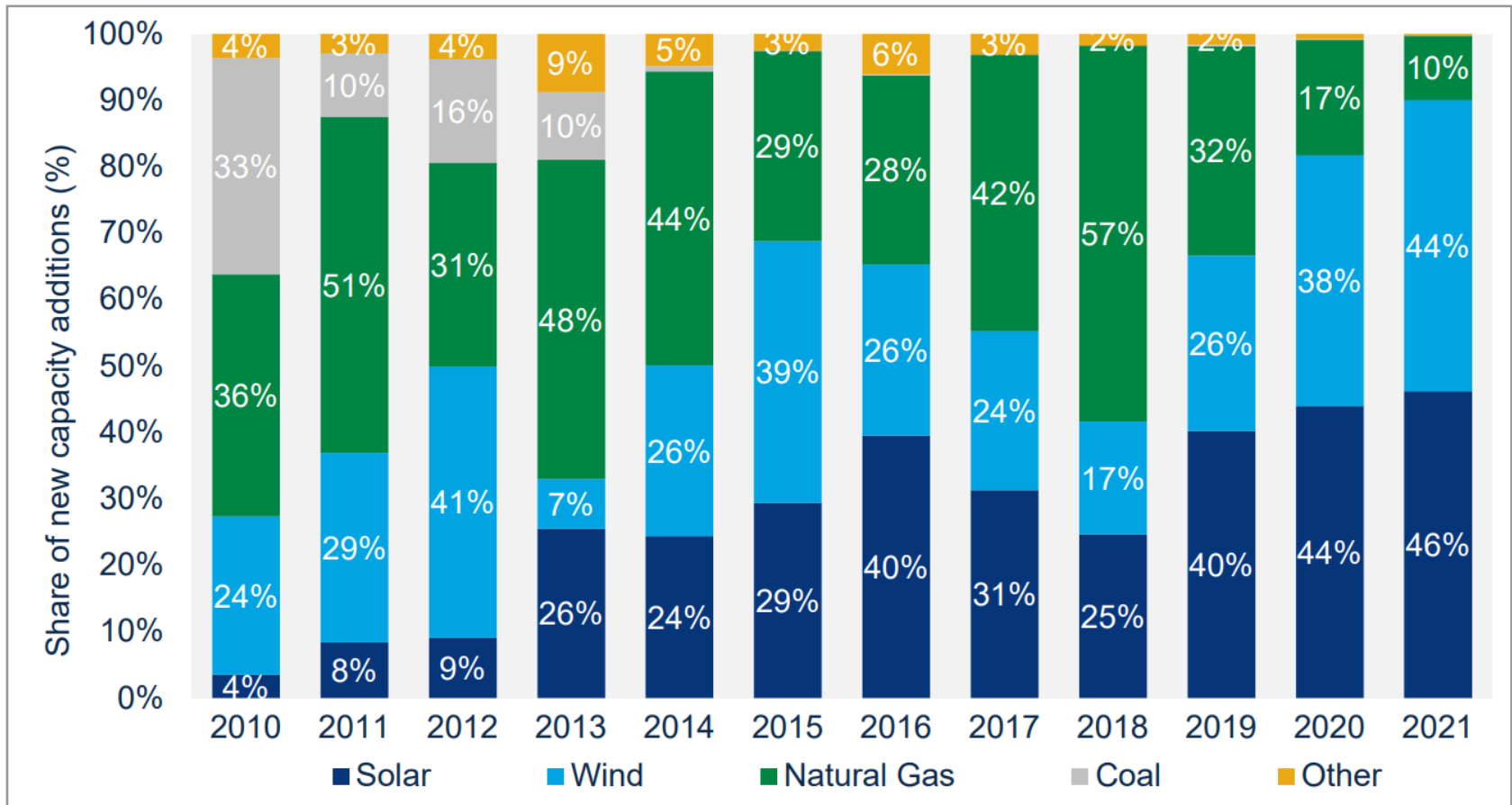
# Solar in Context

- Pennsylvania Climate Action Plan (2021)
  - Reduce GHGs 80 percent by 2050, from 2005 levels
    - Increase use of clean, distributed electricity generation resource
    - Create a diverse portfolio of clean, utility-scale electricity generation
- PA DEP's Finding PA's Solar Future (2017-2019)
  - Plan and implementation strategy that aims at reaching 10% of PA's retail electricity sales (approx. 10-12 GW) being generated from in-state solar production by 2030
- DVRPC's Connections 2050
  - Reduce emissions to a net zero level by 2050
    - **goal** to increase the installed capacity of solar PV to 4.3 GW by 2030 in the Pennsylvania subregion
- Chester County Climate Action Plan
  - Reduce GHGs 80 percent by 2050 from 2005 levels,
    - 100% renewable electricity county-wide by 2050
- Municipalities
  - 15 municipalities in Chester County have passed resolutions to transition to 100% clean and renewable energy by 2050 (electricity by 2035)



# Solar PV – New Generating Capacity

New US electricity-generating capacity additions, 2010 – 2021

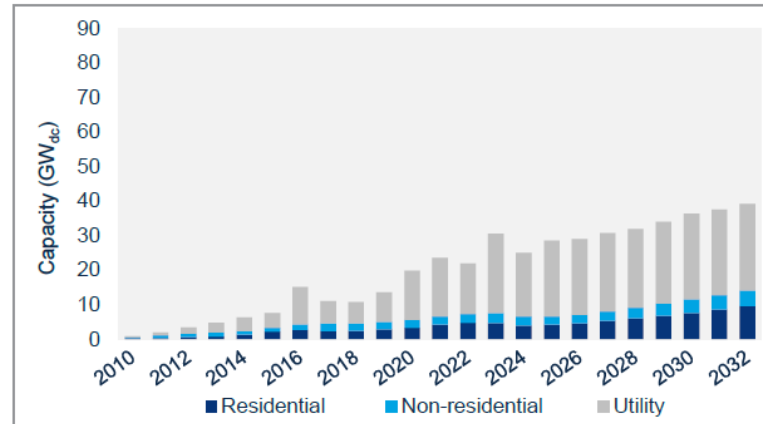


Source: Wood Mackenzie, Federal Energy Regulatory Commission (for all other technologies); Note that some 2021 values were estimated based on Wood Mackenzie's North America Power Service data.

# Solar PV – Forecast Capacity

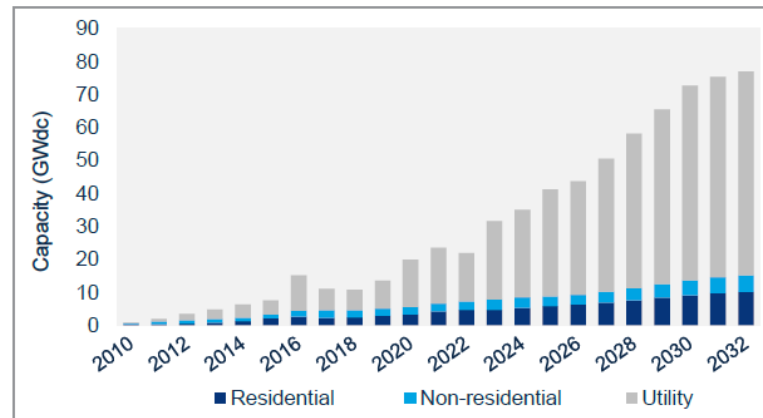
## Base case forecasts

US PV installation historical data and forecast, 2010-2032



## ITC extension forecasts

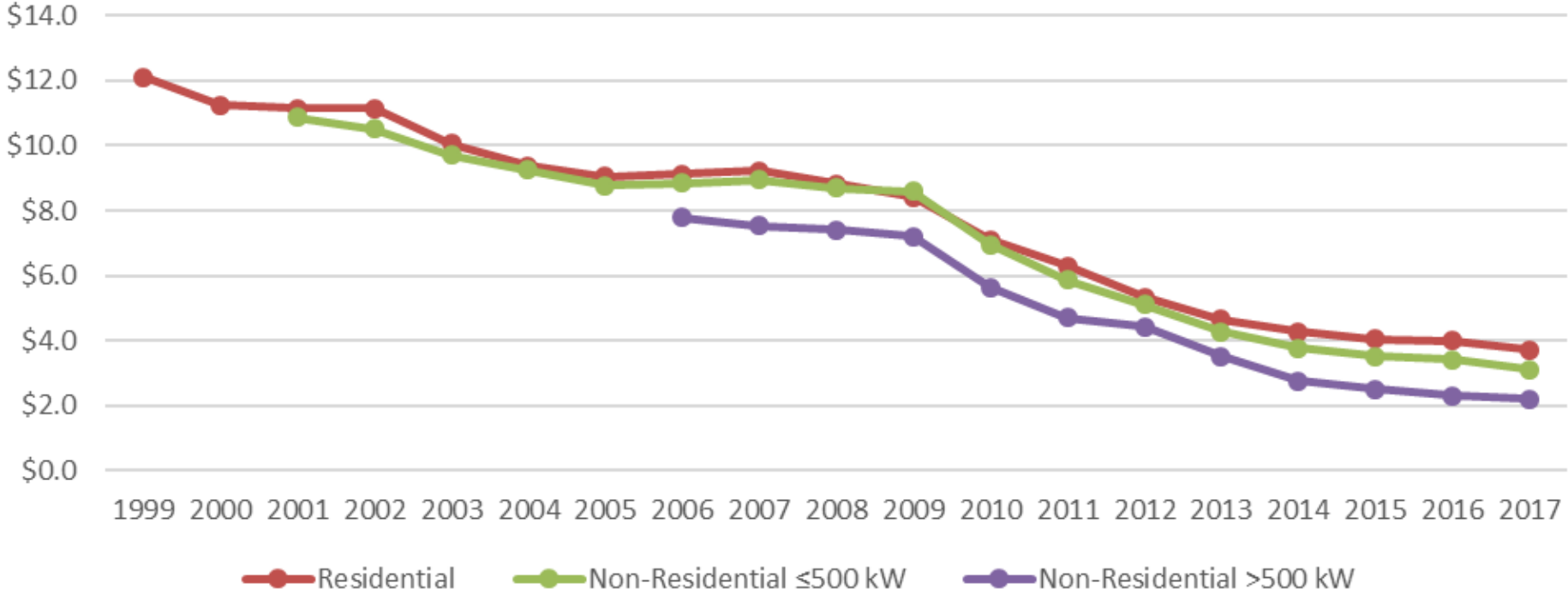
US PV installation historical data and forecast, 2010-2032



Source: Wood Mackenzie; Note that non-residential solar is broken out into commercial solar and community solar for both scenarios through 2026 only. See respective market segment outlook sections.

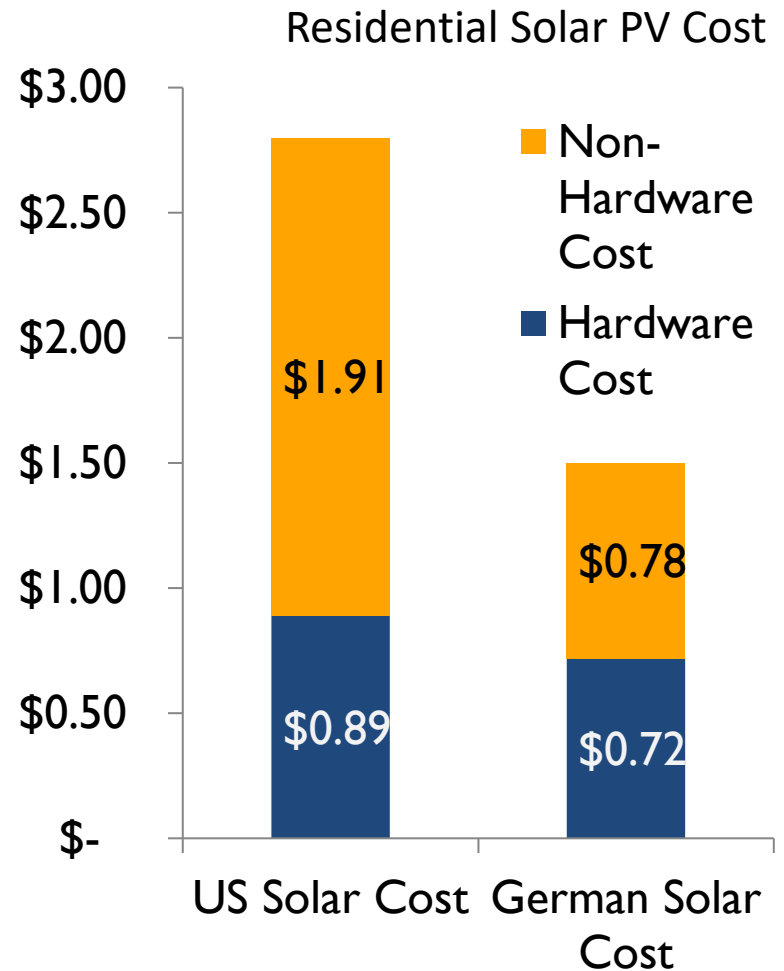
# Solar PV Cost

US Average Installed Cost for PV (\$/W)



# Solar Soft Costs

- **Soft costs: zoning, permitting, inspection, customer acquisition, utility interconnection, etc.**
- Residential solar prices have declined 48% since 2010, but majority of savings have come from hardware costs.
- Soft costs have **not** seen a similar reduction. Make up 64% of overall cost of solar.
- Onerous costs slows solar market growth by reducing ROI for solar and impacting installers willingness to do business in an area.



# Soft Costs – Local Government Role

Munis can help reduce soft costs by

1. Applying for **SOLSMART** designation
2. Reducing red tape assoc. with zoning, permitting, inspection. Make processes easier and more transparent.
3. Incorporate solar into local planning processes
4. Training staff on solar best practices for planning, zoning, permitting, and fire safety
5. Educate community on benefits and process of going solar
6. Engage the local utility to help drive process improvements
7. Install solar on local government facilities
8. Encourage or incentivize solar on existing buildings and new construction



[www.solsmart.org](http://www.solsmart.org)



**Solsmart Actions center around these items**

# Solar PV Ordinance Goals

A clear and transparent ordinance that does not include unnecessary restrictions on solar PV installations

Balancing community goals with support for solar PV development.



# Solar PV Installations

## Accessory Use (<.35 - <1 acres)

- Behind the meter



Source: eeremultimedia.energy.gov



Source: Exact Solar

## Medium Scale (.35 -15 acres)

- Behind the meter  
or
- Feeding the grid (PPA or  
Community solar - not legal...yet



Source: Solar States



Source: Liz Compitello

## Utility Scale (>15 acres)

- Feeding the grid



Source: SEPTA

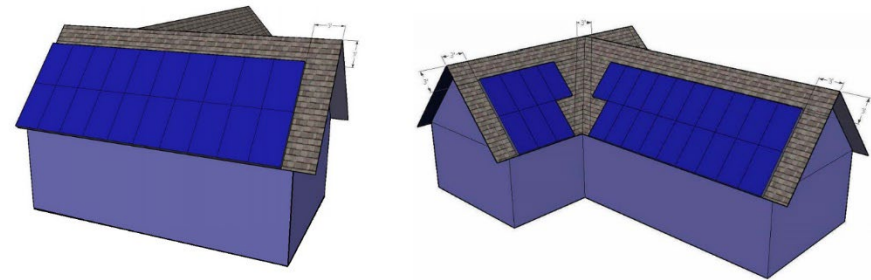
1 MW =  
4 - 7  
acres

Section	Topics to Address	
<b>Intent/Purpose</b>	<ul style="list-style-type: none"> <li>• Solar as an inherently beneficial use</li> <li>• Desire to balance this use with community goals</li> <li>• Tie to MPC if stand-alone</li> </ul>	
<b>Definitions:</b> Clearly define types and sizes of solar PV	<ul style="list-style-type: none"> <li>• Ground Mounted Solar Energy System</li> <li>• Roof Mounted Solar Energy System</li> </ul>	Define “size” by acreage (not capacity): <ul style="list-style-type: none"> <li>• Accessory Use</li> <li>• Medium Scale</li> <li>• Large Scale</li> </ul>
<b>Applicability</b>	<p><b>Accessory use</b> – by right in all major zones</p> <p><b>Medium Scale</b> – by right where possible</p> <p><b>Utility Scale</b> – Prohibit in residential and nearby. Special Exception or Conditional Use Permit, site plan review</p>	
<b>Dimensional Standards</b>	<ul style="list-style-type: none"> <li>• Height</li> </ul>	<ul style="list-style-type: none"> <li>• Setbacks</li> <li>• Lot coverage</li> </ul>
<b>Design Standards</b>	<ul style="list-style-type: none"> <li>• Signage</li> </ul>	<ul style="list-style-type: none"> <li>• Screening</li> <li>• Fencing</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>• Protecting farmland + Agrovoltatics</li> <li>• Historic Districts</li> </ul>	<ul style="list-style-type: none"> <li>• Protecting Trees</li> <li>• Decommissioning</li> <li>• Solar Access</li> </ul>

# Rooftop Accessory Use Dimensional Standards

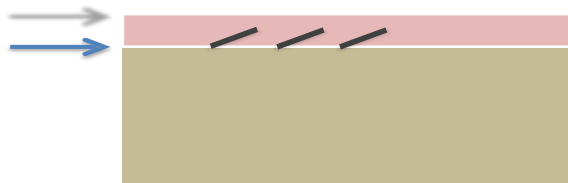
## Setbacks:

- Needed for access + First Responder Safety.
- Codified in the Fire Code (3' from ridge, 3' access (side or bottom))

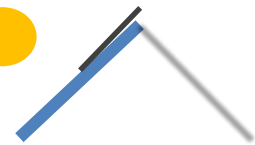


## Height:

15' Exception for Solar PV  
Max Height of  
District



Yes



No

# Ground Mounted Accessory Use Dimensional Standards

## Lot standards

- Ground mounted should be considered pervious if area underneath is Height
- Underlying accessory use regulations may be prohibitive if height limit is less than 15', consider exempting if so.
- Parking canopies – allow exception if solar is covering impervious parking surface. Height shouldn't exceed primary use height, should allow for emergency vehicles.

## Setbacks

- Accessory use setbacks may be appropriate
- May wish to require no ground mounted systems in front or side yards



Source: Exact Solar



Source: Exact Solar

# Design and Dimensional Standards – Accessory Use

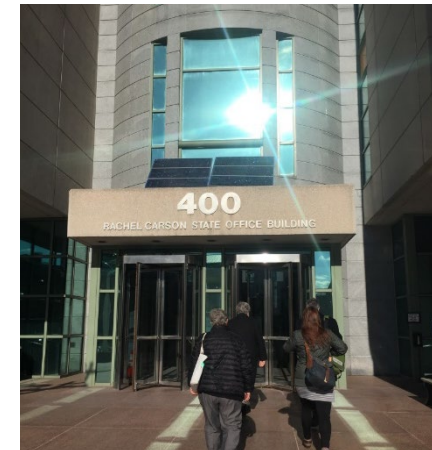
## Avoiding Unnecessary Barriers

Barriers that can limit functionality/add cost:

- Aesthetic concerns should not drive the ordinance
  - Sensible height and setback requirements should be enough to curb less attractive installations
  - Do not require solar to be invisible from public rights-of-way
    - Except historic districts
    - Ground mounted: restrict systems in the front yard in most districts
- Glare studies are unnecessary for small, (medium, and large) solar PV systems
  - Solar PV designed to absorb light
  - Solar PV covered in anti-reflective material
  - Only really *required* on FAA adjacent property
- Fencing/screening should not be included
  - This is covered by the National Electric Code for ground mounted systems



Source: HelioPower,

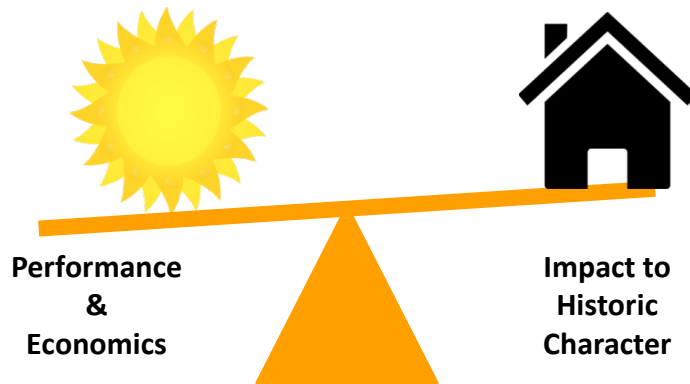


Source: Liz Compitello

# Historic Preservation

## Historic Preservation

- Minimize visibility
  - Rear slopes, on new construction, ground mounted
- Should be reversible and not damage the property
- Resource: NREL Implementing Solar PV Projects on Historic Buildings and in Historic Districts



Concept source: Rebecca Ross, Delaware County Planning Department



# Medium and Utility Scale Solar PV

- Ensure the zoning ordinance establishes a clear regulatory pathway for large-scale solar PV
  - Special use permit, subject to site plan review
  - Consider making some medium-scale projects by right
- Glare studies should not be required (unless FAA adjacent)
- Stormwater management
  - Can be considered pervious if proper treatment of groundcover
  - Stormwater management plan required
- Buffers (vegetative) – along roadways, viewsheds.
  - Require native species if possible.
- Protect Agricultural resources
  - Encourage/enable (and define) “Agrovoltaics” (co-location of solar and agricultural resources)
  - Require that in Agricultural Zoning Districts, no more than 50/75 percent of the entire area for development shall consist of Class I and Class II prime agricultural soils (unless using agrovoltaics)
  - Require native/perennial, pollinator-friendly vegetation for a % of the development
- Decommissioning
  - Require a decommissioning plan that specifies timing/circumstance, restoration criteria, disposal, and cost. Update regularly? Bonding/security?
- Tree Removal
  - Strongly discourage (“to extent practicable”) or prohibit tree removal.
  - Tie tree restoration to SALDO requirements if applicable.

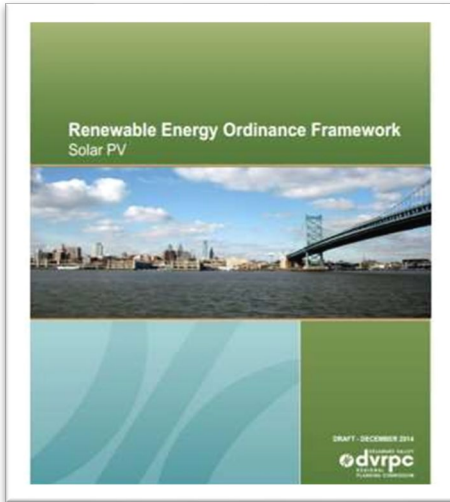


Source: SEPTA



Source: Getty

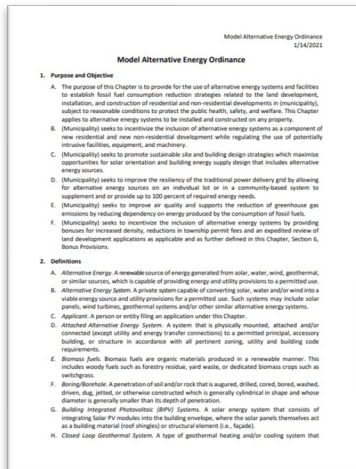
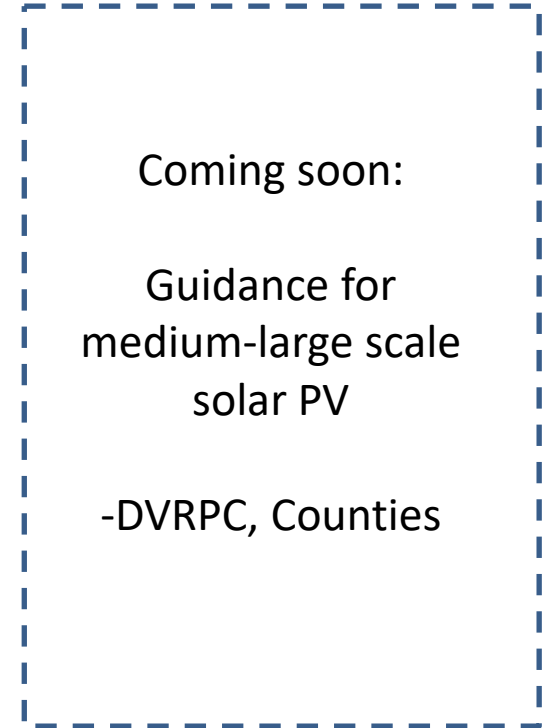
# Regional Resources



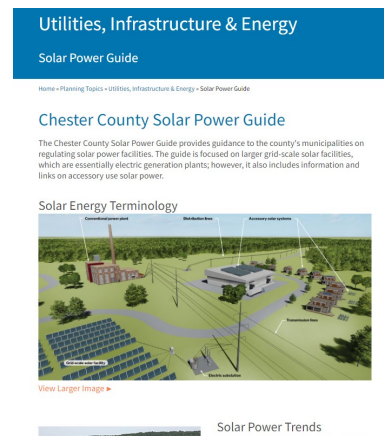
DVRPC Solar Energy Ordinance Framework



Montgomery County Renewable Energy Series



Bucks County Model Alternative Energy Ordinance



<https://chescoplanning.org/uand i/solarpowerguide/>



# Thank you!

Liz Compitello

Manager, Sustainable Energy

DVRPC

[ecompitello@dvrpc.org](mailto:ecompitello@dvrpc.org)