



# VIRGINIA LEADING BY EXAMPLE

Nam Nguyen  
Associate Director  
Virginia Energy Management Program



CLEAN ENERGY VIRGINIA

# STATE RENEWABLE ENERGY DEVELOPMENT

- ▶ Remington Solar Facility, 20MW (2017)
- ▶ Oceana Solar Facility, 17.6MW (2018)
- ▶ Signed in 2019, a historic state contract of 420 megawatts of renewable energy, which is the equivalent of powering more than 100,000 homes
  - ▶ Will ensure that 30 percent of the electricity consumed by state agencies and institutions in Virginia comes from renewable sources
  - ▶ 345 Megawatts coming from four solar energy projects
  - ▶ 75 Megawatts of wind energy will be Virginia's first-ever onshore wind farm



CLEAN ENERGY VIRGINIA

# STATE OWNED SOLAR FACILITIES

- ▶ University of Virginia Hollyfield Solar Facility, 17 MW
- ▶ University of Virginia Puller Solar Facility, 15 MW
- ▶ William & Mary planned 20MW Solar Facility
- ▶ Rooftops & ground-mounts
  - ▶ VA Public Safety & Training, Hanover
  - ▶ Department of Corrections, Haynesville
  - ▶ Department of Game and Inland Fisheries
  - ▶ Department of Forestry
  - ▶ DMME, Big Stone Gap
  - ▶ University of Virginia
  - ▶ William & Mary
  - ▶ James Madison University
  - ▶ Virginia Tech
- ▶ VCCS Solar PPA RFP cooperative procurement



CLEAN ENERGY VIRGINIA

# LOCALITY SOLAR TECHNICAL ASSISTANCE

- ▶ Dedicated agency staffing resource approved and funded in 2019 General Assembly Session
- ▶ Policy and technical assistance to local officials, private companies, land owners and other community members on solar resources, land use, permitting, and environmental decision-making
- ▶ Research-based best practice approaches to the siting and permitting of large commercial and utility-scale solar installations while balancing competing land uses and interests, including considerations for environmental justice, water quality, historic and cultural resources, and grid infrastructure
- ▶ No-cost SolSmart Program, funded by U.S. DOE and Virginia Energy

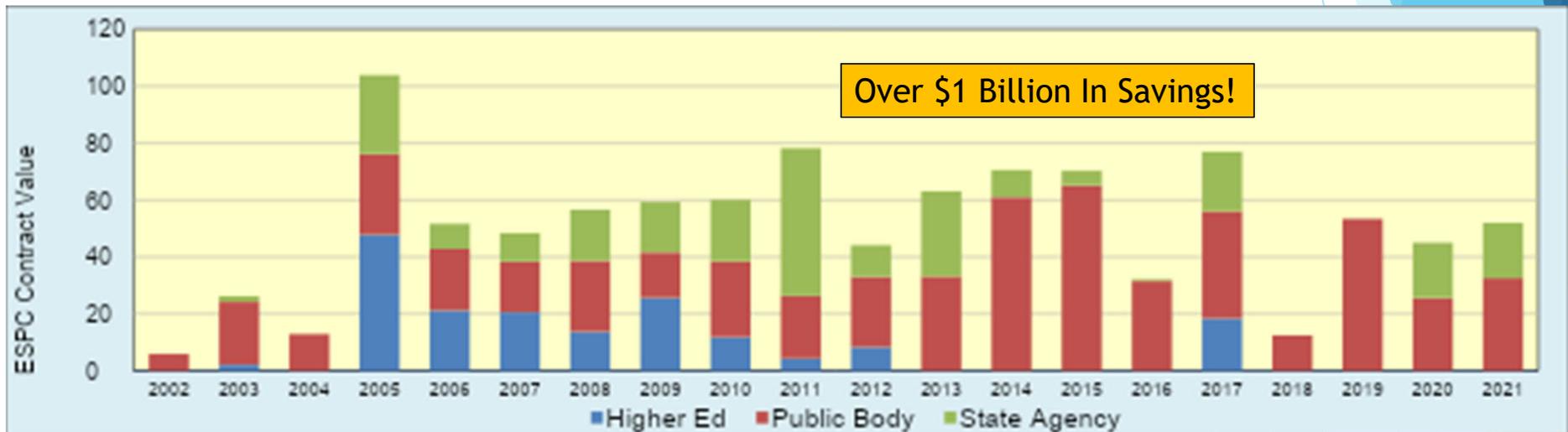


CLEAN ENERGY VIRGINIA



# ENERGY SAVINGS PERFORMANCE CONTRACTING

- ▶ New State ESPC contract in 2019 for 10-year term provides stability
- ▶ Introduced Solar Enhanced ESPC in June 2019, to promote solar as supplement to traditional Energy Conservation Measures (ECMs)

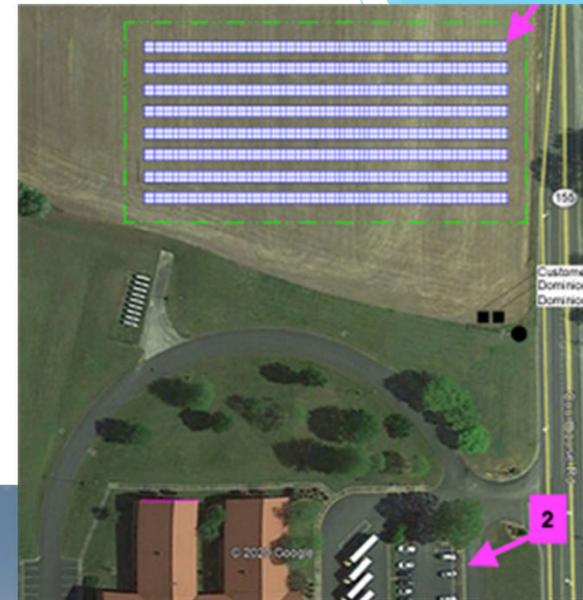


CLEAN ENERGY VIRGINIA



# SOLAR-ENHANCED ESPC

- ▶ Charles City County Public Schools
  - ▶ 712.5kW Ground mount array
  - ▶ Will provide approx. 60% of high school's consumption
  - ▶ Part of a larger \$4.6M EPC project
  - ▶ \$500,000 in DMME grant funding to help cover costs
- ▶ Virginia Distribution Center
  - ▶ 365kW Ground mount array
- ▶ VA Museum of Natural History
  - ▶ 60kW Roof mount array



CLEAN ENERGY VIRGINIA

# ENERGY DATA WAREHOUSE



**COVA: Building Energy Summary**

Commonwealth of Virginia Energy Dashboard

Welcome!

**Please note:**  
This dashboard is in the early stages of development and may reflect incomplete data. We are consistently improving on what is reported as information becomes available or is added.  
As the dashboards are further developed, agency energy managers assigned access will be able to further drill down into their specific building data.  
We welcome your comments and suggestions to help us improve the dashboard!  
You can also learn more about **DMV's** Energy Management Programs.

State Facility Accounts - Highest to Lowest Calendarized Annual Account Billing Rank: FY19

|  |                |
|--|----------------|
| WARR_JSA_Jefferson Labs                | \$1,518,090    |
| DOC_Greenville Correctional Facility   | \$1,174,790    |
| DOC_Poohatan Correctional Center       | \$1,054,266    |
| VPA_VIS_Virginia International Gateway | \$824,305      |
| DGS_DCLS Building                      | \$823,306      |
| DGS_Library of Virginia                | \$798,156      |
| DGS_James Monroe Bldg                  | \$683,550      |
| DOC_Deerfield Correctional Center      | \$623,788      |
| DGS_Main Street Center                 | \$499,314      |
| WARR_JSA_Jefferson Labs                | 23,651,390 kWh |
| DOC_Greenville Correctional C.         | 17,499,108 kWh |
| DOC_Poohatan Correctional C.           | 15,731,591 kWh |
| VPA_VIS_Virginia International         | 13,482,900 kWh |
| DGS_DCLS Building                      | 13,048,281 kWh |
| DGS_Library of Virginia                | 12,681,138 kWh |
| DGS_James Monroe Bldg                  | 10,923,511 kWh |
| DOC_Deerfield Correctional Cen.        | 9,461,586 kWh  |
| DGS_Main Street Center                 | 8,766,708 kWh  |

**COVA Buildings Map**

Map Satellite

**VDOT Central Office Annex Building**  
VDOT\_CENTRAL\_OFFICE\_ANNEX\_BUILD  
1401 E BROAD STREET  
VDOT Central Office Annex Building  
Richmond, VA 23219  
United States

Primary Use: General Office

Total Area: 196,000 SqFt

Cost Year-to-year: 40.8%

Use Year-to-year - Calendarized: 40.8%

**COVA: Building Energy Summary**

DGS Top 20 Building Calendarized

|                            |             |
|----------------------------|-------------|
| DGS_DCLS Building          | \$4.92/SqFt |
| DGS_VDH 400 E Cary         | \$2.00/SqFt |
| DGS_Library of Virginia_St | \$1.93/SqFt |
| DGS_State Capitol          | \$1.89/SqFt |
| DGS_Library of Virginia    | \$1.79/SqFt |
| DGS_Westmoreland Bldg      | \$1.67/SqFt |
| DGS_James Madison Bldg     | \$1.50/SqFt |
| DGS_SCC BUILDING           | \$1.40/SqFt |
| DGS_Jefferson Bldg         | \$1.40/SqFt |
| DGS_James Monroe Bldg      | \$1.19/SqFt |

DGS Top 20 Building Calendarized

|                        |                 |
|------------------------|-----------------|
| DGS_DCLS Building      | 77,994 kWh/SqFt |
| DGS_VDH 400 E Cary     | 30,900 kWh/SqFt |
| DGS_State Capitol      | 29,831 kWh/SqFt |
| DGS_Library of Virg... | 28,789 kWh/SqFt |
| DGS_Library of Virg... | 28,544 kWh/SqFt |
| DGS_Westmoreland...    | 25,762 kWh/SqFt |
| DGS_James Madison...   | 22,162 kWh/SqFt |
| DGS_SCC BUILDING       | 20,935 kWh/SqFt |
| DGS_Jefferson Bldg     | 19,110 kWh/SqFt |
| DGS_James Monroe...    | 19,006 kWh/SqFt |

Building Electric Performance Comparison: 12 month period ending June 2020

| Place   | Cost         | Use |
|---|--------------|-----|
| Total   | \$ 6,106,795 | 6%  |
| DGS_DCLS Building                             | \$ 924,777   | 1%  |
| DGS_State Capitol                             | \$ 719,206   | 23% |
| DGS_Library of Virginia                       | \$ 628,796   | 2%  |
| DGS_James Madison Bldg                        | \$ 455,039   | 3%  |
| DGS_SCC BUILDING                              | \$ 451,939   | 5%  |
| DGS_Poahontas Bldg                            | \$ 345,978   | 7%  |
| DGS_James Madison Bldg                        | \$ 252,839   | 6%  |
| DGS_Supreme Court Building                    | \$ 230,419   | 8%  |
| DGS_Patrick Henry Bldg                        | \$ 218,070   | 13% |
| DGS_Westmoreland Bldg                         | \$ 184,040   | 0%  |
| DGS_State Capitol                             | \$ 171,050   | 15% |
| DGS_Barbara Johns Building                    | \$ 142,943   | 0%  |
| DGS_Library of Virginia, State Records Center | \$ 139,992   | 7%  |
| DGS_Oliver Hill                               |              |     |

DGS Rank Highest to Lowest Cost Meters: Most Recent 12 Months (Calendarized)

| Meter                                     | Commodity | Place                   | Total Cost   |
|---|-----------|-------------------------|--------------|
| James Monroe Bldg - ELEC1_Billing Meter   | Electric  | DGS_James Monroe Bldg   | \$ 1,117,047 |
| Main Street Center - ELEC1_Billing Meter  | Electric  | DGS_Main Street Center  | \$ 92,129    |
| Poahontas Bldg - ELEC1_Billing Meter      | Electric  | DGS_Poahontas Bldg      | \$ 72,040    |
| SCC BUILDING - ELEC1_Billing Meter        | Electric  | DGS_SCC BUILDING        | \$ 69,655    |
| Library of Virginia - ELEC2_Billing Meter | Electric  | DGS_Library of Virginia | \$ 54,904    |

**APCO Territory Energy Dashboard**

| Year | Total Monthly Bill | Total kWh   |
|------|--------------------|-------------|
| 2018 | \$6,333,563.36     | 73,428,059  |
| 2019 | \$11,519,602.04    | 137,709,691 |
| 2020 | \$10,521,683.42    | 128,705,897 |
| 2021 | \$5,108,226.57     | 63,645,679  |

Total Monthly Bill by Agency Code

| Agency Name   | Total Monthly Bill     | Total kWh          |
|---|------------------------|--------------------|
| 2018 Catawba Hospital   | \$125,627.73           | 1,501,200          |
| 2018 Central Virginia Community College                         | \$183,788.73           | 2,173,587          |
| 2018 Central Virginia Training Center                           | \$270,067.89           | 3,210,216          |
| 2018 Commonwealth's Attorneys' Services Council                 | \$2,115.28             | 23,459             |
| 2018 Department for Aging and Rehabilitative Services           | \$2,894.06             | 28,800             |
| 2018 Department of Agriculture and Consumer Services            | \$24,202.61            | 285,280            |
| 2018 Department of Behavioral Health and Developmental Services | \$222,984.30           | 2,647,077          |
| 2018 Department of Conservation and Recreation                  | \$240,460.99           | 2,650,312          |
| 2018 Department of Corrections                                  | \$1,569,660.13         | 18,085,727         |
| 2018 Department of Environmental Quality                        | \$10,101.88            | 114,724            |
| 2018 Department of Fire Programs                                | \$2,126.81             | 16,960             |
| <b>Total</b>  | <b>\$33,483,075.39</b> | <b>403,489,326</b> |

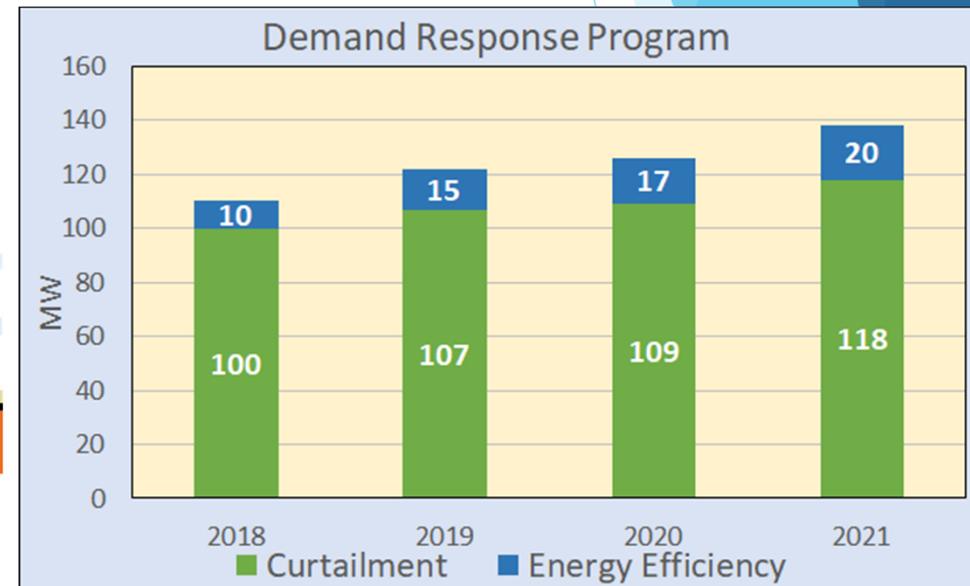
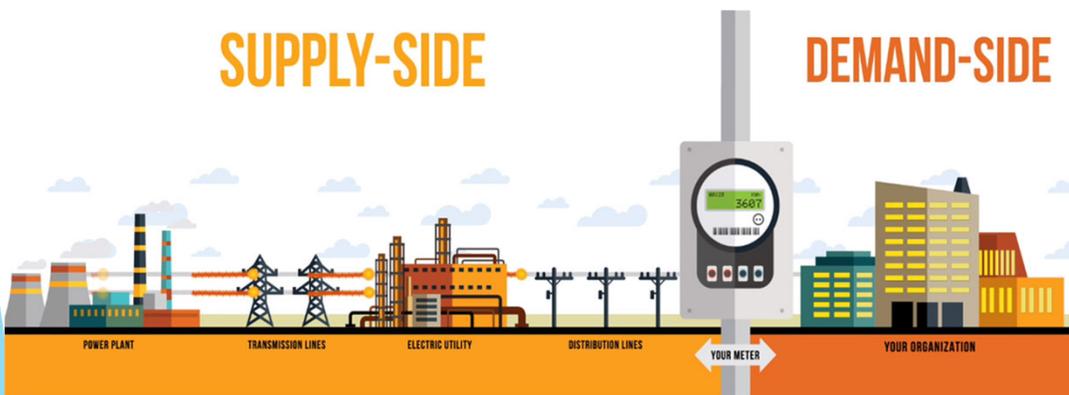


# CLEAN ENERGY VIRGINIA



# DEMAND RESPONSE PROGRAM

- ▶ Pays participating facilities to reduce energy load during times of grid stress
- ▶ Avoid dispatching peaker plants and defer new generating plants
- ▶ Over \$16M in payout credited back to participating state agencies and public bodies over the past four years

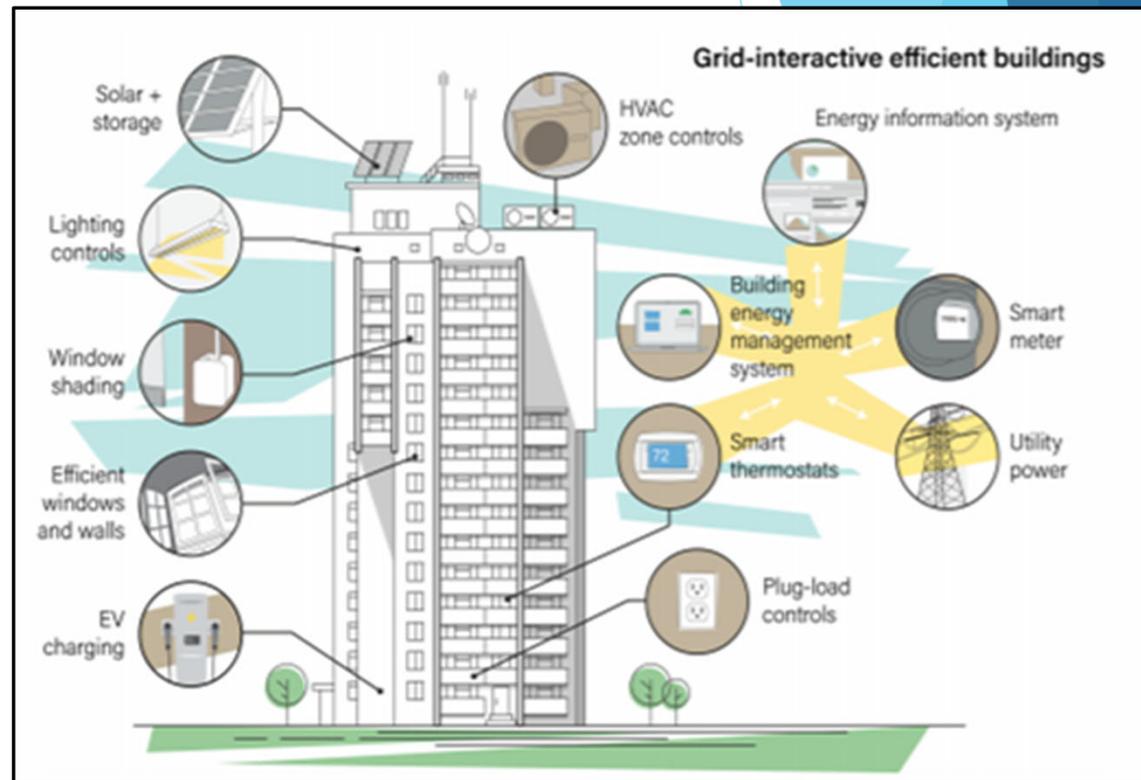


CLEAN ENERGY VIRGINIA



# GRID-INTERACTIVE EFFICIENT BUILDINGS

- ▶ Grid-Interactive Efficient Buildings (GEBs) are highly efficient buildings that can communicate with and serve as a resource for the grid (to shift or shed loads)



CLEAN ENERGY VIRGINIA