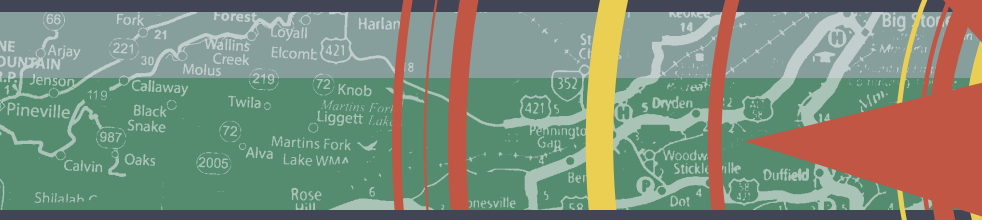
SOLAR ROADMAP

FOR SOUTHWEST VIRGINIA



Solar Workgroup of Southwest Virginia

SOLAR WORKGROUP
of Southwest Virginia

Solar Workgroup Goals

Goal 1: Identify and develop sites that are ideal for solar development, especially solar “ambassador” projects.

Goal 2: Grow workforce development and entrepreneurship opportunities to advance solar projects and maximize local benefits.

Goal 3: Expand education and outreach in communities and with local leaders around solar benefits and opportunities.

Goal 4: Promote policy changes that will help grow the solar industry in Southwest Virginia.

Introduction

Accelerating the solar industry in far Southwest Virginia will require multi-faceted strategies to create new solar installations and facilities, including accessing capital and financing options, promoting policies that support the solar industry, building workforce development and solar value chain opportunities, and maximizing community outreach and education around renewables and energy efficiency in the region's seven coalfield counties (Figure 1). These strategies are outlined in this roadmap to accelerate the solar industry in far Southwest Virginia, which has been developed with the ideas and strategy suggestions of members of the Solar Workgroup of Southwest Virginia. The Solar Workgroup is co-convened by the University of Virginia's College at Wise Office of Economic Development & Engagement, People Inc., and Appalachian Voices, with facilitation assistance from Dialogue + Design Associates.

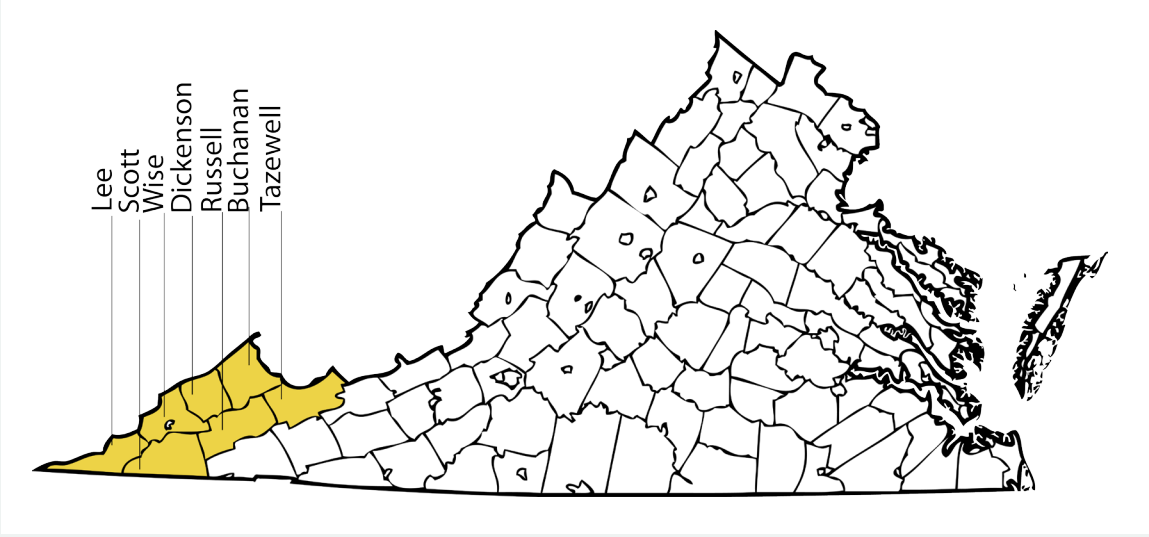


Figure 1: Southwest Virginia coalfield counties.

The Roadmap highlights the four goals of the Solar Workgroup and prioritizes projects that offer the greatest benefit to local economies or that will be highly visible and serve as solar industry "ambassadors" in the region. In addition, the Roadmap illustrates the local economic impact of solar projects and encourages "in-sourced" supply chains. This means proposing specific workforce development initiatives, local business opportunities in solar development, and policy recommendations, as well as addressing other questions and research needs raised by the Solar Workgroup.

Solar Workgroup Overview and Background

The Solar Workgroup of Southwest Virginia formed as a result of the 2016 SWVA Economic Forum hosted by UVa-Wise. The mission of the Solar Workgroup is to utilize the development of solar energy as an economic catalyst in the seven-county region of far Southwest Virginia. In early 2017, the Appalachian Regional Commission awarded a POWER Initiative Technical Assistance federal grant to fund the development of the Roadmap. The U.S. Department of Energy's SunShot Initiative has also provided support for the effort.

The Solar Workgroup holds monthly conference calls or in-person meetings in locations rotating throughout far Southwest Virginia. The meetings are open to the public, and the Workgroup is comprised of local governments, nonprofit and community action agencies, colleges, state agencies, planning district commissions, and other interested citizens and businesses. Additional information about the Workgroup is available at www.swvasolar.org.

In addition, several smaller committees focus on specific areas of action discussed in the Roadmap, including developing policy recommendations, building a residential solar program called Solarize Wise, creating innovative financing models and mechanisms to build solar, and developing priority sites to serve as "ambassador" solar projects throughout Southwest Virginia. Committee participants are drawn from the Workgroup, co-conveners, and other partners throughout the region. Consistent communication is maintained through an email listserv, with the Workgroup and co-conveners holding regular planning team calls to guide the overall development of the Workgroup. Finally, as noted above, several community meetings have been held across the region focusing on the Solarize Wise program and building the community's awareness of solar.

Four Key Goals of the Solar Workgroup

These goals were developed over the course of several Workgroup meetings in 2016 and 2017. At the onset of the process, participants shared hopes, goals, challenges, and opportunities for solar development in Southwest Virginia during an October 4, 2016 initial scoping meeting. Workgroup meetings continued to build on the ideas shared at the scoping meeting. Summaries of Workgroup meetings may be found at www.swvasolar.org.

The highlights of each of the four Workgroup goal areas and recent progress are included in the Roadmap, which includes an economic analysis and site assessments conducted by Downstream Strategies and additional partners. Early in the process, the Solar Workgroup prioritized having an independent economic analysis, which may be found in Chapter 3 and in Appendix A and B.

Economic Analysis Highlights

The economic analysis demonstrates that solar development in Southwest Virginia could bring significant economic benefits to the area — and to Virginia as a whole. The residential and commercial solar development scenario modeled in this report would generate approximately 43 steady, full-time jobs, including project development jobs, on-site jobs, module and supply chain jobs, and induced jobs. The utility solar development scenario would generate an additional 212 jobs per year, on

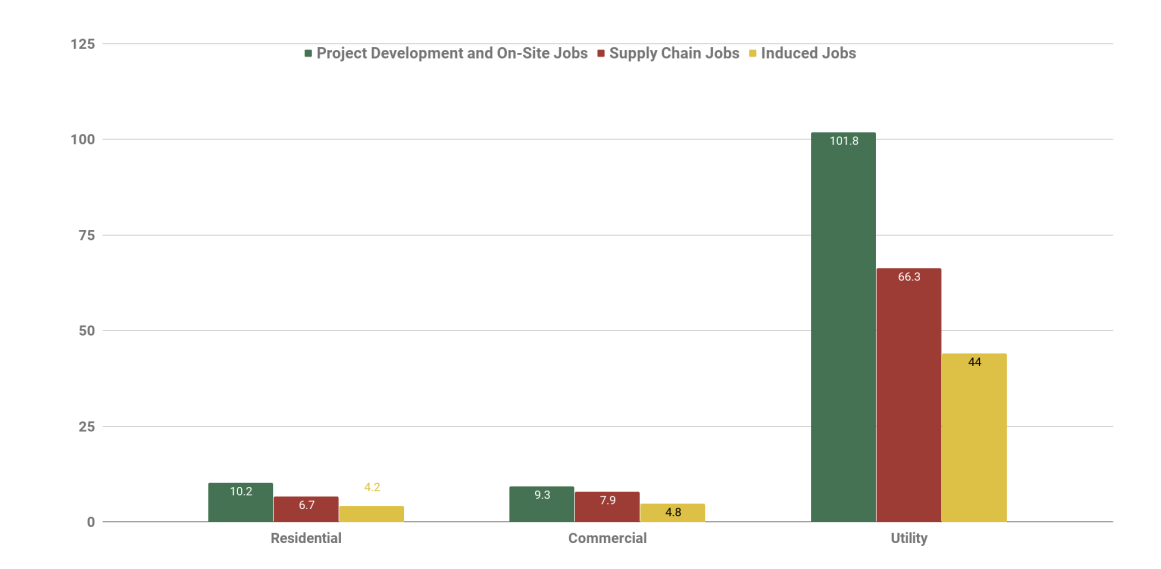


Figure 2: Projected jobs per year.

average, over the next decade (Figure 2). Earnings would total approximately $68,000 per year per worker, or $17.4 million total, including residential, commercial, and utility-scale solar installations.

The Commonwealth of Virginia and local governments can institute new policies that would incentivize additional investments in solar projects. For example, replacing Virginia's voluntary Renewable Portfolio Standard (RPS) with a binding RPS and

	Residential		Commercial		Utility	
Year	Capacity (MW)	No. systems	Capacity (MW)	No. systems	Capacity (MW)	No. systems
2018	0.9	183	2.0	7	0	0
2019	1.8	366	4.3	15	25	1
2020	2.7	549	6.3	23	25	1
2021	3.7	732	8.3	31	60	2
2022	4.6	915	10.3	39	60	2
2023	5.5	1,098	12.3	47	105	3
2024	6.4	1,281	14.3	55	105	3
2025	7.3	1,464	16.3	63	160	4
2026	8.2	1,647	18.3	71	160	4
2027	9.2	1,830	20.3	79	230	5

Note: MW=megawatt.

Table 1: Cumulative solar capacity and number of installations, 2018-2027.

specific goals for solar would provide additional momentum for utilities to build or help support solar projects. At the local level, establishing PACE financing programs (see Appendix A for description) would make it easier for commercial property owners to borrow money to install solar. These and other similar policies — together with local efforts like those spearheaded by the Solar Workgroup — would help make the aspirational scenario modeled in this report a reality (Table 1).

Acknowledgments

The Roadmap development would not have been possible without the members of the Solar Workgroup of Southwest Virginia or its co-conveners, including Shannon Blevins and Becki Joyce of UVa-Wise and Bryan Phipps of People Inc. Roadmap co-authors and content developers include the following Solar Workgroup members: Blake Sutherland of EcoLogical Energy Systems in Bristol, Tennessee; Evan Hansen, Joey James, and Alan Collins of Downstream Strategies in Morgantown, West Virginia; Matt Wasson, Kate Boyle, Adam Wells, and Lydia Graves of Appalachian Voices; and Christine Gyovai and Emily Carlson of Dialogue + Design Associates, who were all instrumental in developing the Roadmap. In addition, funding from the POWER Initiative, sponsored by the Appalachian Regional Commission, provided the resources for the Roadmap development.

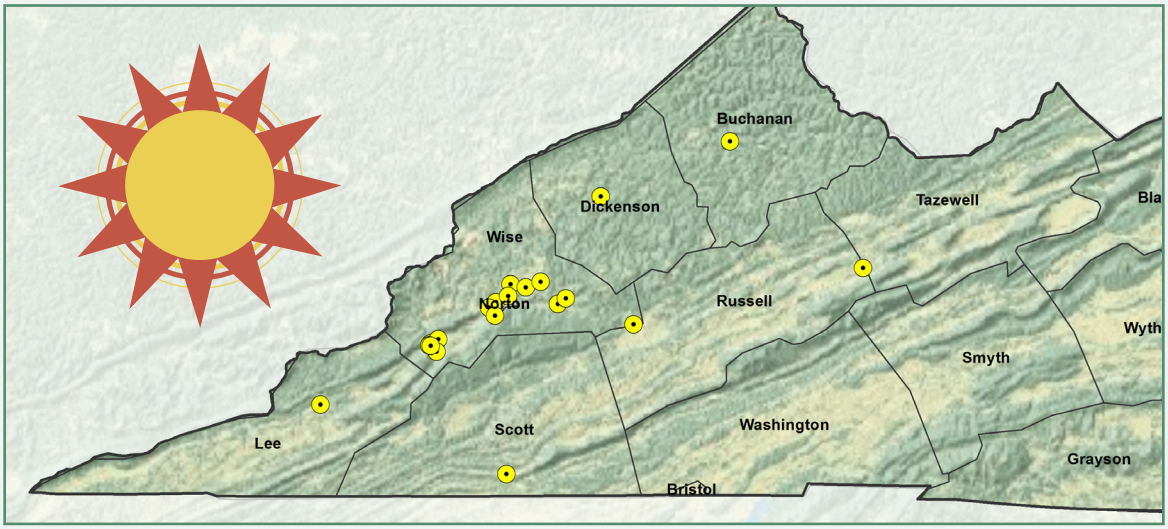


Figure 3: Top sites for solar development in Southwest Virginia.

Workgroup Priorities + Roadmap Goals

Goal 1: Identify and develop sites that are ideal for solar development, especially solar "ambassador" projects.

Top sites for solar development in Southwest Virginia (Figure 3) include:

For-profit entities:

- Food City Grocery Stores – Southwest Virginia
- Norton Green Apartments – Norton, VA
- Jonesville Manor – Jonesville, VA
- Deskins Apartment Complex – Vansant, VA
- Powell Valley National Bank – Norton, VA

Nonprofit entities:

- Ridgeview High School – Clintwood, VA
- Mutual Drugstore – Big Stone Gap, VA
- Lonesome Pine Regional Technology and Business Park – Wise, VA
- Eastside High School and Coeburn Primary – Coeburn, VA
- Mountain View Regional Medical Center – Norton, VA

- Lonesome Pine Hospital – Big Stone Gap, VA
- UVa-Wise – Wise, VA
- Southwest Virginia Community College – Cedar Bluff, VA
- Mountain Empire Community College – Big Stone Gap, VA
- Central High School – Wise, VA

Goal 1 - Action strategies:

A. **Develop ambassador sites** such as residential, commercial, and community-scale solar projects, later focusing on developing industrial-scale sites.

B. **Develop ambassador projects** that have strong marketing and public relations components to assist with community outreach and education.

C. **Identify financing options** for solar project development and clear mechanisms to access capital and project financing.

D. **Create an inventory** of possible sites for solar development in the seven coalfield counties of Southwest Virginia.

Goal 2: Grow workforce development and entrepreneurship opportunities to advance solar projects and maximize local benefits.

The current solar workforce situation in Southwest Virginia is characterized by a "chicken and egg" challenge, where the lack of a trained workforce prevents local hiring, and a lack of local employers suppresses interest in job training. The strategies outlined the Solar Roadmap attempt to resolve this challenge through an "all at once" approach to spurring both labor supply and employment demand concurrently. Through facilitating and supporting partnership between educational institutions and solar installers, the Workgroup hopes to address the local workforce needs of the solar industry as well as the local need to create higher paying jobs.

Southwest Virginia's robust system of higher education and training institutions, combined with a technically skilled labor force, creates infinite possibilities for solar workforce development and training. In Virginia, strong solar markets exist in both regulated and deregulated electricity markets; understanding Southwest Virginia's electric utilities' regulations will open avenues for solar financing and incentives. Virginia currently offers several business incentive programs through entities such as the Virginia Coalfield Economic Development Authority and the Virginia Tobacco Region Revitalization Commission, which could directly or indirectly support solar infrastructure and job development.

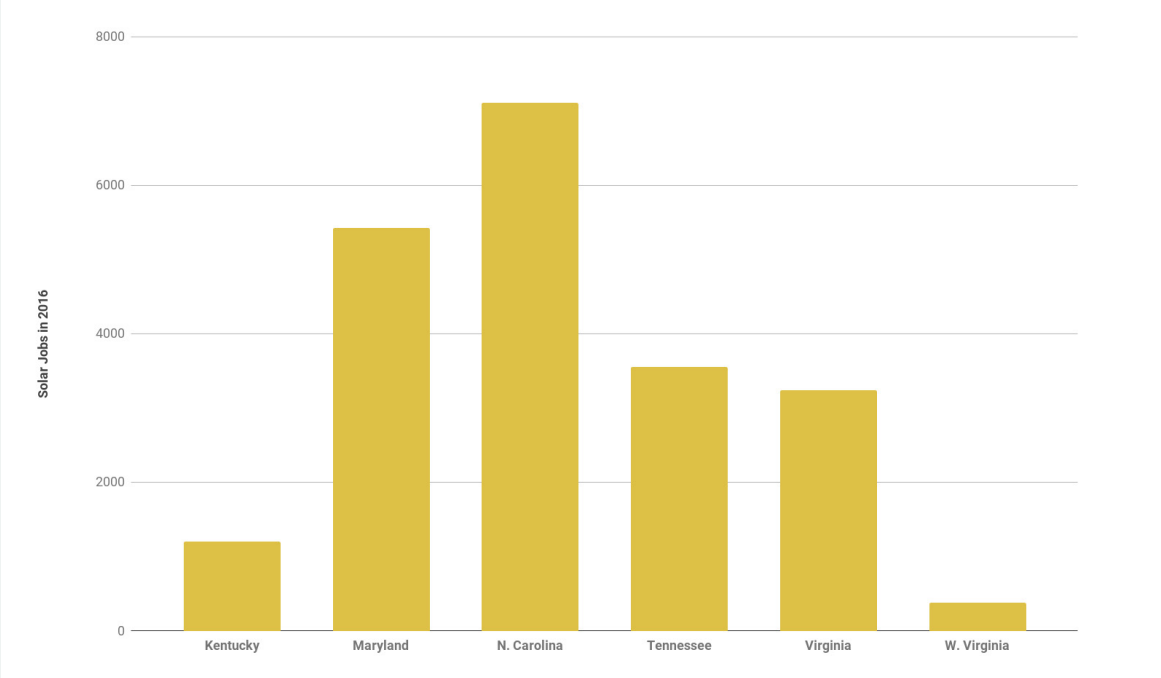


Figure 4: Solar industry jobs by state in 2016 (The Solar Foundation, 2017).

Goal 2 - Action strategies:

A. **Address the local workforce needs** of the solar industry as well as the local need to create higher paying jobs through facilitating and supporting partnership between Southwest Virginia's educational institutions and solar installers.

B. **Coordinate training opportunities** developed between Mountain Empire Community College (MECC), solar installers, and the Solar Training Network,[1] such as a "learn and earn program," to provide students with "boots on the roof" training in installation (initially through the 2017 - 2018 Solarize Wise program).

C. **Connect existing solar businesses** with the Solar Training Network to develop on-the-job training programs.

D. **Develop a feasibility study** of photovoltaic panel manufacturing in Southwest Virginia.

Goal 3: Expand education and outreach in communities and with local leaders around solar benefits and opportunities.

Members of the Solar Workgroup both recognize the heritage of coal mining in Southwest Virginia and are excited to grow opportunities for solar development with community members in the future. The Workgroup has engaged both the public and partners in learning about solar and developing opportunities for collaboration. An intentional effort has been made to involve community members including workers, students, homeowners, and other key stakeholders in both the Workgroup and Solarize Wise. Outreach and education around initiatives including Solarize Wise, the May 2017 Solar Fair, the SolSmart program, and community solar meetings are ongoing. The Solar Workgroup model can be adapted and shared with

others in the Appalachian region as it combines outreach, policy recommendations, implementation, and a focus on economic development while celebrating the region's strong heritage and bright future.

Goal 3 - Action strategies:

A. **Conduct community-wide solar education and outreach events** (such as the May 2017 Solar Fair at UVa-Wise, the residential Solarize Wise model, and the SolSmart program).

B. **Host tour events** of solar residential, community, and utility solar facilities in Southwest Virginia.

C. **Connect specific groups** such as homeowners, nonprofits, businesses, and farmers with the appropriate tools for understanding and financing solar opportunities particular to their needs.

D. **Collaborate with regional educational institutions** to identify hands-on learning opportunities and build key partnerships.

Goal 4: Promote policy changes that will help grow the solar industry in Southwest Virginia.

Improved state and local government policies would pave a much easier path toward a solar-based economy in Southwest Virginia. When policies reduce red tape and financial barriers to installing solar, more people are able to invest in solar energy. Chapter 5 describes a comprehensive list of existing state and federal policies and recommends reforms to increase the market for residential, commercial, and utility solar projects in Southwest Virginia.

Goal 4 - Action strategies / Policy recommendations:

A. Remove restrictions on net metering, which has been instrumental in making solar financially viable for residential and commercial customers in many states. Net metering allows customers to enter into an agreement with their utility to connect their solar array to the electricity grid.

B. Expand community solar, which is the development of solar energy projects for multiple customers. These arrangements allow customers to "go solar" even if they face barriers to installing solar on their property.

C. Expand access to Power Purchase Agreements (PPAs) for net metering, which have the potential to make solar accessible to many more people, but Virginia utilities have pushed to limit the number of PPAs allowable in the state.

D. Fund the Virginia Solar Energy Development and Energy Storage Authority, which was enacted in 2015 by the General Assembly. The purpose of this state entity is to facilitate, coordinate, and support the development of the solar industry and solar projects.

E. Increase access to tax incentives at the state and local level to provide investment-based incentives for solar in the form of loan assistance and tax deductions.

F**. Utilize pumped-storage hydroelectric facilities for increased solar in Southwest Virginia**. In 2017, the General Assembly passed legislation enabling the development of pump storage facilities in the coalfields of Virginia. By designing these facilities with on-site solar, there is a unique opportunity to advance solar in the region.