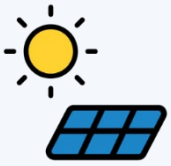
CLEAN ENERGY FORUM INFORMATION SHEET

SOLAR BASICS

Solar technology is a type of renewable energy that converts sunlight into electrical energy through photovoltaic (PV) panels, as shown in the graphic below.



Energy from sunlight is absorbed by PV cells in the solar panel

This creates electrical charges, causing electricity to flow

Energy is used to generate electricity in homes & businesses

Energy can be stored in batteries for later use

WHAT IS AN INTERCONNECTION

Most solar panel installations are connected to the electrical grid in a process known as solar interconnection. With grid-tied systems, you can draw power from the power grid when your solar panel system isn't producing electricity and potentially put power back on to the grid if the solar power produces more than is consumed at the site. Projects must go through an interconnection application process with the local utility to ensure that it meets standards and requirements for grid interaction.

ROOFTOP SOLAR AND GROUND MOUNTED SOLAR

Rooftop solar installations are typically mounted on top of roofing materials and oriented to maximize solar power production. This type of installation allows homeowners, multi-family dwellings, and commercial buildings to utilize available space to produce solar energy. Ground mounted solar is also an option for larger-scale systems where space is available and can be located on brownfield sites or combined with agriculturally friendly landscaping practices.

SOLAR PERMITTING

Renewable energy regulations take the form of Permit by Rule (PBR) requirements to enable the construction and operation of small renewable energy projects. Permitting processes can vary by local and state jurisdiction and could include permitting and inspections for structural, electrical, and fire safety. Planning and zoning approvals may also be required depending on the size and location of the solar project.

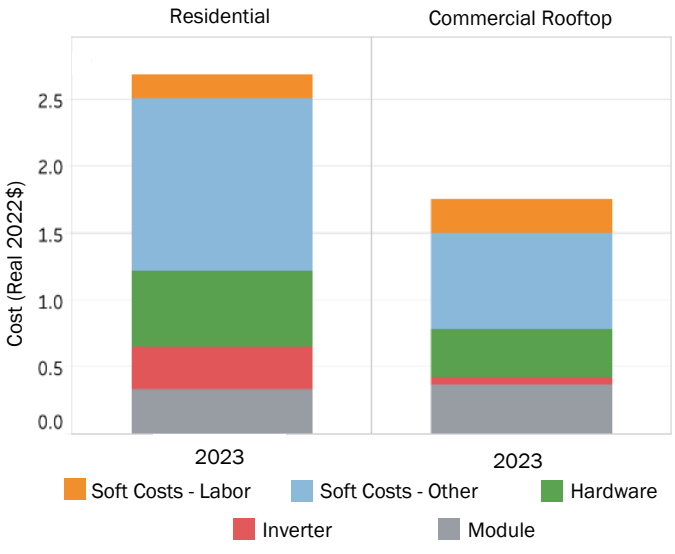
SOLAR PROJECT COST DRIVERS

Major drivers that influence prices in the solar market can be categorized into soft costs – those associated with permitting, inspection, interconnection, financing, engineering, and the labor to install solar; and, hardware costs, including the panels, inverters, and other system components. In 2023, soft costs not related to labor were the primary cost driver for new solar projects. It should also be noted that federal, state, local, and utility regulatory policies can have a large impact on solar project costs.

COMMUNITY SHARED SOLAR

The U.S. Department of Energy defines a community solar project as when a single solar project connects solar energy to multiple users who then receive benefits on utility bills that are directly attributable to the project. This allows solar energy to reach more people, since nearly 50% of households and businesses are unable to host rooftop solar systems (NREL, 2015).

Figure. Solar Installed System Cost Analysis for the year 2023.
Source: NREL



SOLAR IN THE REGIONAL MARKET

REGIONAL LANDSCAPE

In 2023, Virginia ranked as the 9th largest producer of solar energy in the United States. Today 7.3% of Virginia's total power is generated from solar plants, while nuclear and natural gas remain the largest source of electric generation at 88.6% *(EIA, 2024).* The District of Columbia generates 22.8% of their electricity from solar energy, and Maryland generates 3.2% from solar, while the leading source of generation is natural gas *(D.C. – EIA 2024, MD – EIA 2024).*

CLEAN ENERGY GOALS

- 250,000 solar rooftops in the region by 2030 *(Metropolitan Washington 2030 Climate and Energy Action Plan, 2020)*
- District of Columbia RPS requires 100% of electricity sales to come from renewable energy sources by 2032, with 10% coming from solar by 2041 *(D.C. Law 22-257, 2018)*
- Maryland RPS requires 50% of electricity sales in the state to come from renewable sources by 2030, with at least 14.5% coming from solar by 2030 *(Renewable Energy Portfolio Standard Report, 2019)*
- Virginia RPS requires Dominion Energy and Appalachian Power to produce their electricity from 100% renewable sources by 2045 and 2050, respectively *(HB1526, 2020)*

PROJECT FUNDING OPPORTUNITIES

Incentive Programs

- Investment and Production Tax Credits with direct pay available
- Small Business & Non-Profit Loan Program
- Energy Project & Equipment Financing
- SAVES Green Community Loan Program
- USDA REAP Loan Guarantees and Grants
- Advanced Energy Investment Tax Credits
- DC Solar for All
- MD Solar Renewable Energy Certificates

Green Banks

Green Banks provide access to financing options that accelerate energy efficiency, renewable energy, and clean energy investments across their communities.

- Virginia Clean Energy Innovation Bank
- Montgomery County Green Bank
- DC Green Bank
- Maryland Clean Energy Center
- FSC First Program

PACE

Property Assessed Clean Energy (PACE) is an innovative clean energy financing tool that provides 100% upfront capital to property owners who want to perform energy efficiency upgrades to their building. It can also be used for solar projects. Learn more about DC PACE and MD PACE.

SOLAR MARKET ENABLERS

- Virginia Energy Resilience Program
  Working with economically impacted communities to measure their energy resilience and identify long-term solutions to reduce or eliminate vulnerabilities through a $1 million U.S. DOE funded project.
- Net Metering Laws
  Allows customers of investor-owned and cooperative electric utilities to install solar systems on their premises to generate their own electricity.
- SolSmart
  No-cost technical advisor program to bring solar-specific resources and technical assistance to localities across Virginia.
- Solar and Energy Storage Pollution Control Tax Exemption
- Shared Solar and Community Solar
- Community Choice Aggregation
  Virginia is one of ten states that are authorized to participate in Community Choice Aggregation (CCA) programs which can help negotiate lower rates and choose a greater percentage of renewable energy.
- Solarize NoVA
  A community-based initiative that reduces the cost and complexity of going solar.