



*Solar Deployment in the Chesapeake*  
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## Presentation Goals

- ❖ **Overview of solar development process**
- ❖ **Locate existing and planned solar development**
- ❖ **Understand factors that contribute to successful and unsuccessful solar deployment**



**How are solar projects sited?**

# PRELIMINARY SITE SELECTION

1. Transmission Proximity
2. Interconnection Suitability
3. Sensitive Habitats and T&E Presence
4. Ecological Considerations
5. Land Ownership & Tribal Considerations
6. Local Zoning & Ordinances
7. Public Support

*A project several years in development can be stalled or terminated by (a) insufficient grid capacity, (b) sensitive ecological factors, (c) rejection by the host locality and/or local opposition. All these factors are dynamic over time.*

# What is Transmission Injection Capacity, and Why is it the *Hidden X-Factor* for Clean Energy Developers?

The transmission injection capacity (“TIC”) at a given point on the electrical system defines how much power can be injected at that point without triggering transmission upgrades.

If the cost of upgrading the grid is commercially feasible, developers may elect to pay to do so to secure room on the electrical grid for their proposed project.

Clean energy development is first driven **not by identification of suitable land, but by seeking out the places on the grid that have sufficient room for injection of electricity.**

To identify the TIC available at any point, developers must enter a **multi-year study period** governed by the Regional Transmission Organization (RTO). The study period is one of variable uncertainty, adding risk to additional investments.

**Transmission underpins the clean energy business model: it makes or breaks every project.**

# Get In Line: The Long Road to Operation

## Before Applying for Local or State Permits:

- Series of Transmission Queue Analyses (>3 years)
- Financing
  - Private and public financiers back clean energy developers
  - A project may change hands as it progresses in development stages
  - Potential offtakers involved early in the process (Utilities, Corporates, Co-ops)

## Types of Approvals Typically Required

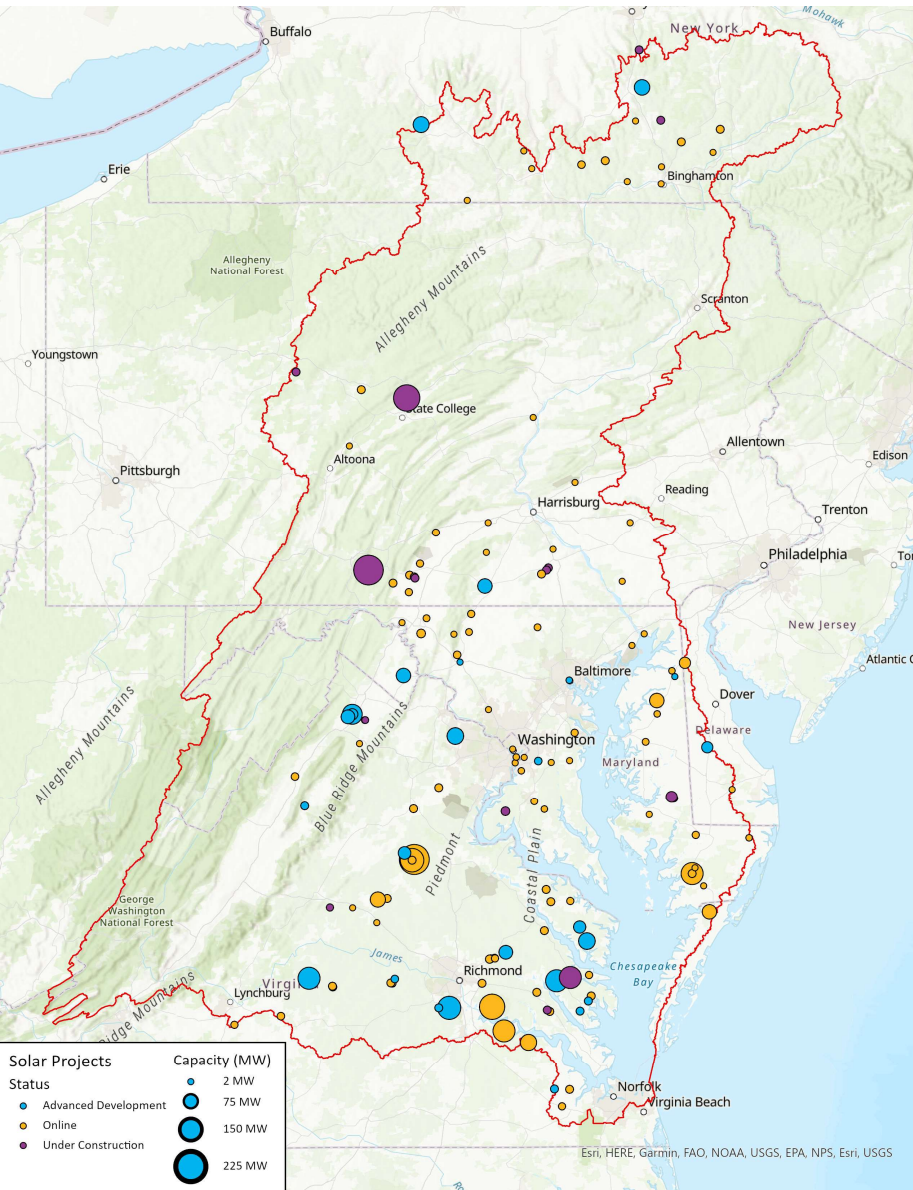
- Authorization to Interconnect (RTO)
- Conditional Use Permit (Locality)
- Certificate of Public Convenience and Necessity (Utility Commission)
- State Permit(s) (Relevant State Agency)

# Existing & Potential Projects

- Overview operational projects
- Survey of PJM Interconnection Queue
- Other Factors Influencing Development



# Existing Projects

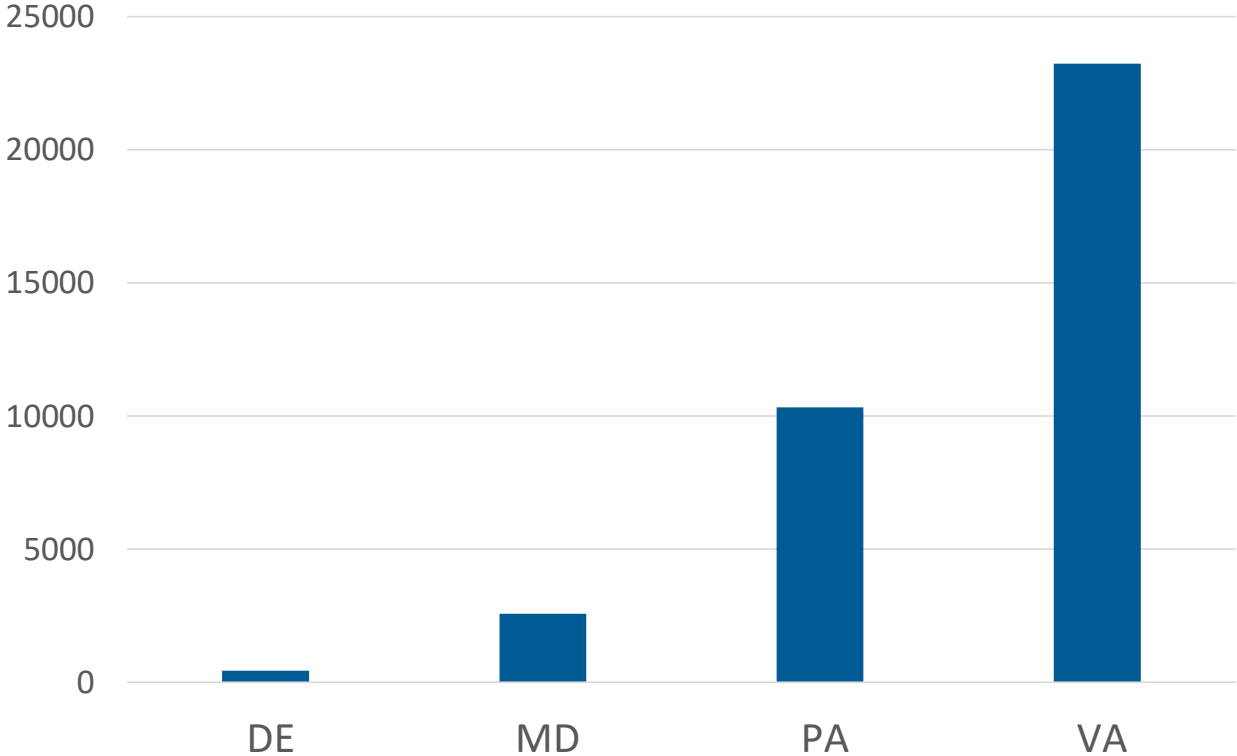


- Existing Projects are in **Orange**
- Projects Under Construction are in **Purple**
- Projects in **Blue** are in advanced development; ACP's Research & Analysis team believes they will likely begin construction soon



# Transmission Interconnection Queue Data

## Queued Solar Capacity, by State (MW)



| County        | State | Proposed Capacity (MW) |               |    |     |
|---------------|-------|------------------------|---------------|----|-----|
| Sussex        | VA    | 2,103                  | Cumberland    | VA | 509 |
| Greensville   | VA    | 2,055                  | Surry         | VA | 505 |
| Brunswick     | VA    | 1,558                  | Centre        | PA | 474 |
| Mecklenburg   | VA    | 1,118                  | Henry         | VA | 462 |
| Halifax       | VA    | 924                    | Caroline      | VA | 455 |
| Charlotte     | VA    | 923                    | Lawrence      | PA | 446 |
| Clearfield    | PA    | 798                    | Buckingham    | VA | 443 |
| Pittsylvania  | VA    | 742                    | Prince Edward | VA | 441 |
| Lunenburg     | VA    | 732                    | Campbell      | VA | 413 |
| Isle of Wight | VA    | 716                    | Garrett       | MD | 373 |
| McKean        | PA    | 676                    | Elk           | PA | 363 |
| Somerset      | PA    | 666                    | Erie          | PA | 341 |
| Fluvanna      | VA    | 647                    | Montour       | PA | 335 |
| Louisa        | VA    | 536                    | Pulaski       | VA | 333 |
| Augusta       | VA    | 530                    | Wythe         | VA | 333 |
|               |       |                        | Charles City  | VA | 328 |
|               |       |                        | Frederick     | VA | 314 |
|               |       |                        | Crawford      | PA | 302 |

## Notable State Solar Energy Goals

- Virginia
  - Per Virginia Clean Economy Act, 16 GW solar target
- Pennsylvania
  - AEPS expansion under consideration
- Maryland
  - 14.5% of generation from solar resources (5 GW) by 2030
- New York
  - Zero emission standard; Streamlining permitting process
- Delaware
  - 50% RPS by 2035



# Question & Answer



**Thank you.**

Questions? Contact [dmurray@cleanpower.org](mailto:dmurray@cleanpower.org)

## Community Solar

- Connected to *distribution lines*
- Less than 5 megawatts, or less than 20 acres
- Provides power to locally via subscription model
- Retail compensation may enable greater flexibility in project design, such as:
  - Agrivoltaics
  - Pollinator friendly habitat
  - Canopy

## Utility-Scale Solar

- Connected to *transmission lines*
- Greater than 5 megawatts, can be over 1,000 acres in size
- Sells energy wholesale to regional electricity grid, utility or large customer
- Cost margins sensitive, typically subject to public utility commission review

***Most solar developers specialize in one or the other, but some develop both***