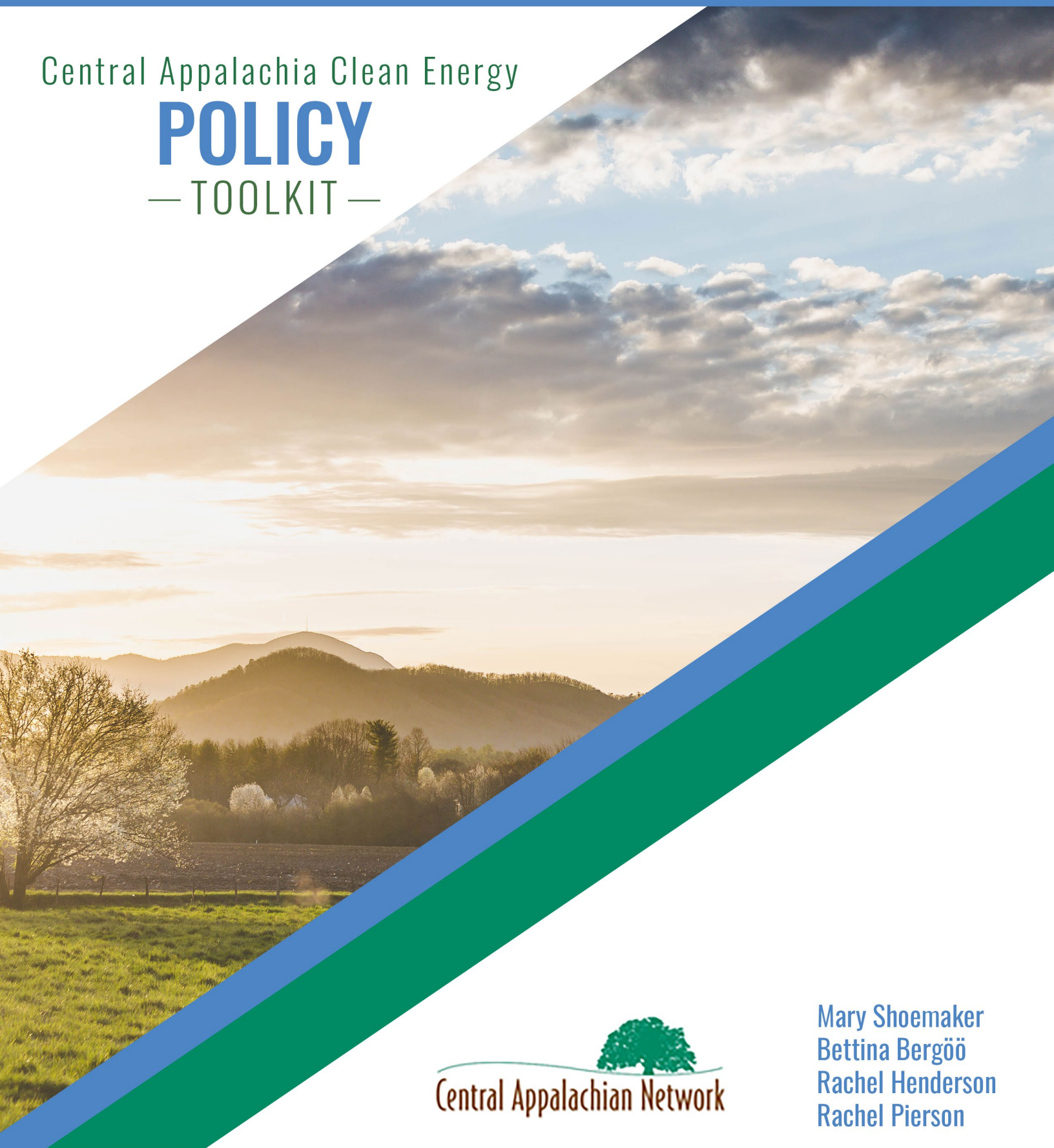


JANUARY 2019

Central Appalachia Clean Energy

# POLICY

— TOOLKIT —



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# Expanding the Region's Energy Leadership in the 21st Century

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## *About the Clean Energy Leadership Institute*

The authors are part of the Clean Energy Leadership Institute (CELI) Just Transition Working Group. With programs operating in Washington, DC and San Francisco, CA, CELI is a 501(c)(3) nonprofit dedicated to developing the next generation of diverse, pragmatic clean energy leaders. CELI believes technological innovation, financial creativity, and increasing public engagement are essential to solving our complex global energy and climate challenges. CELI equips young professionals entering the workforce with the skills and expertise to capitalize on these trends and lead the transition to a clean energy economy. Over the last five years, CELI has trained nearly 450 young professionals



across 200+ organizations in clean energy policy, finance and technology. CELI's Just Transition Working Group, formed in 2016, is a group of past and current CELI fellows working to ensure that community-driven economic diversification, including growth of clean energy markets, helps to equitably transition U.S. coal communities into the low-carbon energy economy.

### ***About the American Council for an Energy-Efficient Economy***

The American Council for an Energy-Efficient Economy (ACEEE), a nonprofit, 501(c)(3) organization, acts as a catalyst to advance energy efficiency policies, programs, technologies, investments, and behaviors. ACEEE believes that the United States can harness the full potential of energy efficiency to achieve greater economic prosperity, energy security, and environmental protection for all its people.



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# About the Central Appalachia Clean Energy Toolkit

The Central Appalachian Network (CAN) has identified many opportunities for communities in the region to transition to a more diverse economy with strong, locally-rooted industries. Clean energy, including both renewable energy generation and energy efficiency, is one sector that has the potential to deliver many such positive local benefits to the region.

CAN formed the Clean Energy Practitioners Working Group to identify common barriers and opportunities across the six states of Central Appalachia: Kentucky, North Carolina, Ohio, Tennessee, Virginia, and West Virginia. Recognizing that an enabling policy environment is paramount to scale clean energy in the region, the working group initiated a competitive request for proposals process with qualified regional and national policy experts. CAN then commissioned the Clean Energy Leadership Institute (CELI) and American Council for an Energy-Efficient Economy (ACEEE) to develop clean energy policy recommendations for each Central Appalachian state based on input from practitioners and experts throughout the region.

The purpose of this toolkit is to:

- Establish a set of policy priorities that advocates in Central Appalachia can rally around to accelerate clean energy's role as part of the region's new, diversified economy. The policies identified (detailed in Appendix A) include offensive strategies to establish a robust policy environment as well as defensive strategies to protect existing policies and programs. Each policy recommendation is coupled with best practices from other states and a list of potential allies.
- Highlight cross-cutting challenges for growing clean energy markets in the region and opportunities for collaboration amongst current and prospective advocates. Identify top opportunities for engaging utilities, integrating clean energy into the economic development ecosystem, growing a skilled workforce, leveraging federal resources, and coordinating efforts with labor advocates.

Because this toolkit focus on clean energy market growth as a means of local economic development, the recommendations herein focus on energy efficiency and solar technologies. Energy efficiency is the largest source of employment within the current clean energy economy, and solar is the second largest source.<sup>1</sup> The Bureau of Labor Statistics reports that the fastest growing occupation in the U.S. is solar photovoltaic installer.<sup>2</sup> Research indicates that clean energy jobs are being created rapidly in the U.S. and that new job creation will surpass job loss overall, but those jobs will only be created in the communities where they are most needed if advocates ensure an enabling environment, including supportive policies, is in place.<sup>3</sup>

The recommendations contained in this toolkit are geared towards energy policy advocates. However, as described in this resource, the successful enactment and implementation of these policies will require strategic, deliberate, and diverse partnerships with policymakers, regulators, utilities, economic and workforce development officials, and labor advocates.

This toolkit was developed based on input from and analysis of 27 online survey responses and over 40 interviews conducted the phone or in-person between July and November 2018. The CELI and ACEEE team presented and discussed findings with practitioners at a peer-to-peer convening in Beckley, West Virginia in November 2018.

<sup>1</sup> [www.usenergyjobs.org/](http://www.usenergyjobs.org/)

<sup>2</sup> [www.bls.gov/emp/tables/fastest-growing-occupations.htm](http://www.bls.gov/emp/tables/fastest-growing-occupations.htm)

<sup>3</sup> [www.thinkprogress.org/contrary-to-u-s-stance-at-global-climate-talks-paris-agreement-would-help-not-hurt-jobs-97a290d82fa9/](http://www.thinkprogress.org/contrary-to-u-s-stance-at-global-climate-talks-paris-agreement-would-help-not-hurt-jobs-97a290d82fa9/)

# The Clean Energy Opportunity in Central Appalachia

For over one hundred years, Central Appalachian coal has powered America, and now the region has the opportunity to continue to power the nation as part of the clean energy economy.<sup>4</sup> To support and drive this transition, policymakers, regulators, utilities, and clean energy advocates will need to collaboratively advance supportive policies in order to harness the region's clean energy potential. Growing clean energy markets in Central Appalachia is timely and urgent as a means of achieving the following important objectives.

**Diversify the economy.** The Appalachian counties designated as economically distressed by the Appalachian Regional Commission (ARC) are concentrated in Central Appalachia.<sup>5</sup> Part of these counties' economic distress is due to the continued decline of the coal industry, which has led to dwindling jobs and reduced state and local tax revenue. Diversifying coal-dependent local economies in Central Appalachia can help offset both job loss and strain on local tax bases.<sup>6</sup> Increased tax revenue from clean energy projects can even lead municipal bond rating agencies to upgrade bond ratings, allowing municipalities to borrow money at a lower cost.<sup>7</sup>

**Build an economy around healthy industries with long-term benefits for communities.** Living near coal mining operations can lead to several negative consequences, including black lung for miners and air and water contamination for entire communities. While companies behind these operations provide valuable jobs, they do not always re-invest a significant share of profits in communities. Some residents have indicated similar concerns about the burgeoning natural gas industry.

**Address energy burdens.** While the Central Appalachian region has historically had below average electricity rates per kilowatt-hour, residents have above average total electricity bills.<sup>8</sup> The American Council for an Energy Efficient Economy (ACEEE) and Energy Efficiency for All (EEFA) found that rural households spend 40% more of their income on electricity bills than their metropolitan counterparts (4.4% versus 3.1%), and low-income rural residents spend an average of 9% of their income on energy bills. Appalachian Voices has reportedly identified residents with energy burdens as high as 50% in the winter months when heating costs skyrocket.<sup>9</sup> Drivers of energy burdens include low incomes, inefficient housing stock, lack of policies to support energy affordability, and building characteristics that require higher energy use.<sup>10</sup> Many commercial customers in the region have high demand charges, making energy burdens an issue for small businesses as well.

In recent years, electricity rates have been increasing precipitously due to a variety of factors, further burdening Central Appalachian households.<sup>11</sup>

<sup>4</sup> For this report we define the Central Appalachian region as the Appalachian portions of Kentucky, North Carolina, Ohio, Tennessee, Virginia, and West Virginia.

<sup>5</sup> [www.arc.gov/research/mapsofappalachia.asp?MAP\\_ID=148](http://www.arc.gov/research/mapsofappalachia.asp?MAP_ID=148)

<sup>6</sup> [www.wvpolicy.org/business-tax-cuts-making-up-lost-ground](http://www.wvpolicy.org/business-tax-cuts-making-up-lost-ground); [ieefa.org/appalachia-needs-sound-fury-war-coal-canard/](http://ieefa.org/appalachia-needs-sound-fury-war-coal-canard/)

<sup>7</sup> [www.bondbuyer.com/news/wind-farms-bolster-ohio-countys-bond-rating](http://www.bondbuyer.com/news/wind-farms-bolster-ohio-countys-bond-rating)

<sup>8</sup> According to the U.S. Department of Energy, electricity rates are the prices that utilities charge for each unit of electricity used.

Electricity bills are the total charges that households pay each month for electricity, determined by electricity rates and other fees: [www.drive.google.com/file/d/1xqsxvMgGlyqCWBFI-A5KCUazAwkTgewM/view?usp=sharing](http://www.drive.google.com/file/d/1xqsxvMgGlyqCWBFI-A5KCUazAwkTgewM/view?usp=sharing).

<sup>9</sup> [www.appvoices.org/2018/07/25/the-burden-of-home-energy-costs-in-rural-appalachia/](http://www.appvoices.org/2018/07/25/the-burden-of-home-energy-costs-in-rural-appalachia/)

<sup>10</sup> [www.aceee.org/press/2018/07/rural-households-spend-much-more](http://www.aceee.org/press/2018/07/rural-households-spend-much-more)

<sup>11</sup> [www.insideclimatenews.org/news/14082018/coal-energy-prices-appalachia-mining-electric-bill-kentucky-economy-aep-rates](http://www.insideclimatenews.org/news/14082018/coal-energy-prices-appalachia-mining-electric-bill-kentucky-economy-aep-rates)



# Challenges to Growing the Clean Energy Economy in Central Appalachia

Clean energy advocates and practitioners face the following challenges as they work to grow the clean energy economy in Central Appalachia.

**Politics.** Politicians representing Central Appalachian constituents may express skepticism of or opposition to clean energy. This may stem from a lack of familiarity with the benefits of clean energy or concern that it will threaten the aspects of Appalachian culture into which coal is woven. Many Central Appalachian legislators have strong ties to fossil fuel industries because they have been central to the region's economy for so long. Utilities in particular are major contributors to political campaigns in Central Appalachian states. For example, Duke Energy, Dominion Energy and FirstEnergy were the top corporate donors in North Carolina, Virginia, West Virginia, and Ohio in 2016.<sup>12</sup>

**Public awareness and cultural buy-in.** Like many areas across the U.S., homeowners throughout the region often do not understand how energy efficiency and renewable energy can improve – or is at all relevant to – their lives. Moreover, mining and gas extraction facilities have been prominent, tangible aspects of these communities for some time. It can be difficult for community members to feel part of a clean energy future if they have never seen or experienced clean energy firsthand.

**Utilities and their regulators.** Utilities and utility regulators can play a key role in either promoting or hindering clean energy market growth. In Central Appalachia, many investor-owned and cooperatively-owned utilities see distributed energy resources and energy efficiency as incompatible with their current business model, which is based on owning infrastructure and maximizing energy sales. Utility regulators have also pushed back on clean energy projects, citing fears of customer rate hikes.

**Skilled workforce.** Even if clean energy businesses identify demand for projects and access the capital to operate, they may be challenged by a shortage of a skilled local workforce. The lack of trained clean energy workers is due in part to the unsteady demand for clean energy technologies and the slow emergence of clean energy training programs. The devastating opioid crisis has affected many Central Appalachian industries, including clean energy.

**Advocates' organizing capacity.** While doing impressive work, nonprofits in the region have been historically under resourced. As a result, they sometimes lack the capacity to collaborate at a regional level or beyond their organizational objectives.

**Clean energy businesses' lack of access to financing.** After covering start-up costs, businesses offering capital-intensive energy efficiency and/or renewable energy services need access to financing to operate. This financing is not always available, especially for what may be perceived by lenders as a new type of business.

**Consumers' lack of access to financing.** Many households and small businesses lack the resources to pay up-front for efficiency or renewable energy projects, so they need financing to afford these projects. However, access to financing can be constrained by creditworthiness, consumer reluctance to take on traditional debt, and other factors.

**Data on local economic impact of clean energy.** There is insufficient economic impact data on clean energy job creation, wages, and tax contributions in Central Appalachia. More data is vital for advocates to demonstrate the current and potential economic impact of the clean energy sector.

<sup>12</sup> [www.appvoices.org/2018/10/17/power-play/](http://www.appvoices.org/2018/10/17/power-play/)

# State Policies for Clean Energy Market Growth

State legislators and regulators have an array of policy options to drive deployment of utility scale solar, distributed solar, and energy efficiency. Key policies include:

- **Utility scale solar:** renewable portfolio standard (RPS), the Public Utility Regulatory Policies Act (PURPA), and feed-in tariffs
- **Distributed solar:** net energy metering (NEM), power purchase agreements (PPAs), streamlined local permitting, grid modernization processes, clear solar access rights, utility programs, and commercial property assessed clean energy (C-PACE)<sup>13</sup>
- **Energy efficiency:** energy efficiency resource standard (EERS), utility programs, performance contracting in public properties, inclusive on-bill financing, and C-PACE<sup>14</sup>

Central Appalachian states have seen limited implementation of these policies, as summarized in Table 1.

Table 1: Clean Energy Policy Landscape in Central Appalachia<sup>15</sup>

STATE	EERS	Net Energy Metering	Clear PPA Legality	RPS	C-PACE	On-bill Financing
Kentucky	No	Yes	No	No	Yes	Yes
North Carolina	Yes	Yes	No	Yes	No <sup>16</sup>	Yes
Ohio	Yes	Yes	Yes	Yes	Yes	No
Tennessee	No	No	No	No	No	Yes
Virginia	No <sup>17</sup>	Yes	Yes <sup>18</sup>	No	Yes	No
West Virginia	No	Yes	No	No	No	No

For each Central Appalachian state, we identified three clean energy policy priorities based on the following criteria:

- Likelihood to drive market adoption of one or more clean energy technologies
- Potential economic impact
- Prioritization by advocates in the region due to ongoing efforts or potential for future coalition growth surrounding the policy

We describe priority state policy recommendations briefly below. Key beneficiaries, potential economic impact, best practices, and potential allies for each policy priority in Appendix A.<sup>16</sup>

<sup>13</sup> [www.seia.org/initiative-topics/rooftop-solar](http://www.seia.org/initiative-topics/rooftop-solar)

<sup>14</sup> [www.nrdc.org/experts/lara-ettenson/energy-efficiency-more-jobs-more-americans](http://www.nrdc.org/experts/lara-ettenson/energy-efficiency-more-jobs-more-americans)

<sup>15</sup> As of Dec 2018; “Yes” indicates that a law related to the policy is in place, e.g. C-PACE enabling legislation, and does not necessarily indicate that a program has been established or projects have been completed under the law.

<sup>16</sup> There is technically PACE legislation in place in NC, but the legislation is too restrictive for effective programs to be put in place that could finance projects.

<sup>17</sup> Virginia has a voluntary EERS with no binding requirement.

<sup>18</sup> Virginia has clear PPA legality, however, the Commonwealth subjects PPAs to aggregate and individual project caps. Moreover, PPAs in Dominion and APCo’s service territories are limited to pilot programs. [www.scc.virginia.gov/pur/pilot.aspx](http://www.scc.virginia.gov/pur/pilot.aspx). Clean Energy

## Kentucky

1. **Utility energy efficiency programs:** Cultivate and maintain strong networks of advocates to defend existing utility energy efficiency programs and advocate for new programs moving forward.
2. **PPAs:** Develop and advocate for legislation to allow solar PPAs in Kentucky.
3. **NEM:** Continue to defend and strengthen Kentucky's NEM law by establishing a more transparent and collaborative formal stakeholder engagement process between stakeholders.

## North Carolina

1. **Green Bank:** Create a North Carolina green bank that can leverage limited public dollars to increase private investment in energy efficiency and renewable energy projects.
2. **C-PACE:** Develop and advocate for the introduction of legislation to create viable C-PACE programs in North Carolina.
3. **Solar Incentives and PPAs:** Increase access to residential and commercial distributed solar generation. In the short term, advocate for legislation that raises the cap on Duke's popular solar rebate program. In the longer term, advocate for legislation that increases the allowance for leased solar generation in a utility territory above 1% and that legalizes solar PPAs.

## Ohio

1. **Solar renewable energy credit (SREC) policy:** Require utilities and retail electricity providers to purchase SRECs locally within Appalachian Ohio.
2. **NEM:** Advocate for a more robust NEM policy in Ohio.
3. **RPS and EERS:** Continue to defend Ohio's RPS and EERS by working with a strong and permanent coalition of advocates, legislators, and corporations.

## Tennessee

1. **Advanced Energy Manufacturing:** Develop and advocate for legislation in support of advanced energy manufacturing growth in Appalachian Tennessee.
2. **C-PACE:** Develop and advocate for the introduction of legislation to create viable C-PACE programs in Tennessee.
3. **Local Power Company (LPC) contract reform:** Develop and advocate for legislation or regulation that would allow LPCs receiving power from the Tennessee Valley Authority (TVA) to review and renegotiate their contracts with TVA on a recurring (3-5 year) basis.

## Virginia

1. **Utility energy efficiency programs:** Leverage the new State Corporation Commission (SCC) energy efficiency stakeholder process to select and develop robust utility energy efficiency programs.
2. **NEM:** Advocate for amendments to Virginia's Electric Utility Regulation Act to expand NEM in Virginia.
3. **PPAs:** Develop and advocate for legislation to expand third party PPAs in Virginia, expanding the aggregate and individual PPA caps, specifying that PPAs shall not be regulated as public utility companies, and enabling PPAs for all customers in Dominion and Appalachian Power Company's (APCO's) service territories.

## West Virginia

1. **PPAs:** Develop and advocate for legislation or regulation to clarify the legality of PPAs for all West Virginians.

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*blogger Ivy Main explains Virginia's PPA history further here:*

[www.powerforthepeopleva.com/2018/07/18/2018-guide-to-wind-and-solar-policy-in-virginia/](http://www.powerforthepeopleva.com/2018/07/18/2018-guide-to-wind-and-solar-policy-in-virginia/).

2. **C-PACE:** Develop and advocate for the introduction of legislation to create viable C-PACE programs in West Virginia, known as the Local Energy and Efficiency Partnership (LEEP).
3. **Utility business model reform:** Organize, collect research, and conduct educational outreach in order to propose utility-focused legislation in two to three years. Such legislation should enable full revenue decoupling for West Virginia utilities and offer them performance incentives for reaching or exceeding specified energy savings goals.

## Multi-State Policy Advocacy Opportunities

In addition to pursuing these policies in their own states, clean energy advocates should coordinate on policy advocacy across state boundaries in order to leverage one another's experiences and build momentum across the region. From the state-level policy priorities above emerged several key multi-state opportunities for collaboration.

### *Defend/Amend Net Energy Metering Laws*

Key states: Kentucky, Ohio, Virginia

Attacks and restrictions on NEM laws are a fundamental barrier to solar market growth. Defense or expansion of NEM policy is relevant to every state in Central Appalachia and emerged as a top policy priority in Kentucky, Ohio and Virginia. As an example of NEM advocacy, the Kentuckians for the Commonwealth (KFTC) led a grassroots campaign against the 2018 Kentucky House Bill 227, which would have changed the state's NEM law and severely undermine the state's nascent distributed solar sector.<sup>19</sup> When working to amend NEM laws, advocates should consider pushing for the inclusion of virtual net metering to support the imminent or eventual growth of community solar. While defending or amending NEM laws did not emerge as a top priority in North Carolina or West Virginia, advocates in those states can leverage experiences in Kentucky, Ohio and Virginia when the opportunity arises.

### *Establish Effective C-PACE Policies and Programs*

Key states: North Carolina, Tennessee, West Virginia

C-PACE presents an opportunity to increase clean energy deployment in commercial buildings in every Central Appalachian state. However, successful implementation of C-PACE occurs through several stages. First, the state must pass enabling legislation. Then, a program implementer must be identified and established. Then, capital providers must agree to participate in C-PACE transactions. Finally, projects must be designed, financed, and constructed. While C-PACE enabling legislation exists in Virginia, Ohio, and Kentucky (in fact, Ohio is ranked seventh in total C-PACE investments), there are no active C-PACE programs serving the Appalachian portions of these states.<sup>20</sup>

Where C-PACE legislation is not yet in place, clean energy advocates can share strategies and materials for legislative advocacy campaigns. Energy Efficient West Virginia, for example, has extensive experience developing, advocating for, and refining C-PACE legislation in WV. Advocates should consider the advantages and disadvantages of including a positive savings-to-investment ratio in the project eligibility requirements established in legislation. Legislation in Wisconsin, Michigan, and Connecticut includes this requirement for at least some projects. This does, however, have implications for the types of projects that will be financed and how C-PACE can be used as part of a larger financing capital stack.

<sup>19</sup> [www.kftc.org/actions/last-chance-protect-home-grown-solar-kentucky-and-defeat-house-bill-227](http://www.kftc.org/actions/last-chance-protect-home-grown-solar-kentucky-and-defeat-house-bill-227)

<sup>20</sup> [www.pacenation.us/wp-content/uploads/2018/08/2017-C-PACE-Annual-Impact-Report-Optimized-1.pdf](http://www.pacenation.us/wp-content/uploads/2018/08/2017-C-PACE-Annual-Impact-Report-Optimized-1.pdf)



In Virginia, Ohio, and Kentucky, where legislation is in place, advocates should share lessons learned as they work to design C-PACE programs and projects that benefit Appalachian communities. One opportunity relevant to rural counties is to engage with USDA on C-PACE because the agency has expressed interest in seeing C-PACE used to retrofit its rural properties.<sup>21</sup> In 2016, a multifamily housing property in Michigan became the first USDA Rural Development property to use PACE financing to fund energy efficiency upgrades. That project also used USDA's Rural Energy for America Program funding to install solar on the property.<sup>22</sup> USDA could be an ally in passing local C-PACE legislation and be a first mover in developing projects once a program is established.

## ***Defend Existing and Establish New Utility Energy Efficiency Programs***

**Key states:** Kentucky, Ohio, Virginia, West Virginia

An EERS and robust utility energy efficiency programs are tried-and-true pathways for kickstarting the energy efficiency market. In 2015, states with an EERS saw average savings of 1.2% on retail electricity sales while states without an EERS saw average savings of 0.3%.<sup>23</sup> Experiences in Kentucky, Ohio, and West Virginia remind advocates that even when key efficiency policies exist, they must be also be defended against legislative or regulatory rollbacks. In the near term, advocates should protect existing and promote new utility energy efficiency programs by participating in ongoing utility program filings and building public support. In Ohio, this involves defending their EERS. Advocates should educate legislators and regulators about the value of energy efficiency programs to consumers, when properly implemented and overseen by regulators. Strong, permanent, and diverse stakeholder coalitions can be ready to launch into action whenever key efficiency policies and programs are threatened. To solidify states' long-term commitment to fully utilizing energy efficiency, advocates should build support for changes to the utility business model, such as decoupling or performance incentives, so that utilities can play a constructive role in the growth of an energy-efficient economy.

## ***Clarify or Establish PPA Legality and Expand PPA Access***

**Key states:** Kentucky, North Carolina, Virginia, West Virginia

Fewer than 10 states disallow PPAs, and three of them (North Carolina, Kentucky, and West Virginia) are in Central Appalachia.<sup>24</sup> This has a particularly negative impact on tax-exempt entities such as municipalities, religious institutions, and schools because they cannot take advantage of the solar investment tax credit (ITC). Further, government entities cannot borrow money to finance solar projects. In some cases, PPAs are legal but under limited circumstances. For example, in APCO's Virginia service territory, a PPA pilot project is limited to nonprofit institutions, so other customers are unable to participate. Moreover, in Dominion's Virginia service territory customers face individual and aggregate project caps. Advocates across multiple Central Appalachian states are currently fighting to allow or expand access to PPAs, including an organized group in West Virginia. Continued and expanded collaboration and drawing from existing state PPA policies could strengthen each of their efforts.<sup>25</sup> For examples, advocates could share language for op-ed pieces, such as the one authored by Solar United Neighbors of West Virginia's Autumn Long and published by the Charleston Gazette-Mail.<sup>26</sup>

Access to federal tax credits have been an important part of developing distributed solar projects. While the federal ITC will begin to ramp down in 2020, continued equipment and capital cost reductions will likely keep solar cost-competitive. Tax considerations will remain key drivers of solar eco-

<sup>21</sup> [www.energyefficiencyforall.org/file/485/download?token=Ft-rWEB\\_](http://www.energyefficiencyforall.org/file/485/download?token=Ft-rWEB_)

<sup>22</sup> [www.rd.usda.gov/newsroom/news-release/usda-announces-energy-efficiency-improvements-greenville-apartments](http://www.rd.usda.gov/newsroom/news-release/usda-announces-energy-efficiency-improvements-greenville-apartments)

<sup>23</sup> [www.aceee.org/sites/default/files/state-eers-0117.pdf](http://www.aceee.org/sites/default/files/state-eers-0117.pdf)

<sup>24</sup> [https://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2017/04/DSIRE\\_3rd-Party-PPA\\_April\\_2017.pdf](https://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2017/04/DSIRE_3rd-Party-PPA_April_2017.pdf)

<sup>25</sup> [www.ncsl.org/research/energy/state-policies-for-purchase-agreements.aspx](http://www.ncsl.org/research/energy/state-policies-for-purchase-agreements.aspx)

<sup>26</sup> [https://www.wvgazettemail.com/opinion/gazette\\_opinion/op\\_ed\\_commentaries/autumn-long-wv-needs-lawmakers-to-adopt-pro-growth-%20solar/article\\_b784dd7d-7520-55fc-8f3a-f234ce50682e.html](https://www.wvgazettemail.com/opinion/gazette_opinion/op_ed_commentaries/autumn-long-wv-needs-lawmakers-to-adopt-pro-growth-%20solar/article_b784dd7d-7520-55fc-8f3a-f234ce50682e.html)

nomics, even with a 10% ITC. PPAs will remain essential for many customers to have access to solar power through third parties who can most efficiently monetize the ITC and other tax benefits of solar ownership. The impending ramp-down of the ITC amplifies the value of PPAs to Central Appalachian residents and businesses.

### ***Establish and Fund a Regional Transition Hub***

**Key States:** Kentucky, Ohio, North Carolina, Tennessee, Virginia, West Virginia

Advocates should consider establishing a dedicated entity that provides knowledge management, technical services, and financial support to bolster the support various nonprofit organizations are providing the emerging clean energy economy in the region. It could offer technical assistance to businesses or consumers applying for federal clean energy programs or extend direct financial resources as appropriate, complementing financial support extended by entities such as Impact Appalachia and the Just Transition Fund. A regional transition hub could lead efforts to spread and scale specific models like the Appalachian Heat Squad residential energy efficiency program, Solarize community awareness campaigns, and solar bulk purchasing efforts. It could also serve as an origination partner for clean energy focused financiers that are looking for projects across the country, like Inclusive Prosperity Capital.<sup>27</sup> A regional transition hub could be especially valuable in supporting clean energy entrepreneurs by drawing inspiration from successes of clean energy-focused incubators, including North Carolina-based Joules Accelerator and the national Incubatenergy Network.<sup>28</sup> It could even provide human resource services to clean energy companies. Such an institution could have a public, quasi-public, or private legal structure and could be capitalized by public and/or philanthropic funds.

Drawing from the experience of the Mountain Association for Community Economic Development (MACED), Coalfield Development Corporation and others, a regional hub with a clean energy focus could help businesses and advocates coordinate the balance between workforce development programming and clean energy job availability in the region. A regional hub is a unique opportunity for both clean energy advocates, public officials, funders, and other stakeholders to collaborate and pool resources across state boundaries.

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<sup>27</sup> *Inclusive Prosperity Capital focuses on clean energy financing for low- and middle-income homeowners, multifamily properties, small businesses, schools and nonprofits: [www.inclusiveprosperitycapital.org](http://www.inclusiveprosperitycapital.org).*

<sup>28</sup> *The Joules Accelerator and the Research Triangle Cleantech Cluster were recently granted almost \$750,000 from the U.S. Economic Development Administration. Key partners include Duke Energy, the City of Charlotte, the Charlotte Chamber of Commerce, and local foundations: <https://www.joulesaccelerator.com/events-and-announcements>.*

# Ensuring Local and Equitable Impact

Clean energy policies and programs established with job creation and tax revenue generation as primary objectives will likely look different than clean energy policies established with addressing climate change as the primary objective. As stated in the NAACP's Just Energy Policies Model Policy Guide, "Alone just energy policies surrounding the generation, distribution, and use of renewable energy is not enough to ensure a just transition to a cleaner, sustainable, and equitable energy economy."<sup>29</sup> To pursue such a transition, clean energy advocates should ensure that whenever applicable, clean energy policies include provisions such as:

*Community benefits agreement (CBA):* A CBA, sometimes referred to as a community workforce agreement, is an agreement between a developer and a community that outlines the contributions a specific projects will make to the community. CBAs are a means of guaranteeing that a community will realize the benefits of a clean energy project through a legally binding agreement. Most CBAs contain some (if not all) of the following provisions: goals to hire workers and/or contractors from specific populations or community-based organization trainings; job-quality standards; support for businesses during the project bidding process; estimates for workers needed over a given time period; and compliance enforcement mechanisms.<sup>30</sup> The Partnership for Working Families maintains a list of example active CBAs and the opportunities they afford in their host communities.<sup>31</sup>

*Training programs and local hire provisions:* States and localities can enact goals to hire a predetermined number of local contractors for publicly-funded projects, including clean energy projects.<sup>32</sup> Nine states currently have local hire provisions within their energy policies.<sup>33</sup> As an example, the Illinois Solar for All Program established under the 2016 Illinois' Future Energy Jobs Act (FEJA) requires the program administrator to coordinate with energy-related job training programs to ensure that all communities are able to participate in the clean energy economy. It also includes \$750 million for solar development and job training programs in economically disadvantaged communities. Although the Illinois General Assembly is majority Democrat, Governor Rauner – who signed the bill into law – is a Republican.<sup>34</sup> While not legally required, Goldenrod Renewable and Berkeley Energy Group in Kentucky will hire locally for a portion of available jobs for their large-scale solar project with international project developer EDF Renewables. The project leads anticipate that many of the workers will be former coal miners.<sup>35</sup>

*Requirement or goal to source disadvantaged business enterprises as suppliers:* The state and local government procurement process used for publicly funded projects is designed to increase disadvantaged businesses' access to government contracts. However, a survey of minority contractor hiring in state and local government revealed strong disparities in the value of contracts awarded to minority and women business enterprises (MWBs) and those awarded to non-MWBs. The construction industry, which accounts for the highest employment in the energy efficiency economy, has particularly large disparity ratios for African-American-owned businesses.<sup>36</sup> Cities, states, and utilities can enact inclusive procurement policies for energy efficiency programs. New Orleans, for example, enacted a goal to have 35% of all publicly funded projects work with companies certified as disadvantaged business enterprises. The city has also partnered with the U.S. Green Building Council (Louisiana) and Delgado Community College to train small and disadvantaged businesses on green economy

29 [www.naacp.org/wp-content/uploads/2014/03/Just-Energy-Policies\\_Model-Energy-Policies-Guide\\_NAACP.pdf](http://www.naacp.org/wp-content/uploads/2014/03/Just-Energy-Policies_Model-Energy-Policies-Guide_NAACP.pdf)

30 [https://jfforg-prod-prime.s3.amazonaws.com/media/documents/CommunityWorkforceAgreements\\_030413.pdf](https://jfforg-prod-prime.s3.amazonaws.com/media/documents/CommunityWorkforceAgreements_030413.pdf)

31 [www.forworkingfamilies.org/page/policy-tools-community-benefits-agreements-and-policies-effect](http://www.forworkingfamilies.org/page/policy-tools-community-benefits-agreements-and-policies-effect)

32 [www.naacp.org/wp-content/uploads/2015/09/Just-Energy-Policies\\_Model-Energy-Policies-Guide\\_NAACP.pdf](http://www.naacp.org/wp-content/uploads/2015/09/Just-Energy-Policies_Model-Energy-Policies-Guide_NAACP.pdf)

33 See Table 5: [www.naacp.org/wp-content/uploads/2015/09/Just-Energy-Policies\\_Model-Energy-Policies-Guide\\_NAACP.pdf](http://www.naacp.org/wp-content/uploads/2015/09/Just-Energy-Policies_Model-Energy-Policies-Guide_NAACP.pdf)

34 [www.mwalliance.org/sites/default/files/meea-research/supplier-diversity-sept2018.pdf?current=taxonomy/term/11](http://www.mwalliance.org/sites/default/files/meea-research/supplier-diversity-sept2018.pdf?current=taxonomy/term/11)

35 [www.cnbc.com/2017/07/18/post-coal-country-kentucky-bets-on-renewable-energy-metals-mining.html](http://www.cnbc.com/2017/07/18/post-coal-country-kentucky-bets-on-renewable-energy-metals-mining.html)

36 [www.mbd.gov/sites/mbda.gov/files/migrated/files-attachments/ContractingBarriers\\_AReviewofExistingDisparityStudies.pdf](http://www.mbd.gov/sites/mbda.gov/files/migrated/files-attachments/ContractingBarriers_AReviewofExistingDisparityStudies.pdf)

initiatives, including a test preparation class for the Leadership in Energy and Environmental Design exam.<sup>37</sup> The Illinois FEJA, mentioned above, includes supplier diversity and workforce development requirements in order to better engage MWBEs.<sup>38</sup>

*Provisions ensuring accessibility of clean energy to low- to moderate-income homeowners and renters:* Median household and per capita income in the Appalachian counties of the Central Appalachian states is lower than in the surrounding areas.<sup>39</sup> These communities have many options for increasing the low-income household access to clean energy, including but not limited to: enacting policies to encourage or require clean energy investments in these households (e.g. low-income subscriber requirement for a community solar program or financial incentives for extending services to low-income residents); establishing guidelines for treating low-income efficiency programs in cost-effectiveness tests; and coordinating ratepayer-funded efficiency programs with other statewide and local weatherization programs.<sup>40</sup>

## The Key to Building Policy Support: Outreach to the Public and Policymakers

Efforts to generate clean energy awareness amongst the public and policymakers will enhance policy advocacy activities. The same organization might not necessarily undertake policy advocacy, public awareness campaigns, and utility regulator outreach. This emphasizes value of engaging partner organizations with diverse skill sets and audiences.

### **Increase Public Awareness**

Seeing clean energy on and in municipal buildings, churches, businesses, and homes can create a sense of familiarity with the clean energy economy, so targeted public outreach efforts can be particularly beneficial in communities with few or no clean energy projects. Clean energy messaging is often relevant across state lines, which CAN has recognized by commissioning a Communications and Messaging Toolkit. As advocates continue to build public awareness of clean energy technologies and their benefits, we recommend several strategies.

Clean energy advocates should elevate success stories of families, businesses and communities in Central Appalachia participating in the clean energy economy. Appalachian Voices', for example, highlighted the experience of Kathy and Gary Selvage, owners of a new solar home system in Southwest Virginia.<sup>41</sup> To demonstrate that clean energy presents a viable alternative to some of the dwindling coal jobs in the region, advocates should also gather and disseminate any available information about competitive wages and benefits in the clean energy sector.<sup>42</sup> In presenting a mix of stories and data, they should leverage messaging suggested by the BlueGreen Alliance in their report *Working Class People on Jobs and the Environment* and in CAN's Communications and Messaging Toolkit.<sup>43</sup>

37 [www.aceee.org/research-report/u1805](http://www.aceee.org/research-report/u1805)

38 See a report from the Midwest Energy Efficiency Alliance (MEEA) with additional utility-driven supplier diversity requirements: [www.mwalliance.org/blog/how-can-we-fix-ee-industrys-lack-diversity](http://www.mwalliance.org/blog/how-can-we-fix-ee-industrys-lack-diversity)

39 [www.arc.gov/assets/research\\_reports/DataOverviewfrom2012to2016ACS.pdf](http://www.arc.gov/assets/research_reports/DataOverviewfrom2012to2016ACS.pdf) See Table 7.1: Household, Family, and Per Capita Income in the Appalachian Region (In Adjusted 2016 Dollars), 2012-2016

40 See this ACEEE fact sheet series for additional low-income energy efficiency recommendations and Southeastern state-specific fact sheets on current policies and programs. In the Central Appalachian region, this includes Kentucky, North Carolina, Tennessee, and Virginia: [www.aceee.org/fact-sheet/southeast-low-income-series](http://www.aceee.org/fact-sheet/southeast-low-income-series).

41 [www.appvoices.org/2018/10/17/the-sunny-golden-years/](http://www.appvoices.org/2018/10/17/the-sunny-golden-years/)

42 [www.theconversation.com/an-alternative-to-propping-up-coal-power-plants-retrain-workers-for-solar-101961](http://www.theconversation.com/an-alternative-to-propping-up-coal-power-plants-retrain-workers-for-solar-101961)

43 [www.bluegreenalliance.org/resources/working-class-people-on-jobs-and-the-environment/](http://www.bluegreenalliance.org/resources/working-class-people-on-jobs-and-the-environment/)



Advocates should explore partnerships with health advocacy groups to help educate the public about the link between energy, air and water quality, and health. Together, partners can develop clean energy education programming targeted at K-12 students. As an example, the Tennessee Department of Environment and Conservation's Office of Energy Policy offers Energy Education Camps and Workshops for K-12 Educators, including coursework on energy efficiency and clean energy technologies.<sup>44</sup> As another example, Solar United Neighbors has developed a SUN Path for Girl and Boy Scouts of America.<sup>45</sup> ACEEE has several videos, fact sheets, and other resources that explain the connection between energy efficiency and improved public health outcomes.<sup>46</sup>

## **Educate Policymakers and Utility Commissioners**

Policymaker unfamiliarity with the benefits of a strong clean energy sector could lead to opposition to or lack of support for enabling clean energy policies. Clean energy advocates can do more to educate policymakers on the economic benefits of clean energy, including using job creation and other economic impact figures. Given some basic but well-framed educational materials, policymakers may find that clean energy does align with their values and those of their constituents. For example, a national organization called E4theFuture has a "Faces of Energy Efficiency" campaign underway.<sup>47</sup> Advocates can also support "lead by example" clean energy projects in state and local government buildings to help policymakers experience clean energy for themselves. Once politicians express meaningful support, positive reinforcement through recognition (e.g. appreciation on social media and awards) can lead to the emergence of a political champion. The Virginia Energy Efficiency Council, for example, conducts an annual awards ceremony to recognize government, academic, commercial, and residential efficiency leadership.<sup>48</sup>

In addition to engaging policymakers, several organizations in Central Appalachia are doing the highly technical and resource-intensive work of participating in utility commission decision making processes. For example, in West Virginia, the group Energy Efficient West Virginia intervened in late 2017 to save more than \$20M in WV's utility energy efficiency program that was under threat of discontinuation. In 2018, Appalachian Voices advocated that TVA fully assess economic impacts before increasing fixed fees on customers utility bills, disproportionately impacting low-income households and discouraging all customers from investing in energy efficiency.<sup>49</sup> While commissioners' responsibilities and oversight vary from state to state, they usually have sweeping impacts on clean energy deployment. For example, the Kentucky Public Service Commission ordered Kentucky Power to drastically reduce its demand-side management offerings in early 2018.<sup>50</sup> While not every intervention is successful, every intervention reminds decision makers that there are groups fighting for an equitable transition to a low carbon economy. As these regulatory interventions continue, advocates across the region should share lessons learned and consider pooling resources to hire technical witnesses when necessary.

44 <https://preprod.tn.gov/environment/program-areas/energy/state-energy-office--seo-/programs-projects/programs-and-projects/energy-tennessee-energy-education-initiative.html>

45 [www.solarunitedneighbors.org/get-involved-with-solar-united-neighbors/sun-patch-program-girl-scouts/](http://www.solarunitedneighbors.org/get-involved-with-solar-united-neighbors/sun-patch-program-girl-scouts/) and [www.solarunitedneighbors.org/get-involved-with-solar-united-neighbors/boy-scouts-of-america-sun-patch-program/](http://www.solarunitedneighbors.org/get-involved-with-solar-united-neighbors/boy-scouts-of-america-sun-patch-program/)

46 [www.aceee.org/topics/health-environment](http://www.aceee.org/topics/health-environment)

47 [www.e4thefuture.org/how-we-help/faces-of-ee/faces-of-ee-nuts-and-bolts/](http://www.e4thefuture.org/how-we-help/faces-of-ee/faces-of-ee-nuts-and-bolts/)

48 [www.vaeec.org/awards/](http://www.vaeec.org/awards/)

49 [www.appvoices.org/2018/06/07/tennessee-valley-authority-changes-rate-structure-adds-new-charge/](http://www.appvoices.org/2018/06/07/tennessee-valley-authority-changes-rate-structure-adds-new-charge/)

50 [www.nkytribune.com/2018/01/ky-psc-decision-reduces-total-burden-on-kentucky-power-co-residential-ratepayers-through-2018/](http://www.nkytribune.com/2018/01/ky-psc-decision-reduces-total-burden-on-kentucky-power-co-residential-ratepayers-through-2018/)

# Working Effectively Within the Region's Utility Landscape

The utility business model is undergoing a transformational evolution as energy generation and consumption practices change. Utilities have always prioritized reliable, affordable, and safe power, but customers are increasingly demanding more climate-conscious operations and distributed generation options. Electric utilities can be slow to respond to these changing market conditions, in part due to outdated regulatory frameworks that incentivize utility capital expenditures, low-risk investments, and centralized energy resources. Even utilities that are eager to increase renewable energy and expand opportunities for customer engagement can struggle to find ways to do so that align with current regulatory frameworks and operate within existing engineering, financial, and resource constraints. By modernizing their business models, utilities in Central Appalachia can play a key role in introducing more clean energy to the region, creating jobs and tax revenue, and attracting new ratepayers to the region.

Realigning utility incentives and practices often requires multiple strategies to transition to a more innovative, forward-looking utility business model. The Smart Electric Power Alliance's (SEPA) 51st State Initiative's Blueprints for Electricity Market Reform details common principles that utility, industry and community stakeholders can adopt.<sup>51</sup> SEPA presents these "least-regrets" moves as four doctrines:

1. **Promote efficiencies:** The market should promote efficiencies in the production, consumption, and investment in energy and related technologies.
2. **Clearly define roles:** The role of the utility, as a public service entity, should be clearly defined so that all market participants can understand their role in enabling customer option in a fair, transparent, and nondiscriminatory manner.
3. **Identify principles of ratemaking:** Rate structures should provide transparent cost allocation that supports a sustainable revenue model for utility services providing a public good.
4. **Foster customer choice:** Customers should be presented with a variety of rate and program options that expand their choice of and access to energy-related products and services that are simple, transparent, and create stable value propositions.

These doctrines and the full SEPA report outline several fundamental values that stakeholders can share and the key steps necessary to capture the value of distributed energy resources, regardless of future utility models. The SEPA report discusses strategies for developing state-specific roadmaps, using stakeholder collaboration as a starting point.

Clean energy advocates can engage in existing regulatory structures by voicing their concerns with the current structures and identifying ways to incentivize utility clean energy adoption. Advocates should determine the most appropriate and strategic timing for engaging utilities. Partnerships with utilities can be more constructive when cultivated proactively, such as before they are in the process of closing a coal-fired power plant.

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<sup>51</sup> [www.sepapower.org/resource/blueprints-for-electricity-market-reform/](http://www.sepapower.org/resource/blueprints-for-electricity-market-reform/)

## Engaging with Investor-Owned Utilities

Because investor-owned utilities (IOUs) are regulated through state commissions, there is an opportunity to leverage the existing regulatory process to encourage or require IOUs' participation in the transition to a cleaner, more resilient grid. This can be challenging, and as mentioned above, this kind of complex and highly technical work presents an opportunity for advocates across the region to coordinate and share resources.

IOUs in many states, including those in Central Appalachia, often have strong connections — including in the form of campaign contributions — to legislators that control the public utility commission. There are, however, efforts under way to help the public speak up and out against utilities' using campaign contributions to influence lawmakers. For example, the group Clean Virginia was established in early 2018 with the mission to “Advance clean governance, clean energy, and clean competition by fighting monopoly utility corruption in Virginia politics.”<sup>52</sup> Clean Virginia does research and policy work related to monopoly utility influence in VA and raises public awareness of the issue. It also makes campaign contributions to candidates that do not accept utility contributions through its affiliated political action committee.

## Engaging with Rural Electric Cooperatives

Today, rural electric cooperatives (co-ops) cover 56% of the U.S. landmass, provide electricity to 12% of the population, and own 42% of the country's electric distribution lines.<sup>53</sup> Much of Central Appalachia is serviced by co-ops, excluding West Virginia and most of Southwest Virginia.<sup>54</sup> Co-ops are non-profit organizations owned by the customers that receive their services, known as “member-owners.” In some states, state public service commissions regulate co-ops, but most co-ops are not subject to the same state-level regulatory oversight as investor-owned utilities. In Central Appalachia, like other places across the U.S., advocates have indicated that co-op operations and governance can lack transparency and accountability to member-owners. For example, co-op boards do not always open their meetings to the public or share meeting minutes. Moreover, co-op members are not always aware of their ability to influence the activities of their co-op, often leading to low voter turnout for co-op board member elections. This can lead to incumbent board members running unopposed year after year and grow the disconnect between “member” and “owner”.<sup>55</sup>

Some co-ops are already moving toward more transparent governance.<sup>56</sup> One way of increasing member representation on co-op boards is by increasing voter turnout to board member elections. Appalachian Voices is pursuing this strategy and has already seen success.<sup>57</sup> In addition to promoting greater energy democracy, increasing co-op member owner engagement and co-op board transparency can be a tool for expanding renewable energy and energy efficiency deployment. For example, the Democratizing Rural Electric Cooperatives Working Group of the Advancing Equity and Opportunity Collaborative works to engage, educate and activate members of electric cooperatives and empower them to advocate for greater clean energy investments.<sup>58</sup> Empowered member-owners can encourage their co-op to join the Cooperative Leadership Network, which helps co-op boards with governance and clean energy adoption.<sup>59</sup>

<sup>52</sup> <https://www.cleanvirginia.org/about/>

<sup>53</sup> [www.electric.coop/wp-content/uploads/2018/03/NCS-2815\\_Co-op-Facts-and-Figures-Packet\\_Individual-Letter-Sheets.pdf](http://www.electric.coop/wp-content/uploads/2018/03/NCS-2815_Co-op-Facts-and-Figures-Packet_Individual-Letter-Sheets.pdf)

<sup>54</sup> [www.eei.org/about/members/uselectriccompanies/Documents/EEIMemCoTerrMap.pdf](http://www.eei.org/about/members/uselectriccompanies/Documents/EEIMemCoTerrMap.pdf)

<sup>55</sup> [ilsr.org/just-how-democratic-are-rural-electric-cooperatives/](http://ilsr.org/just-how-democratic-are-rural-electric-cooperatives/)

<sup>56</sup> [www.appvoices.org/2018/12/20/energy-democracy-in-action/](http://www.appvoices.org/2018/12/20/energy-democracy-in-action/)

<sup>57</sup> [www.appvoices.org/2018/09/28/pvec-annual-meeting/](http://www.appvoices.org/2018/09/28/pvec-annual-meeting/)

<sup>58</sup> The AEO REC working group includes several overlapping members with CAN, including MACED and Appalachian Voices: [www.grist.org/article/an-inclusive-climate-movement-starts-to-rise-in-the-southeast/](http://www.grist.org/article/an-inclusive-climate-movement-starts-to-rise-in-the-southeast/)

<sup>59</sup> [www.cln.coop/home-page/about-us/](http://www.cln.coop/home-page/about-us/)

Complementing the efforts of member-owners, advocates can make sure co-ops have access to clean energy resources, case studies, and best practices from the National Rural Electric Cooperative Association (NRECA), the national association that represents over 900 co-ops and other publicly owned utilities across the U.S. NRECA's 2018 report, *A solar revolution in rural America*, is the result of a multi-year project to identify and address the barriers and drivers of growth for co-op solar.<sup>60</sup> NRECA also has a map of co-ops promoting and/or offering energy efficiency and demand side management programs; however, it is unclear how often this map is updated.

As localized and member-owned nonprofits, co-ops are well positioned to be economic engines in their communities and be responsive to their customers' needs. Some co-ops have recognized that they can play a role in promoting prosperity in the communities they serve by providing innovative offerings to increase deployment of energy efficiency and renewable energy, including tariff-based on-bill financing (e.g. How\$martKY) and community solar (e.g. BARC in VA). Clean energy advocates should continue to take steps to ensure that co-op member-owners across Central Appalachia take advantage of this opportunity unique to rural America.

## Top Opportunity for Clean Energy Advocates: Grow Community Solar Throughout the Region

Community solar presents a significant opportunity for Central Appalachia because it offers democratized, community-driven projects along with the economic benefits of larger-scale solar. There are several models for community solar project ownership that allow underserved groups like low-income residents and renters to access solar. The U.S. DOE's Guide to Community Solar explains community solar project models and discusses emerging policies that enable them.<sup>61</sup>

Nineteen states and the District of Columbia had implemented laws or regulations supporting community solar projects, and 171 utilities had active community solar programs.<sup>62</sup> Supportive policies include PPAs, virtual NEM, group billing, and joint ownership. These policies allow for various ownership models that increase the likelihood that a community will have access to a project model that works for them.<sup>63</sup> Even with little policy support, there are community solar projects with various ownership models in all Central Appalachian states except West Virginia, though some projects have more local benefits than others. Efforts are underway to use federal energy bill assistance (e.g. the Low Income Home Energy Assistance Program, LIHEAP) to cover the cost of community solar projects for low-income residents.<sup>64</sup>

Publicly-owned utilities and co-ops can be ideal utilities to run community solar programs because they exist to serve their members. In fact, co-ops are leading the way across the country. More than 190 co-ops offer community solar in 31 states.<sup>65</sup> BARC Electric Cooperative in Virginia, for example, commissioned the first community solar project (550 kilowatts).<sup>66</sup> Co-op members across Central Appalachia could use utility-sponsored community solar as a vehicle for improving relations between co-op boards and members. In those projects, the co-op can play a valuable role in a clean energy project that benefits members. Leveraging clean energy advocates' ongoing engagement with co-ops, CAN can serve as a hub for community solar best practices for interested co-op members.<sup>67</sup>

60 [www.cooperative.com/programs-services/bts/sunda-solar/Documents/Solar-Revolution.pdf](http://www.cooperative.com/programs-services/bts/sunda-solar/Documents/Solar-Revolution.pdf)

61 [www.nrel.gov/docs/fy11osti/49930.pdf](http://www.nrel.gov/docs/fy11osti/49930.pdf)

62 As of December 2018: [www.solstice.us/solstice-blog/top-community-solar-states-2018/](http://www.solstice.us/solstice-blog/top-community-solar-states-2018/)

63 [www.nrel.gov/docs/fy11osti/49930.pdf](http://www.nrel.gov/docs/fy11osti/49930.pdf)

64 [www.votesolar.org/about-us/news-and-events/news/federal-energy-assistance-solar-access/](http://www.votesolar.org/about-us/news-and-events/news/federal-energy-assistance-solar-access/)

65 [www.nrdc.org/experts/arjun-krishnaswami/renewable-energy-brings-economic-boost-rural-communities](http://www.nrdc.org/experts/arjun-krishnaswami/renewable-energy-brings-economic-boost-rural-communities)

66 [s3.amazonaws.com/fonteva-customer-media/00Do0000000Yi66EAC/SolarOps-Case-Study-BARC.pdf](https://s3.amazonaws.com/fonteva-customer-media/00Do0000000Yi66EAC/SolarOps-Case-Study-BARC.pdf)

67 *The Interstate Renewable Energy Council's National Shared Renewables Scorecard highlights best practices in shared renewables program design.* [irecusa.org/regulatory-reform/shared-renewables/national-shared-renewables-scorecard/](http://irecusa.org/regulatory-reform/shared-renewables/national-shared-renewables-scorecard/)



## Top Opportunity for Clean Energy Advocates: Keep a Critical Eye on Grid Modernization Efforts and Capture Best Practices

Utilities across the country are taking steps to advance the electric grid, address climate resilience, and tackle environmental performance. In particular, utilities, regulators and lawmakers have identified grid modernization processes as an opportunity for utilities to transform the grid, expand smart energy data access, and prepare for clean energy deployment. However, utilities define “grid modernization” in a variety of ways and sometimes inappropriately characterize routine maintenance as “resilience” efforts.<sup>68</sup> Clean energy advocates can and should play an important role in shaping grid modernization decisions by collectively tracking utility and regulatory grid modernization efforts in Appalachian states. Advocates can identify best practices to ensure that grid modernization efforts focus on enabling clean energy integration.<sup>69</sup> For instance, in 2019 Duke Energy Carolinas plans to hold a number of grid modernization stakeholder workshops. Participation from North Carolina clean energy advocates can help ensure the utility proposes innovative, clean energy-enabling projects as part of its grid modernization plans.

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<sup>68</sup> [www.appvoices.org/2018/10/17/the-problem-with-monopoly-utilities/](http://www.appvoices.org/2018/10/17/the-problem-with-monopoly-utilities/)

<sup>69</sup> [www.nrdc.org/experts/walton-shepherd/dominions-rush-spend-leaves-grid-modernization-behind](http://www.nrdc.org/experts/walton-shepherd/dominions-rush-spend-leaves-grid-modernization-behind)

# Integrating Clean Energy into the Economic Development Ecosystem

Since economic development is a primary benefit of clean energy market growth in Central Appalachia, it is important to understand the existing economic development landscape and seek opportunities to integrate clean energy into it. Clean energy policies should be advocated for and enacted in the context of this broader economic development planning and financing ecosystem.

## The Economic Development Planning and Implementation Process

We identify four key components of the local economic development planning and implementation process into which clean energy can be integrated: planning; attracting outside residents and businesses; retaining and expanding existing (clean energy) businesses; and supporting new (clean energy) businesses.<sup>70</sup>

### Planning

Economic development requires planning, and clean energy advocates can make economic development planners aware of clean energy as an opportunity. The local economic development landscape includes an array of officials and stakeholders. Regional Development Orgs (RDOs) are multi-county entities that lead local economic development planning and programming. RDOs go by many names: local development districts, Council of Governments, Area Development Districts, Regional Planning Commissions, Economic Development Districts, and more.<sup>71</sup> Many RDOs in Appalachian states focus on diversifying local economies from dependence on coal. These entities depend heavily on funding from the U.S. Economic Development Administration (EDA), among other federal funding sources. To qualify for EDA assistance, RDOs must define economic development and resilience goals in a Comprehensive Economic Development Strategy (CEDS) at least every five years.<sup>72</sup> Applicants seeking grants through programs like ARC POWER and EDA Assistance to Coal Communities must indicate how their project aligns with the CEDS for the proposed service area.

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<sup>70</sup> Adapted from the framework for economic development outlined by Ted O'Callahan: [insights.som.yale.edu/insights/can-appalachian-ohio-build-new-economy](https://insights.som.yale.edu/insights/can-appalachian-ohio-build-new-economy)

<sup>71</sup> The National Association of Development Organizations (NADO) represents and supports RDOs, which go by any of the following names: area development districts, association of governments, councils of governments, councils of local governments, economic development associations, economic development councils, economic development corporations, economic development districts, local development districts, planning and development councils, planning and development districts, planning district commissions, regional commissions, regional councils, regional development commissions, regional planning and development councils, regional planning commissions, and other types of multi-jurisdictional development entities around the country.

<sup>72</sup> [www.eda.gov/ceds/](https://www.eda.gov/ceds/)

One of the key lessons learned from transition planning in Colorado's historically coal-dependent North Fork area is the need to incorporate clean energy into local planning processes.<sup>73</sup> The National Association of Development Organizations (NADO) has worked closely with RDOs, workforce development boards, schools, and local officials in coal-impacted communities to develop economic development roadmaps.<sup>74</sup> However, NADO does not currently have the resources to conduct targeted engagement in Appalachian states and is focused on coal-impacted communities in Western states.

To inform CEDS development and other planning efforts, it is valuable to have baseline local data on current job availability, transitioning workers' skill sets, wages of current and prospective jobs, workforce retirement projections, and retraining needs for local prospective jobs. Researchers at Ohio University, for example, reviewed the occupational skills of Appalachian coal workers, their transferability to emerging occupations in the region, and wage gaps between coal mining jobs and transition positions.<sup>75</sup> Central Appalachian advocates can commission and conduct similar studies independently or in partnership with Academia.

Advocates can look to several great examples of economic development planning conducted alongside renewable energy and energy efficiency analysis:

- In Southwest Virginia, the Solar Workgroup of Southwest Virginia created a Solar Roadmap that identifies the region's most impactful solar projects and maps out the public and private infrastructure needed to prepare the region for the growth of the solar industry, including workforce development, entrepreneurship, and policy reform.<sup>76</sup> The Workgroup is now implementing the roadmap, for example, by awarding solar companies projects in Southwest Virginia.<sup>77</sup>
- Residents in Williamson, West Virginia developed the Sustainable Williamson Local Energy Action Plan as part of a larger community sustainability initiative called Sustainable Williamson.<sup>78</sup> The residents of Williamson have worked to bring their town into the new energy economy despite the fact that in early 2018, it was reported that there were 6,500 opioid pills per person in the town, a fact that has touched every Williamson resident.<sup>79</sup>
- Athens, Ohio has adopted a community-driven Sustainability Action Plan and achieved SolSmart designation by streamlined solar permitting processes.<sup>80</sup> The town boasts the greatest installed solar capacity per capita in Ohio.<sup>81</sup>

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73 [www.americanprogress.org/press/release/2018/04/11/449411/release-colorados-north-fork-valley-model-rural-areas-seeking-diverse-sustainable-economies/](http://www.americanprogress.org/press/release/2018/04/11/449411/release-colorados-north-fork-valley-model-rural-areas-seeking-diverse-sustainable-economies/)

74 As part of the 2015 Coal Reliant Communities Innovation Challenge, NADO lead a team-based challenge for stakeholders in Kentucky, West Virginia, and Montana. This effort was funded by the Appalachian Regional Commission using POWER funds: [www.naco.org/resources/signature-projects/coal-reliant-communities-innovation-challenge](http://www.naco.org/resources/signature-projects/coal-reliant-communities-innovation-challenge).

75 [www.ohio.edu/voinovichschool/article.cfm?customel\\_datapageid\\_1792195=3125214](http://www.ohio.edu/voinovichschool/article.cfm?customel_datapageid_1792195=3125214)

76 [www.swvasolar.org/solar-roadmap/](http://www.swvasolar.org/solar-roadmap/)

77 [appvoices.org/2018/11/15/virginia-company-wins-bid-to-negotiate-contracts-to-install-six-solar-projects-in-southwest-virginia/](http://appvoices.org/2018/11/15/virginia-company-wins-bid-to-negotiate-contracts-to-install-six-solar-projects-in-southwest-virginia/)

78 [www.sustainablewilliamson.com/wp-content/uploads/2017/06/Sustainable-Williamson-Local-Energy-Action-Plan.pdf](http://www.sustainablewilliamson.com/wp-content/uploads/2017/06/Sustainable-Williamson-Local-Energy-Action-Plan.pdf)

79 [www.nbcnews.com/news/us-news/welcome-williamson-w-va-where-there-are-6-500-opioid-n843821](http://www.nbcnews.com/news/us-news/welcome-williamson-w-va-where-there-are-6-500-opioid-n843821)

80 [www.solsmart.org/communities/athens-oh/](http://www.solsmart.org/communities/athens-oh/)

81 [www.energynews.us/2018/04/17/midwest/in-athens-ohio-energy-locavores-drive-demand-for-community-solar/](http://www.energynews.us/2018/04/17/midwest/in-athens-ohio-energy-locavores-drive-demand-for-community-solar/)

## ***Attracting Outside Residents and Businesses***

To attract new residents and businesses, it is valuable for communities to have a reliable workforce, robust infrastructure (including roads and broadband), and a long-term community vision. As stated by a speaker at the 2018 ARC conference: “It’s the little things that make a difference upfront. At the end of the day, you have got to make it feel like home and that there is a long-term benefit to being there....you also have to do your research on the company to understand their future vision and mission. They need to understand that you aren’t just thinking about 2018, but that you have a long term, innovative road map that covers infrastructure, logistics, manpower, and all those things. The more long-term innovative thinking you can show, the more companies will be excited about considering your area.”<sup>82</sup>

Companies seeking to invest in new places are increasingly demanding access to renewable energy, and communities can excite businesses by demonstrating plans to increase local renewable energy generation. However, it is likely that not all Central Appalachian economic development officials see clean energy as a tool in the toolbox, so advocates can play an important role in getting it on their radars. At a recent business summit in West Virginia, Bob Orndorff, Dominion Energy’s state policy director, emphasized that states need to recognize wind and solar power’s increasing appeal to companies looking to invest in new places. Referring to corporate clean energy goals, he said, “If we are to recruit companies to work in West Virginia, to invest in West Virginia, we need to meet their needs.”<sup>83</sup> Technology companies procure the vast majority of corporate renewable energy, so efforts to expand clean energy options for businesses compliments the movement to build a “silicon holler” tech hub in the region.<sup>84</sup>

While corporate renewable energy purchases are not sufficient to sustain a new energy economy, corporate buyers can be first movers and help open up clean energy markets where they might not already be robust. Additionally, corporate buyers might have the scale to commit to only buying from clean energy companies that adhere to high labor standards, setting a precedent in the region.<sup>85</sup>

In addition to attracting businesses, increased clean energy in the region may be attractive to young people who want to feel like part of the shift to a more sustainable economy. In this way, clean energy can contribute to a positive feedback loop, attracting a young, driven workforce, which draws businesses and more skilled workers, and so on. As an example, Generation West Virginia’s Impact Fellowship offers early- to mid-career professionals yearlong, paid fellowships at West Virginia companies. Fellows work four days a week and dedicate one day a week to volunteering in their communities with local nonprofits.<sup>86</sup> While they do not have an apparent clean energy focus, the model is exciting and replicable for the clean energy sector.

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<sup>82</sup> [us12.campaign-archive.com/?u=9bfa82f6fd59f9f14e40259c1&id=c6d86968ab](https://us12.campaign-archive.com/?u=9bfa82f6fd59f9f14e40259c1&id=c6d86968ab)

<sup>83</sup> [www.wvgazettemail.com/business/energy-official-points-to-renewables-at-business-summit-highlighting-coal/article\\_6210aad3-8aa5-54cf-bea7-5abbf0daa3b4.html](https://www.wvgazettemail.com/business/energy-official-points-to-renewables-at-business-summit-highlighting-coal/article_6210aad3-8aa5-54cf-bea7-5abbf0daa3b4.html)

<sup>84</sup> [www.bloomberg.com/view/articles/2018-09-29/tech-companies-are-big-spenders-on-renewable-energy?srnd=opinion-technology-and-ideas](https://www.bloomberg.com/view/articles/2018-09-29/tech-companies-are-big-spenders-on-renewable-energy?srnd=opinion-technology-and-ideas)

<sup>85</sup> [sdg.iisd.org/news/businesses-pledge-to-ensure-a-just-transition-and-decent-jobs-in-renewable-energy/](https://sdg.iisd.org/news/businesses-pledge-to-ensure-a-just-transition-and-decent-jobs-in-renewable-energy/)

<sup>86</sup> [www.weimpactwv.org/the-idea/](https://www.weimpactwv.org/the-idea/)



## ***Retaining and Expanding Existing Clean Energy Businesses***

The most important things clean energy advocates can do to grow existing clean energy businesses is to advocate for an increasingly robust policy environment with public and policymaker support, directly increase clean energy demand by generating a project pipeline, and increase access to both business and consumer financing. Solar United Neighbors works to build project pipeline by helping residents organize bulk purchasing cooperatives. Natural Capital Investment Fund (NCIF) offers flexible financing to businesses that are unable to access traditional capital sources due to their perceived risk profile as well as to customers who want to access services offered by those businesses.<sup>87</sup> Similarly, MACED offers technical and financial assistance for both clean energy businesses and customer.<sup>88</sup> NCIF and MACED, both certified Community Development Financial Institutions (CDFIs), are working to raise awareness of the need and the opportunity for this kind of targeted lending throughout the region. Advocates can encourage local economic development officials to pursue partnership opportunities for Appalachia-based clean energy companies to exchange knowledge with similar companies outside of the region.

## ***Supporting New Clean Energy Businesses***

A new energy economy will require the establishment of new clean energy businesses. NCIF works to support growth of new clean energy companies by offering loans for working capital, equipment, and real estate acquisition. Advocates have indicated that Central Appalachia is well positioned to meet this need for entrepreneurship because the problem-solving, just-do-it qualities necessary for rural life are the same qualities needed to run a successful start-up. As stated by Southeast Ohio proponent David Wilhelm, “Large-scale doesn’t work in Appalachia. The post-World War II model for the U.S. economy didn’t leverage what Appalachia has. Those systems are breaking down. We’re seeing local food, distributed energy, and community healthcare. These approaches play to Appalachian strengths.”<sup>89</sup> Advocates should encourage new companies to employ best practices for creating high-quality jobs, including offering workers company ownership options and negotiating community benefits agreements for larger projects. For example, when the Solar Workgroup of Southwest Virginia awarded a 1.5-MW portfolio of local solar projects to a solar developer, they noted the winner’s robust plan for engaging local workers and students.<sup>90</sup>

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<sup>87</sup> [www.ncifund.org/what-we-do/strategic-initiatives/energy-initiative](http://www.ncifund.org/what-we-do/strategic-initiatives/energy-initiative)

<sup>88</sup> [www.loans.maced.org/energy-savings-microloans/](http://www.loans.maced.org/energy-savings-microloans/)

<sup>89</sup> [insights.som.yale.edu/insights/can-appalachian-ohio-build-new-economy](http://insights.som.yale.edu/insights/can-appalachian-ohio-build-new-economy)

<sup>90</sup> [appvoices.org/2018/11/15/virginia-company-wins-bid-to-negotiate-contracts-to-install-six-solar-projects-in-southwest-virginia/](http://appvoices.org/2018/11/15/virginia-company-wins-bid-to-negotiate-contracts-to-install-six-solar-projects-in-southwest-virginia/)

## Top Opportunity for Clean Energy Advocates: Educate Local Economic Development Planners About Clean Energy

State and local economic development planners make important resource-allocation decisions based on CEDS, so clean energy advocates should ensure that these plans incorporate clean energy as a key growth sector. Together, clean energy advocates can develop template informational materials targeted to local economic development planners (e.g. a “Clean Energy Guide for Local Planning Districts”) and customize them for local use. Such a guide should highlight accomplishments of local Community Action Agencies in administering the Weatherization Assistance Program (WAP) and discuss the role of energy efficiency in reducing low-income households’ energy burdens and emergency bill assistance needs. Advocates can also hold a workshop for Planning Districts to educate them on clean energy as an economic development tool and opportunities for them to enable clean energy market development through their planning. These efforts will increase the likelihood that local planners will consider clean energy in planning efforts like CEDS development.

Advocates should also tap into the extensive existing network of public and nonprofit economic development finance professionals that allocate and use new markets tax credits and community development block grants. There is opportunity to increase awareness amongst those professionals of clean energy as a means of reducing home and business utility expenditures and how to support clean energy small businesses.

Lastly, advocates can help their localities achieve the SolSmart designation, a national program that recognizes communities that have taken steps to foster growth of a local solar market.<sup>91</sup> With the help of UpGrade Ohio, Athens County in SE Ohio has achieved Bronze level recognition by creating an online permitting checklist and reviewing local zoning codes to identify restrictions that hinder solar development.<sup>92</sup> With some help from local clean energy advocates, these are doable steps that any local government can take to foster solar projects and welcome solar companies.

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<sup>91</sup> [www.solsmart.org/our-communities/designee-map/](http://www.solsmart.org/our-communities/designee-map/)

<sup>92</sup> [www.solsmart.org/communities/athens-county-oh/](http://www.solsmart.org/communities/athens-county-oh/)

# Growing a Skilled Clean Energy Workforce

Meeting growing demand for clean energy requires a ready workforce. A skilled clean energy workforce will ensure that completed projects are high-quality and achieve the expected energy generation and/or energy savings. High-quality projects help stimulate project demand and bolster public and policymakers' trust in the technology and the sector overall. However, skilled worker availability is an issue in Central Appalachia. A poll of North Carolina residential and commercial energy efficiency industry stakeholders conducted by the North Carolina Building Performance Association (NCBPA) highlighted availability of a skilled workforce as a major challenge.<sup>93</sup>

Cities, states, utilities, companies, community-based organizations, and others can offer workforce development programs to prepare workers for employment in a new industry or advance them in an existing, evolving industry. These programs support employers and industry by identifying worker skill gaps and offering trainings to fill these gaps. It is vital that workforce development activities correspond to current demand or ongoing efforts to stimulate this demand so that trained workers have job placement opportunities.<sup>94</sup> Workforce development programs, particularly those led at the local level, coordinate between workers and industry to ensure the existence of a skilled workforce to support local industries. Moreover, they seek to secure jobs for workers who go through training programs.

To ensure a ready workforce for a growing clean energy sector, state and local energy planning and workforce development officials should start by engaging the right stakeholders, including but not limited to energy utilities, unions, state clean energy trade association, community-based organizations, community colleges, and weatherization providers. State chapters of national trade associations can make valuable partners due to their familiarity with the needs of both workers and employers.<sup>95</sup>

States and cities can offer their own clean energy workforce development programs or they can support programs from local skills-training providers and nonprofits. As an example, Grid Alternatives, a national nonprofit with regional chapters, held an installation training program with Solar Holler and Coalfield Development Corporation that led to Coalfield becoming one of the first licensed solar installers in Southern West Virginia. State and local officials as well as clean energy companies in the region should explore opportunities to replicate Grid Alternatives trainings elsewhere in Central Appalachia. Another option is to explore partnering with Solar Energy International, an organization that has a solar training center in Colorado's North Fork. An east coast solar training center could complement Solar Energy International's western campus.<sup>96</sup>

Throughout these workforce development activities, officials, companies, skills training providers, and others should consider the needs of those traditionally not employed in the clean energy sector. In Central Appalachia, skills training providers could target former workers in the fossil fuel industry where it makes sense to do so based on workers' skill sets and location. MACED, for example, trains former coal workers to install energy efficiency measures.<sup>97</sup>

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<sup>93</sup> Password-protected post-Summit report available on request from NCBPA

<sup>94</sup> Strategies and stakeholders for local governments to grow a skilled energy efficiency workforce are detailed in the June 2018 ACEEE report *Through the Local Government Lens: Developing the Energy Efficiency Workforce*: [aceee.org/research-report/u1805](http://aceee.org/research-report/u1805). The Solar Foundation's *Strategies for Solar Workforce Development Toolkit* provides planning and implementation guidance for growing the solar workforce:

[www.americansolarworkforce.org/wp-content/uploads/2018/09/FINAL\\_Strategies-for-Solar-Workforce-Development-TOOLKIT.pdf](http://www.americansolarworkforce.org/wp-content/uploads/2018/09/FINAL_Strategies-for-Solar-Workforce-Development-TOOLKIT.pdf).

<sup>95</sup> In the Central Appalachian region, the Solar Energy Industries Association has affiliates in Tennessee and Virginia. For energy efficiency workers, there is NCBPA.

<sup>96</sup> [www.solarenergy.org/](http://www.solarenergy.org/); [www.americanprogress.org/press/release/2018/04/11/449411/release-colorados-north-fork-valley-model-rural-areas-seeking-diverse-sustainable-economies/](http://www.americanprogress.org/press/release/2018/04/11/449411/release-colorados-north-fork-valley-model-rural-areas-seeking-diverse-sustainable-economies/)

<sup>97</sup> [www.maced.org/jobs/new-energy-internships/](http://www.maced.org/jobs/new-energy-internships/)

Workforce development activities can also target other underserved community members. The City of Richmond, for example, worked with a local nonprofit called Solar Richmond to develop a 4-week solar training curriculum targeted at underserved and unemployed residents.<sup>98</sup> Advocates and officials can leverage research mapping clean energy career pathways based on skill sets and levels of expertise, like the Interstate Renewable Energy Council's (IREC) Solar Career Map and the Solar Foundation's Career Pathway Template.<sup>99</sup>

## Top Opportunity for Clean Energy Advocates: Hold a Central Appalachia Clean Energy Workforce Development Summit

Central Appalachian clean energy advocates should host a regional summit on building the clean energy workforce, building from the momentum of the clean energy track at CAN's 2018 Regional Peer-to-Peer Convening. The Central Appalachia Clean Energy Workforce Development Summit could feature clean energy workforce development specialists (such as from the Solar Foundation's Solar Training Network), advocates, clean energy businesses, local workforce development boards, and other government officials sharing ideas and plans for how to balance clean energy job creation with workforce availability.<sup>100</sup> The summit should initiate sector partnerships between solar or energy efficiency companies and local workforce development boards, community colleges, trade associations, economic development organizations, and other relevant stakeholders.<sup>101</sup> The summit should engage groups involved with job placement for returning veterans and administering the WAP. Sessions could dive into workforce needs for sectors within the clean energy space, like manufacturing, design and engineering, project development, and installation and operations.

The summit could build on the work already started by Energy Efficient West Virginia's work to get more businesses to see themselves as part of the clean energy economy and build their sense of identity and purpose around this sector. The Colorado Energy Efficiency Business Coalition has had success cultivating such an identity and could be a model to replicate in Central Appalachia. Moreover, the summit could feature exhibitions from clean energy companies and a job fair to connect these companies with prospective employees. The Maryland, District of Columbia, Delaware, and Virginia Solar Energy Industries Association (MDV-SEIA) hosted its second annual Solar Focus Job Fair in October 2018 in partnership with GRID Alternatives Mid-Atlantic.<sup>102</sup>

Examples of existing (re)training opportunities not mentioned above that should be highlighted during the Summit include: Coalfield Development Corporation's partnership with Solar Holler<sup>103</sup>; the University of Tennessee's extension program that trains installers and customers how to better utilize solar energy; Athens, Ohio's Tri-County Career Center's solar curriculum<sup>104</sup>; the Powder River Basin Solar Training Program; the Appalachian Ohio Solar Supply Chain Initiative; Ascent Virginia<sup>105</sup>; and the Virginia Solar Workforce Development Initiative.<sup>106</sup>

98 [www.americansolarworkforce.org/wp-content/uploads/2018/09/FINAL\\_Strategies-for-Solar-Workforce-Development-TOOLKIT.pdf](http://www.americansolarworkforce.org/wp-content/uploads/2018/09/FINAL_Strategies-for-Solar-Workforce-Development-TOOLKIT.pdf)

99 IREC: [irecsolarcareemap.org](http://irecsolarcareemap.org); Solar Foundation (Appendix A): <https://bit.ly/2S9qvaa>

100 [www.americansolarworkforce.org/about-us/](http://www.americansolarworkforce.org/about-us/)

101 The National Skills Coalition provides additional information policies that support sector partnerships, although it includes few energy sector-specific examples: [www.nationalskillscoalition.org/resources/publications/file/Sector-Partnership-Scan-1.pdf](http://www.nationalskillscoalition.org/resources/publications/file/Sector-Partnership-Scan-1.pdf)

102 [www.solarfocusconference.org/old-job-fair/](http://www.solarfocusconference.org/old-job-fair/)

103 [www.rewireappalachia.com/](http://www.rewireappalachia.com/)

104 [www.nado.org/wp-content/uploads/2018/03/Powerpoint-Solar-Altier.pdf](http://www.nado.org/wp-content/uploads/2018/03/Powerpoint-Solar-Altier.pdf)

105 [www.ascentvirginia.org/background-mission](http://www.ascentvirginia.org/background-mission)

106 <https://bit.ly/2xxBgG1>

# Fully Leveraging Federal Support for Economic Development through Clean Energy

Redeveloping the Appalachian economy is a massively under-resourced task. As of late 2018, the ARC had awarded \$120 million to 309 Appalachian counties through the cornerstone Partnerships for Opportunity and Workforce and Economic Revitalization (POWER) Initiative.<sup>107</sup> This level of support is not commensurate with the level of economic devastation born by communities in Appalachia and is far less than has been historically committed to communities affected by other economic disruptions, like the decline in tobacco farming and closure of military bases.<sup>108</sup>

Relatedly and importantly, communities would benefit if state and federal resources went to economic transition efforts rather than to propping up or bailing out uneconomical power plants.<sup>109</sup> State legislators and governors should work with the federal government to spend these funds in the most effective way possible, such as through offering additional funding through existing programs. A number of federal agencies offer economic development programs, including some that are clean energy-specific and others that are not:

*U.S. Department of Agriculture (USDA):* In addition to general rural economic development programs that can be used for clean energy-related projects (e.g. Rural Community Development Initiative Grants), USDA has a variety of rural-focused clean energy financing products for co-ops, businesses, and homeowners.<sup>110</sup> Through the Energy Efficiency and Conservation Loan Program (EECLP) and Rural Energy Savings Program (RESP), rural electric cooperatives have access to two USDA low-interest loan guarantee programs offering as much as \$6 billion every year for development of energy efficiency and other renewable energy programs. The USDA Rural Utilities Service (RUS) administers EECLP and RESP. However, both programs are underutilized by co-ops.<sup>111</sup> Still, the RUS awarded eight projects in its first round, one of which is in Central Appalachia: BARC Electric Cooperative in VA will use the financing to install rooftop solar on schools. USDA also offers its Rural Economic Development Loan and Grant (REDLG) program, which offers co-ops capital for energy efficiency programs.<sup>112</sup> USDA's Rural Energy for America Program (REAP), on the other hand, targets agriculture and small businesses in rural areas.<sup>113</sup> Stakeholders have indicated that the guaranteed loans and grants offered through REAP are also underutilized.

*Appalachian Regional Commission (ARC):* The POWER Initiative is a congressionally funded program that offers federal resources to communities that have been affected by job losses in coal mining, coal power plant operations, and coal-related supply chain industries due to the changing economics of America's energy production. The most recent project funding announcement was in October 2018.<sup>114</sup>

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107 [www.arc.gov/funding/power.asp](http://www.arc.gov/funding/power.asp)

108 [www.ieefa.org/appalachia-needs-sound-fury-war-coal-canard/](http://www.ieefa.org/appalachia-needs-sound-fury-war-coal-canard/)

109 <https://www.forbes.com/sites/energyinnovation/2018/08/23/billions-at-stake-should-we-invest-in-struggling-power-plants-or-communities-facing-closures/#2dffae0f1f68>; <https://www.greentechmedia.com/articles/read/redirecting-trumps-coal-and-nuclear-bail-out-to-fund-economic-transition#gs.GDABezU>

110 [www.rd.usda.gov/programs-services/rural-community-development-initiative-grants](http://www.rd.usda.gov/programs-services/rural-community-development-initiative-grants)

111 [www.appvoices.org/2018/07/25/the-burden-of-home-energy-costs-in-rural-appalachia/](http://www.appvoices.org/2018/07/25/the-burden-of-home-energy-costs-in-rural-appalachia/)

112 [www.rd.usda.gov/programs-services/rural-economic-development-loan-grant-program](http://www.rd.usda.gov/programs-services/rural-economic-development-loan-grant-program)

113 [www.rd.usda.gov/programs-services/rural-energy-america-program-renewable-energy-systems-energy-efficiency](http://www.rd.usda.gov/programs-services/rural-energy-america-program-renewable-energy-systems-energy-efficiency)

114 [www.arc.gov/news/article.asp?ARTICLE\\_ID=642](http://www.arc.gov/news/article.asp?ARTICLE_ID=642)



*U.S. Treasury Department:* The New Markets Tax Credit Program is administered by the U.S. Treasury Department's CDFI Fund and allocated by local economic development finance professionals across the United States.

*U.S. Department of Energy (DOE):* DOE has a myriad offices and programs supporting the growth of the U.S. clean energy industry. In October 2018, DOE's Office of Energy Efficiency and Renewable Energy Solar Energy Technologies Office announced funding for 53 innovative research projects that will lower solar electricity costs and a total of \$12.7 million to 7 projects that will support a growing solar workforce. A Grid Ready Energy Analytics Training with Data project in Knoxville, TN won \$6 million.<sup>115</sup> The DOE State Energy Program (SEP) provides funding and technical assistance to states and territories to enhance energy security, advance state-led energy initiatives, and maximize the benefits of decreasing energy waste.<sup>116</sup>

*U.S. Department of Housing and Urban Development (HUD):* Community development block grants and HUD 108 loans are local economic development funding sources not specific to clean energy but that can be used for clean energy projects.

*U.S. Department of Interior (DOI):* The Office of Surface Mining Reclamation and Enforcement (OS-MRE) abandoned mine lands (AML) reclamation program addresses the hazards and environmental degradation posed by legacy mine sites by disbursing funds collected through a fee on each ton of coal produced.<sup>117</sup>

## Top Opportunity for Clean Energy Advocates: Help Eligible Applicants Apply to and Relay Feedback on Federal Funding Programs

Stakeholders have indicated that federal clean energy financing programs, especially those offered through USDA, are underutilized. This is in part due to a lack of eligible entities' awareness that the programs exist or a lack of knowledge of how to apply for them. Clean energy advocates can develop and disseminate digestible materials describing which federal funding sources can be leveraged to accelerate the growth of a clean energy economy in Central Appalachia. For example, Appalachian Voices, EESI, and Clean Energy Works created a resource on federal financing options for on-bill energy efficiency financing.<sup>118</sup> Advocates can provide technical assistance to individuals and organizations apply for funding, as Solar United Neighbors of WV and NCIF have done with USDA programs. Advocates with experience accessing a specific funding source should share lessons learned with other advocates to increase success rates. Additionally, advocates and state policymakers can work to understand specific challenges that eligible entities face, like a lack of awareness or a difficult application process, and then communicate them to federal program administrators.

<sup>115</sup> [www.energy.gov/eere/solar/seto-fy2018-workforce-initiatives](http://www.energy.gov/eere/solar/seto-fy2018-workforce-initiatives)

<sup>116</sup> [www.energy.gov/eere/wipo/state-energy-program](http://www.energy.gov/eere/wipo/state-energy-program)

<sup>117</sup> [www.osmre.gov/programs/aml.shtm](http://www.osmre.gov/programs/aml.shtm)

<sup>118</sup> [www.eesi.org/files/USDA\\_OBF\\_financing\\_options.pdf](http://www.eesi.org/files/USDA_OBF_financing_options.pdf)

# Top Opportunity for Clean Energy Advocates: Promote Use of Funds for Solar Deployment on Brownfields

The Reclaiming Appalachia Coalition recently released its report *Many Voices, Many Solutions: Innovative Mine Reclamation in Central Appalachia* to profile case studies of community development projects on former mine lands. The report includes several innovative clean energy-focused reclamation projects: the Affordable Green Energy Subdivision project (Kentucky), Modern Energy at Arlie Boggs (Kentucky), Southwest Virginia Solar Springboard (Virginia), and Mixed Agriculture and Renewable Energy (West Virginia).<sup>119</sup> The Nature Conservancy is working on a roadmap for developing utility scale solar on the hundreds of thousands of acres of former surface coal mines and other brownfields in the region. Advocates engaged in these efforts should continue to coordinate. They can leverage each other's efforts to bring attention to solar as a reclamation use for brownfields, including former mine lands, especially as funded by AML pilot grants or other federal funding sources for degraded land reclamation.

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<sup>119</sup> *The Reclaiming Appalachia Coalition is a regional collaboration that seeks to spur mine reclamation projects throughout Central Appalachia that are responsive to community needs and interests and that accelerate the growth of new, sustainable sectors. The Coalition includes Appalachian Voices in Virginia, Appalachian Citizens' Law Center in Kentucky, Coalfield Development Corporation in West Virginia, and Rural Action in Ohio, and Downstream Strategies, technical experts based in West Virginia. [www.appvoices.org/resources/AML-RAC/AML\\_RAC\\_report\\_Many\\_Voices\\_Many\\_Solutions-11-13-18-lo-res.pdf](http://www.appvoices.org/resources/AML-RAC/AML_RAC_report_Many_Voices_Many_Solutions-11-13-18-lo-res.pdf)*

# Aligning With Labor Unions and Advocates for Mutual Benefit

In Central Appalachia, clean energy advocates recognize that growing a 21st-century economy requires both addressing the legacies of extractive industries and laying the groundwork for new industries. The Appalachian Citizens Law Center addresses coal's negative legacy by fighting legal cases for miners with black lung and for whistleblowers. Acknowledging a proud legacy of powering the nation and a tradition of labor rights advocacy are important parts of working in the region.

There is opportunity for clean energy advocates in Central Appalachia to increase recognition and uplift of labor unions to build a more robust coalition of advocates. Working with labor is key to building public support for clean energy as an economic opportunity then communicating that support to policymakers. There are several examples of trade group support for clean energy. In late 2018, Mark Johnson of the Tri-State Building and Trades Council, which represents construction trades in 33 Appalachian counties in Ohio, Kentucky and West Virginia, spoke at a Public Utilities Commission of Ohio hearing on an American Electric Power (AEP) proposal to develop 400 MW of solar in Appalachian Ohio. In his remarks, Mr. Johnson said, "I would challenge any of you to go down to Logan, West Virginia, or to Holden, West Virginia, or Williamson, West Virginia, or Paintsville, Kentucky, or Salyersville, Kentucky, and look those people in the eyes. It's a forgotten land and those people need help, but this project is one of the first bright spots as far as the new economy jobs to ever come to Appalachia, and I stand and wholeheartedly support this project."<sup>120</sup>

In seeking to build alliances with labor unions and advocates, is important to recognize that these groups may have differing definitions of "clean energy" and what constitutes a good job through clean energy. While most clean energy advocates are focused on energy efficiency and renewable energy generation, potential allies may consider carbon capture and storage and/or use (CCSU) as part of a new energy future. The center-left think tank Third Way works closely with unions to advocate for CCSU because these jobs created tend to be unionized.<sup>121</sup> However, most solar and wind jobs are not currently unionized. Clean energy advocates could use CAN as a platform for exploring these issues.

Not only are labor advocates a strong addition to clean energy advocacy coalitions, but there is great untapped potential for unions to help accelerate growth of a clean energy economy with good jobs. In his address at the 2018 Global Climate Action Summit, AFL-CIO President Richard Trumka noted that in California, "Unions, employers and government have come together to fight climate change and create good jobs by attaching labor standards to climate policies. In the San Joaquin Valley alone, right in California oil country, there have been over 4,000 megawatts worth of new clean energy projects in the past two decades. Fifteen million job-hours of union work, at union wages and with union benefits, made that possible. And new paid sick leave and workers' compensation laws, combined with strong collective bargaining agreements helped keep our members healthy and safe in the process. That's what it looks like when we partner to fight against climate change and for good jobs."<sup>122</sup> Central Appalachian advocates should work to identify other examples of union labor on clean energy projects in the region. They could do so in partnership with the BlueGreen Alliance, a coalition of the nation's largest labor unions and its most influential environmental organizations that was founded on the belief that the decline in strength of unions impacts our ability to address climate change and to provide good jobs.<sup>123</sup>

<sup>120</sup> <https://bit.ly/2Sc98FO>

<sup>121</sup> [www.thirdway.org/about](http://www.thirdway.org/about)

<sup>122</sup> [www.aflcio.org/speeches/trumka-fight-climate-change-right-way](http://www.aflcio.org/speeches/trumka-fight-climate-change-right-way)

<sup>123</sup> [www.bluegreenalliance.org/about/](http://www.bluegreenalliance.org/about/)

# Top Opportunity for Clean Energy Advocates: Explore and Deepen Alliances with Labor Groups

Key labor groups with whom clean energy advocates could explore partnerships include:

**Utility Workers Union of America (UWUA):** UWUA is focused on ensuring that assets where its members work are integrated into the low carbon economy rather than replaced by it, including through plant retrofits and building CCSU infrastructure. This can ensure jobs for its members and manage carbon emissions, which it believes is necessary to address climate change, especially in the industrial sector that is the lifeblood of many American towns. Wyoming has invested heavily in CCSU and sees it as an opportunity to manage carbon and preserve union jobs.<sup>124</sup>

**United Mine Workers of America (UMWA):** UMWA has not historically been an ally of the clean energy sector. Advocates could engage UMWA about offering retraining and job openings in clean energy industries so that UMWA does not actively oppose clean energy policies. As an example of an opportunity UMWA might be interested in exploring, Colorado's North Fork area has included expanding the capture and flaring of coal mine methane as a clean energy approach to transitioning from coal.<sup>125</sup> UMWA is a member of the BlueGreen Alliance.

**AFL-CIO:** The AFL-CIO represents 12.5 million working women and men belonging to 55 unions. It passed a strong climate resolution at their last convention and supports the Paris Climate Agreement. AFL-CIO President Richard Trumka said, "Science tells us the truth: Climate change threatens our workers, our jobs and our economy. That's why the labor movement supports bold, comprehensive action to fight climate change."<sup>126</sup>

Other labor groups with which clean energy advocates could explore partnerships include:

- The Black Labor Convening on Just Transition<sup>127</sup>
- International Brotherhood of Electrical Workers<sup>128</sup>
- United Steelworkers<sup>129</sup>
- State Affiliates of the National Education Association<sup>130</sup>: While not directly energy related, teachers' unions can be allies in that schools can be key venues for building awareness among youth about clean energy technologies and their benefits. Energy efficiency and access to renewable energy can also lower schools' operating costs, so teachers invested in the financial stability of the school can advocate for and highlight the value of those projects.

<sup>124</sup> [www.trib.com/business/energy/report-carbon-technology-could-support-jobs-in-wyoming/article\\_e7a19fc1-f0ae-5768-8b34-780fe2190897.html](http://www.trib.com/business/energy/report-carbon-technology-could-support-jobs-in-wyoming/article_e7a19fc1-f0ae-5768-8b34-780fe2190897.html)

<sup>125</sup> [www.americanprogress.org/press/release/2018/04/11/449411/release-colorados-north-fork-valley-model-rural-areas-seeking-diverse-sustainable-economies/](http://www.americanprogress.org/press/release/2018/04/11/449411/release-colorados-north-fork-valley-model-rural-areas-seeking-diverse-sustainable-economies/)

<sup>126</sup> [www.aflcio.org/speeches/trumka-fight-climate-change-right-way](http://www.aflcio.org/speeches/trumka-fight-climate-change-right-way)

<sup>127</sup> [www.rapidshift.net/black-labor-convening-on-just-transition/](http://www.rapidshift.net/black-labor-convening-on-just-transition/)

<sup>128</sup> [www.ibew.org/](http://www.ibew.org/)

<sup>129</sup> [www.usw.org/](http://www.usw.org/)

<sup>130</sup> [www.nea.org/home/49809.htm](http://www.nea.org/home/49809.htm)

# Questions for Future Research

This document is a first step in cataloging state and regional strategies, with a focus on policy, for advancing a clean energy economy in the Central Appalachian region. As we conducted interviews and reviewed literature, we identified several questions that fell beyond the scope of this study but would be useful topics for additional research and outreach. These include:

- What is the state-specific economic impact of specific clean energy policies? What is the economic impact of these clean energy policies on the Appalachian portion of Central Appalachian states?
- Which state-based advocates currently have the capacity and expertise to pursue the clean energy policy priorities identified herein? Are there priorities for which advocate capacity and expertise is limited?
- Which policy recommendations are state-based advocates willing to champion and/or support? Are any recommendations lacking a champion?
- Are there relevant examples of just transitions in coal-impacted economies outside of Appalachia that leverage clean energy as a tool for economic diversification? If yes, what lessons can Appalachian states learn from these experiences?
- How transferable are former coal workers' skill sets to specific clean energy technologies (e.g. energy efficiency, solar, wind)?
- What opportunity exists to transition workers from carbon-based (i.e. coal, oil and gas industries) to geothermal industries? Are there opportunities to repurpose existing mining infrastructure into geothermal applications?
- What role could an Impact Appalachia platform play in expanding public and private resources for clean energy in the Central Appalachian region?<sup>131</sup> Could such a platform increase access to capital and financing expertise for energy efficiency and renewable energy project developers?
- How do statutory definitions of 'clean energy' vary by state? Is there a model definition that Central Appalachian states should use?
- What set of policies and other enabling factors are necessary for a clean energy manufacturing industry to grow in Central Appalachia? In what counties or states is there potential for clean energy manufacturing growth and how can advocates foster this growth? How can the region leverage or replicate the Appalachian Ohio Solar Supply Chain Initiative?

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<sup>131</sup> In 2018 the ARC awarded a \$2.5 million POWER grant to Virginia Community Capital for Impact Appalachia: A Market-Making Fund for Central Appalachia. See presentation for details:  
[www.arc.gov/noindex/newsroom/events/2018\\_Fall\\_Conf/Presentations/Henderson-FinancingNewOps.pdf](http://www.arc.gov/noindex/newsroom/events/2018_Fall_Conf/Presentations/Henderson-FinancingNewOps.pdf)



# Appendix A: Detailed State-Level Clean Energy Policy Priorities

## Kentucky

**PRIORITY:** Cultivate and maintain strong networks of advocates to defend existing utility energy efficiency programs and advocate for new programs moving forward. Educate the Kentucky Public Service Commission (KY PSC) commissioners about the value of energy efficiency to all customer classes, when properly implemented.

- Although Kentucky has a lost revenue adjustment mechanism in place for electric utilities and other performance incentives, the KY PSC reduced Kentucky Power's efficiency budget by more than 60% in January 2018, which reduced the energy savings that end-customers could receive from utility energy efficiency programs.<sup>132</sup> This unfortunately affected other Kentucky utilities' interest in continuing their energy efficiency programs.
- The KY PSC oversees co-ops and IOUs, offering an opportunity to ensure that all utilities, regardless of ownership type, are offering energy efficiency programs.
- The KY PSC allows industrial customers who have installed their own energy efficiency measures to opt-out of efficiency programs, which also limits energy savings opportunities.<sup>133</sup>
- Advocates should identify and address key issues and opportunities to improve the delivery of energy efficiency plans and programs from both investor-owned and co-op utilities in Kentucky. Leverage existing energy efficiency stakeholder groups convened by Louisville Gas & Electric and Kentucky Utilities (LG&E and KU Energy) as a forum for this ongoing dialogue.<sup>134</sup> Protect the surviving Kentucky Power efficiency program targeting low-income households.

### Key beneficiaries:

- Residents, businesses, and institutions in Kentucky will benefit from financing and incentives to lower the cost of energy efficiency services and technologies.
- Low-income households in particular will see greater access to energy efficiency programs. Kentucky households with incomes of below 50% of the Federal Poverty Level (FPL) pay 32% of their annual income simply for their home energy bills. Bills for households with incomes between 150% and 185% of the FPL take up 8% of income. Kentucky households with incomes between 185% and 200% of the FPL have energy bills equal to 7% of income.<sup>135</sup>
- Energy efficiency businesses will experience greater demand for their services.

### Potential economic impact

- Increasing energy efficiency programming will lead to additional energy savings for consumers. MACED's How\$martKY program, for example, saves participants an average of \$50 per month.<sup>136</sup>
- Improved health outcomes associated with energy efficiency (particularly for those living in mobile homes or public housing) can lead to long-term savings on health care. The Mountain Air Project, a five-year study of respiratory health in Letcher and Harlan counties, found that people who lived in either a mobile home or public housing were twice as likely to have been diagnosed with asthma than people who lived in single-family housing.<sup>137</sup>

<sup>132</sup> [www.aceee.org/sites/default/files/pdf/state-sheet/2018/kentucky.pdf](http://www.aceee.org/sites/default/files/pdf/state-sheet/2018/kentucky.pdf)

<sup>133</sup> [www.lge-ku.com/dsmindustrial](http://www.lge-ku.com/dsmindustrial)

<sup>134</sup> [www.mwalliance.org/initiatives/policy/kentucky](http://www.mwalliance.org/initiatives/policy/kentucky)

<sup>135</sup> [www.homeenergyaffordabilitygap.com/03a\\_affordabilityData.html](http://www.homeenergyaffordabilitygap.com/03a_affordabilityData.html)

<sup>136</sup> [www.maced.org/wp-content/uploads/MACED-ImpactReport\\_2018\\_final.pdf](http://www.maced.org/wp-content/uploads/MACED-ImpactReport_2018_final.pdf)

<sup>137</sup> [www.yesmagazine.org/planet/energy-conservation-jobs-come-to-coal-country-20181005](http://www.yesmagazine.org/planet/energy-conservation-jobs-come-to-coal-country-20181005)

## Best practices and lessons learned from similar policies

- **State examples:**
  - **Ohio:** In 2015 AEP Ohio offered a robust array of residential energy efficiency offerings, including programs for home appliances, appliance recycling, water heating, home retrofit, lighting, behavior, multifamily, new construction, and education/kits. The only type of residential efficiency program category not offered by AEP Ohio was for residential HVAC upgrades.<sup>138</sup>
  - **Arkansas:** Arkansas is one of the only southeastern states to have an energy efficiency resource standard that sets long-term savings targets and performance incentives, which are awarded annually to utilities for meeting efficiency goals. Electricity savings have increased consistently in recent years and are poised to continue their growth thanks to new, approved 2020–22 program cycle efficiency targets of 1.2% and 0.5% for electricity and natural gas, respectively.<sup>139</sup> Additionally, the Arkansas Public Service Commission (APSC) convenes a stakeholder working group.<sup>140</sup>

## Potential allies

- Mountain Association for Community Economic Development (MACED)
- Empower Kentucky
- Kentucky Solar Energy Society
- Kentucky Solar Energy Industries Association
- Kentucky Sustainable Energy Alliance
- Kentuckians for the Commonwealth
- Louisville Climate Action Network
- Kentucky Resources Council

**PRIORITY:** Develop and advocate for legislation to allow solar PPAs in Kentucky. Legislative language should specify that PPAs shall not be regulated as public utility companies and should enable PPAs for all customers, including homes, businesses, and nonprofits. Consider folding into other energy-related legislation in order to increase the likelihood of passage.

## Key beneficiaries:

- For-profit solar companies that can monetize tax credits and capitalize on commercial benefits like depreciation will see increased demand for their services.
- Residents and businesses will benefit from lower to zero up-front solar installation costs and fixed electricity rates (per kWh) that are often comparable to, or lower than, established utility rates.<sup>141</sup>
- Solar will be more accessible to tax-exempt entities like nonprofits, churches, and local governments.
- PPAs are the first step toward enabling community solar, which would benefit low and moderate income residents and renters as an additional option to access solar.

<sup>138</sup> [www.aceee.org/research-report/u1707](http://www.aceee.org/research-report/u1707)

<sup>139</sup> <https://database.aceee.org/state/arkansas>

<sup>140</sup> The APSC working group consists of APSC staff, utilities, the Arkansas Attorney General, the Arkansas Community Action Agencies Association, the Arkansas Advanced Energy Association, Walmart, consumer advocacy groups, and environmental organizations. See APSC orders initiating the collaborative ([www.apscservices.info/pdf/10/10-010-u\\_120\\_1.pdf](http://www.apscservices.info/pdf/10/10-010-u_120_1.pdf)) and determining group guidelines ([www.apscservices.info/pdf/13/13-002-u\\_159\\_1.pdf](http://www.apscservices.info/pdf/13/13-002-u_159_1.pdf)).

<sup>141</sup> [www.solarpowerrocks.com/solar-lease-map/](http://www.solarpowerrocks.com/solar-lease-map/)

## Potential economic impact

- An economic analysis from the Solar Workgroup of Southwest Virginia found that aspirational growth in residential, commercial, and utility-scale solar deployment between 2018 and 2028 would create 255 jobs in Southwest Virginia (43 jobs in residential and commercial solar and about 212 in utility-scale). They found that residential installations would be the most effective strategy for increasing local employment per unit of solar installed, creating about 23 total jobs per MW of installed capacity over the 10-year period, compared 11 jobs per MW from commercial installations and 9 jobs per MW from utility-scale installations. Across all categories, about 90% of jobs are tied to the installation of new solar projects and 10% tied to the maintenance of existing projects. Additionally, they expect all types of solar jobs are to earn about \$68,000 per year in revenue.<sup>142</sup>

## Best practices and lessons learned from similar policies

- Legal authorization for residential third-party solar PV PPA arrangements usually lies in the definition of a “utility” in state statutes, regulations or case law; in state regulatory commission decisions or orders; and/or in rules and guidelines for state incentive programs.
- Localize the economic benefits of utility-scale solar by working with project developers to identify opportunities to incorporate workforce development into their projects.
- **State examples:**
  - **Ohio:** Legalized solar PPAs in Ohio PUC Order 14-1693-EL-RDR (2014) as part of its approval of AEP Ohio’s electric security plan for June 2015 through May 2018.
  - **Georgia:** Legalized solar PPAs in House Bill 57 (2015). Solar advocates and Georgia Power struck a compromise, limiting third-party ownership financing to residential solar installations under 10 kW and commercial-industrial systems to 125% of the system host’s electricity use.
  - **Oklahoma:** In June 2018 the Oklahoma Attorney General issued an opinion affirming the legality of third-party solar ownership and declaring that a third-party owner of solar panels would not be considered a “utility” by the Oklahoma Corporation Commission.<sup>143</sup>

## Potential allies

- Empower Kentucky
- Kentucky Solar Energy Society
- Kentucky Solar Energy Industries Association
- Kentucky Sustainable Energy Alliance
- Kentuckians for the Commonwealth
- Goldenrod Renewables
- Berkeley Energy Group
- Renewable energy project developers
- Local tax-exempt entities
- Commercial and industrial electricity consumers facing high and escalating utility rates
- Mountain Association for Community and Economic Development (MACED)

<sup>142</sup> [www.swvasolar.org/resources/Solar\\_Workgroup\\_Solar\\_Roadmap\\_SWVA\\_2017.pdf](http://www.swvasolar.org/resources/Solar_Workgroup_Solar_Roadmap_SWVA_2017.pdf)

<sup>143</sup> [http://www.oag.ok.gov/Websites/oag/images/Documents/Opinions/AG/2018/AG%20Opinion%202018-5%20\(T-25\).pdf](http://www.oag.ok.gov/Websites/oag/images/Documents/Opinions/AG/2018/AG%20Opinion%202018-5%20(T-25).pdf)

**PRIORITY:** Continue to defend and strengthen Kentucky's NEM law by establishing a more transparent and collaborative formal stakeholder engagement process between stakeholders in Kentucky.

- Several Kentucky renewable energy advocates have indicated that net energy metering policies (along with on-bill financing) are the policies that have driven clean energy deployment in Kentucky. They have also allowed the development of distributed PV for residential customers. The proposal of HB 227 in the 2018 KY Legislative session would have altered the current NEM law in KY, generally shifting the fundamental formulas from retail to wholesale and affecting the rates of compensation.<sup>144</sup> Thanks to the efforts of many KY advocates, this legislation was not approved, but its introduction highlights the need for KY stakeholders to continue defending these types of policies.
- KY's NEM law is one method to ensuring the development of a solar market in KY, and stakeholders (including advocates, industry, and utilities and other interested parties) need to continue to engage with one another in a structured, meaningful way to ensure that renewable energy policies and concerns are continually addressed.
- Advocates should work to establish a more transparent, collaborative formal stakeholder engagement processes between KY stakeholders to ensure that KY's NEM law remains intact. The KY Public Service Commission (PSC) can be the primary administrative body that directs and manages this comprehensive stakeholder engagement process. New legislation can clarify and assign this responsibility (and specific outcomes or actions) of the KY PSC and potentially add additional resources to commission staff to ensure that the commission has a clearly defined role in managing this stakeholder process.

#### Key beneficiaries:

- Residential and commercial ratepayers will have increased access to solar due to the improved project economics from NEM.
- Solar installers and developers will benefit from the market certainty created by NEM policies that is necessary to investing in the solar market statewide.
- Households interested in installing rooftop solar will be able to more easily size their systems with future energy needs in mind (e.g. due to growing families and/or purchasing an electric vehicle).

#### Potential economic impact

- See economic impact information for the previous priority, which will also enable growth of the state's distributed solar market. There are no state level "clean energy" economic impact reports for Appalachian states of West Virginia, Virginia, Kentucky, Maryland, and Mississippi, and therefore there are no Kentucky-specific impact figures at this time.

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<sup>144</sup> [www.lanereport.com/102927/2018/07/solar-power-net-metering-is-hot/](http://www.lanereport.com/102927/2018/07/solar-power-net-metering-is-hot/)

## Best practices and lessons learned from similar policies

- Ohio’s “Power Forward” inquiry is intended to examine options for modernizing the electricity grid and improving customer engagement, so that the Public Utilities Commission of Ohio can put forward-thinking policies in place. This process is intended to prioritize collaborative stakeholder engagement and has included expert support from the Regulatory Assistance Project (RAP), U.S. DOE, and Lawrence Berkeley National Laboratory. These expert testimonies and analyses, along with stakeholder input and education, are intended to inform the commission’s overarching vision and subsequent decisions and regulations for the future of Ohio’s grid modernization efforts.<sup>145</sup>
- The District of Columbia’s Public Service Commission has issued an order “Modernizing the Distribution System for Increased Sustainability” for investigating and developing a modern distribution system that is more reliable, cost-efficient, and interactive. The PSC, with the support of a third party contractor, is convening a series of workshops and working groups in order to ensure that as many stakeholder viewpoints are expressed and included in this process as possible.<sup>146</sup>
- The Solar Energy Industries Association (SEIA) has developed a report titled Principles for the Evolution of Net Energy Metering and Rate Design.<sup>147</sup>

## Potential allies

- Empower Kentucky
- Kentucky Solar Energy Society
- Kentucky Solar Energy Industries Association
- Kentucky Sustainable Energy Alliance
- Kentuckians for the Commonwealth
- Kentucky Resources Council
- Goldenrod Renewables
- Berkeley Energy Group
- Renewable energy project developers
- Mountain Association for Community Economic Development (MACED)

# North Carolina

**PRIORITY:** Create a North Carolina green bank that can leverage limited public dollars to increase private investment in energy efficiency and renewable energy projects.

- A green bank is a policy tool states and localities can use to increase private investment in the clean energy economy. Green banks are generally public or quasi-public institutions. Green banks are capitalized with public and/or philanthropic funds, which are then used to extend loans, leases, credit enhancements, and other offerings to close funding gaps for clean energy projects.<sup>148</sup> Green bank activities must complement, not compete with, existing public and private clean energy offerings.
- The idea of a green bank can be attractive to fiscally conservative policymakers because green banks are designed to use limited public dollars very efficiently.
- Hurricane Florence highlighted the need for electric power resilience in North Carolina in the face of extreme weather. This adds to the timeliness of establishing a green bank or even an “energy resilience bank”, as was established in New Jersey after Hurricane Sandy.
- A green bank could serve as the administrator of a statewide C-PACE program, as does Connecticut Green Bank.<sup>149</sup>

<sup>145</sup> [www.raponline.org/wp-content/uploads/2018/02/rap-recommendations-ohio-power-forward-inquiry-2018-february-final2.pdf](http://www.raponline.org/wp-content/uploads/2018/02/rap-recommendations-ohio-power-forward-inquiry-2018-february-final2.pdf)

<sup>146</sup> <https://dcpsc.org/Newsroom/HotTopics/MEDSIS-Initiative.aspx>

<sup>147</sup> [www.seia.org/initiatives/principles-evolution-net-energy-metering-and-rate-design](http://www.seia.org/initiatives/principles-evolution-net-energy-metering-and-rate-design)

<sup>148</sup> [www.doe.dc.gov/sites/default/files/dc/sites/ddoe/service\\_content/attachments/2018-10-09-GREEN-BANK-101.pdf](http://www.doe.dc.gov/sites/default/files/dc/sites/ddoe/service_content/attachments/2018-10-09-GREEN-BANK-101.pdf)

<sup>149</sup> [www.cpace.com/](http://www.cpace.com/)



- For more information on green bank activities and formation, see the Duke Nicholas Institute report *Beyond Financing: A Guide to Green Bank Design in the Southeast*<sup>150</sup> and the EPA's publication *Clean Energy Finance: Green Banking Strategies for Local Governments*.<sup>151</sup>

### Key beneficiaries

- A green bank can undertake activities specifically aimed at expanding clean energy access to residents underserved by traditional clean energy financing products, including renters and low-income households. North Carolina households with incomes of below 50% of the FPL pay 34% of their annual income simply for their home energy bills. Bills for households with incomes between 150% and 185% of FPL take up 8% of income. North Carolina households with incomes between 185% and 200% of the FPL have energy bills equal to 7% of income.<sup>152</sup>
- Companies offering clean energy services will benefit from increased demand for their services due to increased access to affordable financing for projects.
- Businesses and property owners who need technical and financial support to invest in clean energy could gain access to that support through a green bank.

### Potential economic impact

- Green banks make their case to public and private stakeholders by tracking not only financial performance but also non-financial performance, or "impacts," such as local economic impact.<sup>153</sup> Economic impact can be measured by tax revenue generated, jobs created, energy burden reduced, and percent of investments made to customers with below area median income. Through the Connecticut Green Bank's support, over 936 direct and 312 indirect and induced job-years were created in the state from installing nearly 60 MW of Residential Solar PV.<sup>154</sup> Across all sectors, the Connecticut Green Bank has supported the creation of nearly 16,000 direct, indirect, and induced job-years. Its activities have helped generate an estimated \$57.6 million in state tax revenues and has reduced the energy burden of over 30,000 families and 300 businesses. Even though the Connecticut Green Bank is a relatively small green bank in a relatively small state, it has mobilized over \$1.3 billion of investment into Connecticut's economy since 2012.<sup>155</sup>

<sup>150</sup> [www.nicholasinstitute.duke.edu/publications/beyond-financing-guide-green-bank-design-southeast](http://www.nicholasinstitute.duke.edu/publications/beyond-financing-guide-green-bank-design-southeast)

<sup>151</sup> [www.epa.gov/sites/production/files/2018-10/documents/usepa\\_greenbankingstrategies\\_october\\_2018.pdf](http://www.epa.gov/sites/production/files/2018-10/documents/usepa_greenbankingstrategies_october_2018.pdf)

<sup>152</sup> [www.homeenergyaffordabilitygap.com/03a\\_affordabilityData.html](http://www.homeenergyaffordabilitygap.com/03a_affordabilityData.html)

<sup>153</sup> [www.nrdc.org/resources/how-green-banks-assess-and-report-impacts](http://www.nrdc.org/resources/how-green-banks-assess-and-report-impacts)

<sup>154</sup> [www.ctgreenbank.com/wp-content/uploads/2018/03/CGB\\_DECD\\_Jobs-Study\\_Fact-Sheet.pdf](http://www.ctgreenbank.com/wp-content/uploads/2018/03/CGB_DECD_Jobs-Study_Fact-Sheet.pdf)

<sup>155</sup> <https://www.ctgreenbank.com/wp-content/uploads/2019/01/FY18-CGB-Impact.pdf>

## Best practices and lessons learned from similar policies

- Consider expanding or transforming existing entities designed to finance environmental projects, like the North Carolina Clean Water State Revolving Loan Fund. A green bank could be created within an existing entity (as was NY Green Bank) or could be transformed into a green bank (as was Connecticut Green Bank). A green bank could be combined with or established as part of an infrastructure bank, if one is established in North Carolina.
- Include language to protect funds from being raided during the annual state budget process in the legislative or executive order language establishing the green bank.
- Green bank board and governance should include key stakeholders who will take the needs of the North Carolina's Appalachian region into account when making decisions regarding priorities and spending. These stakeholders could include rural and low-income resident advocates, clean energy advocates, and economic development-focused organizations, among others.
- Representatives from the Appalachian region should be deeply involved in the process of developing objectives for a statewide green bank to ensure that the green bank recognizes and meets the needs of the Appalachian part of the state.
- **State and local examples:**
  - **Florida Solar and Energy Loan Fund (SELF):** SELF's mission is to help rebuild and empower underserved communities by providing access to affordable and innovative financing for sustainable property improvements including: energy efficiency; renewable energy; wind-hazard mitigation; and, water conservation. SELF has successfully administered several clean energy financing programs across the state despite a challenging political environment at the state level.
  - **Connecticut Green Bank:** Established by the Connecticut General Assembly on July 1, 2011 as a part of Public Act 11-80, Connecticut Green Bank supports the Governor's and Legislature's energy strategy to achieve cleaner, less expensive, and more reliable sources of energy while creating jobs and supporting local economic development. In partnership with private capital providers, Connecticut Green Bank administers clean energy financing programs for residential, commercial & industrial and municipal customers throughout the state. In 2018, Connecticut Green Bank spun out a nonprofit, Inclusive Prosperity Capital (IPC), that will focus on expanding access to clean energy to low-to-moderate income communities and nontraditional credits like nonprofits, faith-based organizations, housing authorities, schools, and smaller businesses. IPC is able to operate nationally.<sup>156</sup>

## Potential allies

- Appalachian Voices: Has extensive experience working with cooperative utilities and other stakeholders in the Appalachian region that should be involved in green bank design.
- North Carolina Department of Environmental Quality
- CDFIs, such as Natural Capital Investment Fund, Support Center, Self-Help Ventures Fund, SJF Ventures, and the North Carolina Community Development Initiative
- Natural Resources Defense Council (NRDC): Has a team with expertise on green bank activities and design.
- Coalition for Green Capital: Has a team with expertise on green bank activities and design.
- Duke University Nicholas School of the Environment: Jennifer Weiss and Kate Konschnik at the Nicholas School authored a guide to green bank design in the Southeast.<sup>157</sup>
- University of North Carolina (UNC) Environmental Finance Center

<sup>156</sup> <https://www.inclusiveprosperitycapital.org/>

<sup>157</sup> [www.nicholasinstitute.duke.edu/publications/beyond-financing-guide-green-bank-design-southeast](http://www.nicholasinstitute.duke.edu/publications/beyond-financing-guide-green-bank-design-southeast)

**PRIORITY:** Develop and advocate for the introduction of legislation to create viable C-PACE programs in North Carolina.

- While North Carolina has enabled C-PACE, there are no active programs in the state and no projects have been completed. According to Carol Rosenfeld at the UNC School of Government, this is due to a lack of local government familiarity with assessments for public projects, the lack of a central authority to issue bonds, the need for state approval for all local debt, and skepticism from the State Treasurer about the constitutionality of C-PACE.<sup>158</sup>
- There are ongoing efforts to pass legislation that will lead to viable C-PACE programs. Advocates from the NCBPA wrote a bill (S493), which was introduced in the state Senate by Senator Rick Gunn (R) in 2017.<sup>159</sup> NCBPA asserts that the legislation would enable building energy efficiency retrofits; solar, wind, EV, and battery storage installations; LED replacements, roofing, window, and energy saving upgrades; disaster recovery and prevention; and water efficiency and management.<sup>160</sup>
- While financing in North Carolina is currently relatively affordable with low interest rates, the Federal Reserve Bank has been raising rates and may continue to do so. Having this program already in place as financing costs go up will help businesses afford clean energy technologies.

### Key beneficiaries

- Commercial customers interested in reducing utility bills but unable to afford the up-front costs of energy efficiency improvements will have access to a financing solution.
- Vendors of energy efficiency technologies, including those selling equipment, lighting and other companies will benefit from increased demand for their services.<sup>161</sup>

### Potential economic impact

- From 2013-2017, \$52.7 million in funding was used to complete 95 C-PACE projects in Arkansas, Kentucky, Florida, and Texas (the Southern states with active C-PACE programs). C-PACE funding has been most often used by mixed use buildings, and 93% of funding has gone to energy efficiency projects.<sup>162</sup>
- The U.S. Bureau of Economic Analysis uses its Regional Input-Output Modeling System (RIMS II) to estimate the state-specific job creation and other economic activity multipliers resulting from investments in commercial properties. The combined weighted average of state multipliers is 9.6 jobs created per million dollars of C-PACE investment. For total economic activity, the combined weighted average is \$1.37 of economic activity generated as a result of \$1 of C-PACE investment.<sup>163</sup>
- As reported in the CAN Economic Impact Report Inventory, “Extensive data suggests that buildings which meet or exceed energy codes often create their own market advantage, and tend to be more sought after by knowledgeable buyers and tenants. This is because they are generally more comfortable for their occupants, which correlates to higher productivity, and they are more cost effective to operate over time. Together, these factors can represent an important competitive advantage.”

<sup>158</sup> [www.efc.web.unc.edu/2015/10/16/pace-nc/](http://www.efc.web.unc.edu/2015/10/16/pace-nc/)

<sup>159</sup> [www2.ncleg.net/BillLookup/2017/s493](http://www2.ncleg.net/BillLookup/2017/s493)

<sup>160</sup> [www.buildingnc.org/resources/policy/cpace/](http://www.buildingnc.org/resources/policy/cpace/)

<sup>161</sup> [www.pathwaylending.org/news-and-blog/ee-financing-esa/](http://www.pathwaylending.org/news-and-blog/ee-financing-esa/)

<sup>162</sup> [www.pacenation.us/wp-content/uploads/2018/08/2017-C-PACE-Annual-Impact-Report-Optimized-1.pdf](http://www.pacenation.us/wp-content/uploads/2018/08/2017-C-PACE-Annual-Impact-Report-Optimized-1.pdf)

<sup>163</sup> *Ibid.*

## Best practices and lessons learned from similar policies

- Traditional financiers are more likely to finance commercial projects over \$250,000. Working with clean energy advocates, local banks (particularly mission-driven community banks) can develop loan products to fill the financing gap for projects in the \$30,000 to \$250,000 range. Alternatively, smaller banks can originate loans for larger banks to extend.
- **State examples:**
  - **Kentucky:** As of 2017, Kentucky was one of the top C-PACE states, with \$5.2 million invested to date and 2 buildings improved with PACE.<sup>164</sup>
  - **Ohio:** As of 2017, Ohio was one of the top C-PACE states, with \$33.3 million invested to date and 114 buildings improved with PACE.<sup>165</sup>
  - **Arlington County, VA:** Launched in November 2018, the Arlington PACE program is self-financed through fees charged to participants. The program can be used to finance both existing building retrofits and new construction projects.<sup>166</sup>

## Potential allies

- S493 co-sponsor Sen. Rick Gunn: Has expressed support with moving forward on the bill in the 2019 session. NCBPA has identified other supportive legislators.
- North Carolina Building Performance Association: Has led on developing and advocating for a viable C-PACE program in North Carolina.
- North Carolina Sustainable Energy Association

**PRIORITY:** Increase access to residential and commercial distributed solar generation. In the short term, advocate for legislation that raises the cap on Duke's popular solar rebate program. In the longer term, advocate for legislation that increases the allowance for leased solar generation in a utility territory above 1% and that legalizes solar PPAs.

- Duke's Solar Rebate Program provides a rebate of 60 cents per watt for systems up to 10 kW for residential customers; 50 cents per watt up to \$50,000 for commercial customers, and 75 cents per watt up to \$75,000 for non-profits. The program reached its 2018 capacity for residential and commercial customers only 17 days after it was opened. The quick uptake of the program represents a strong appetite for its use, but it will fail to serve as an incentive for the full potential market of installations unless the cap is raised.<sup>167</sup>
- In 2015, State Representative John Szoka introduced the Energy Freedom Act (NC House Bill 245), which would have allowed third party sales of electricity in North Carolina. Large businesses supported the bill but it was not voted out of Committee.<sup>168</sup>
- In 2016, NC WARN illegally installed a solar array on a church in Greensboro, sparking a trial and eventual North Carolina Supreme Court ruling against third party solar. The group was hoping the Commission would decide NC WARN was not acting as a public utility in this "test case".<sup>169</sup>

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<sup>164</sup> Ibid.

<sup>165</sup> Ibid.

<sup>166</sup> [www.arlington-pace.us/about/](http://www.arlington-pace.us/about/)

<sup>167</sup> [www.charlotteobserver.com/news/local/article208992734.html](http://www.charlotteobserver.com/news/local/article208992734.html); [energync.org/2018-capacity-reached-for-commercial-and-residential-rebates-in-duke-energy-solar-rebate-programs/](http://energync.org/2018-capacity-reached-for-commercial-and-residential-rebates-in-duke-energy-solar-rebate-programs/)

<sup>168</sup> [www.ncwarn.org/energy-freedom/](http://www.ncwarn.org/energy-freedom/)

<sup>169</sup> [www.greensboro.com/news/local\\_news/nc-supreme-court-upholds-ruling-against-group-that-sold-solar/article\\_33a0f2dd-533d-5622-8752-51c2f146cb27.html](http://www.greensboro.com/news/local_news/nc-supreme-court-upholds-ruling-against-group-that-sold-solar/article_33a0f2dd-533d-5622-8752-51c2f146cb27.html)

## Key beneficiaries

- A greater number of individuals and companies will have access to solar rebates that make solar projects economically viable.
- Individuals and companies will have access to solar leasing and PPAs that lower up-front installation costs and provide long-term electricity rates that are comparable to, or lower than, established utility rates.<sup>170</sup>
- For-profit solar companies that can monetize tax credits and capitalize on commercial benefits like depreciation will see increased demand for their services.

## Potential economic impact

- The North Carolina solar industry has seen over \$6.5 billion of investments and supports 7,622 jobs. Because of the policy environment in North Carolina, the vast majority of projects have been large-scale projects that do support job creation, but data indicates that distributed solar produces more jobs per MW capacity installed. Policies that enable growth of the residential and commercial and industrial market segments would help ensure the benefits of solar are felt by residents and smaller corporate customers in the state and spur additional job creation.

## Best practices and lessons learned from similar policies

- Legal authorization for residential third-party solar PV PPA arrangements usually lies in the definition of a “utility” in state statutes, regulations or case law; in state regulatory commission decisions or orders; and/or in rules and guidelines for state incentive programs.<sup>171</sup> In North Carolina, an exception must be made declaring that owners of third-party solar “shall not be considered a public utility under G.S. 62-3(23)” as was guaranteed to lessors.
- **State examples:**
  - **Ohio:** Legalized solar PPAs in Ohio PUC Order 14-1693-EL-RDR (2014) as part of its approval of AEP Ohio’s electric security plan for June 2015 through May 2018.<sup>172</sup>
  - **Georgia:** Legalized solar PPAs in House Bill 57 (2015).<sup>173</sup> Solar advocates and Georgia Power struck a compromise, limiting third-party ownership financing to residential solar installations under 10 kW and commercial-industrial systems to 125% of the system host’s electricity use.<sup>174</sup>
  - **Oklahoma:** In June 2018 the Oklahoma Attorney General issued an opinion affirming the legality of third-party solar ownership and declaring that a third-party owner of solar panels would not be considered a “utility” by the Oklahoma Corporation Commission.<sup>175</sup>
  - **North Carolina and Virginia:** NC House Bill 245<sup>176</sup> and VA House Bill 1252<sup>177</sup> may also serve as reference for drafting PPA legalization legislation.

<sup>170</sup> [www.solarpowerrocks.com/solar-lease-map/](http://www.solarpowerrocks.com/solar-lease-map/)

<sup>171</sup> [https://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2018/03/DSIRE\\_3rd-Party-PPA\\_March\\_2018.pdf](https://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2018/03/DSIRE_3rd-Party-PPA_March_2018.pdf)

<sup>172</sup> [dis.puc.state.oh.us/CaseRecord.aspx?CaseNo=14-1693](http://dis.puc.state.oh.us/CaseRecord.aspx?CaseNo=14-1693)

<sup>173</sup> [www.legis.ga.gov/legislation/en-US/Display/20152016/HB/57](http://www.legis.ga.gov/legislation/en-US/Display/20152016/HB/57)

<sup>174</sup> [www.utilitydive.com/news/georgia-gov-deal-signs-solar-third-party-ownership-bill-into-law/397173/](http://www.utilitydive.com/news/georgia-gov-deal-signs-solar-third-party-ownership-bill-into-law/397173/)

<sup>175</sup> [www.oag.ok.gov/Websites/oag/images/Documents/Opinions/AG/2018/AG%20Opinion%202018-5%20\(T-25\).pdf](http://www.oag.ok.gov/Websites/oag/images/Documents/Opinions/AG/2018/AG%20Opinion%202018-5%20(T-25).pdf)

<sup>176</sup> [www.ncwarn.org/energy-freedom/](http://www.ncwarn.org/energy-freedom/)

<sup>177</sup> [lis.virginia.gov/cgi-bin/legp604.exe?191+ful+HB1252S1+pdf](http://lis.virginia.gov/cgi-bin/legp604.exe?191+ful+HB1252S1+pdf)



## Potential allies

- NC WARN: A member-based non-profit that views its role as serving as a watchdog to Duke Energy to ensure a swift North Carolina transition to clean, renewable, and affordable power generation and increased energy efficiency. As described above, NC WARN was responsible for a project that challenged North Carolina's third party PPA laws.
- Appalachian Voices: In December 2018, Appalachian Voices Executive Director Tom Cormons wrote that Duke Energy and Dominion Energy "alongside others like the Tennessee Valley Authority and Appalachian Power, are resisting policies that would allow residents to buy solar power from independent companies instead. These third-party power purchase agreements have fostered solar growth and energy independence in other parts of the country. Residents of Appalachia deserve the same opportunity."<sup>178</sup>
- NC House Rep. John Szoka (R-Cumberland County)
- Big businesses such as Wal-Mart that supported NC HB 245

## Ohio

**PRIORITY:** Require utilities and retail electricity providers to purchase solar renewable energy credits (SRECs) locally within Appalachian Ohio.

- Retail electricity providers are currently required to buy renewable energy credits or pay an alternative energy fee to demonstrate compliance with the state's RPS, which requires that 12.5% of the state's electricity be generated by renewable energy by 2026. The RPS has a 0.5% carve-out for solar power.
- The price of SRECs in Ohio remains extremely low (approximately \$4 in November 2018 with Sol Brokerage) due to of limited demand created by the small solar carve-out and because utilities can purchase SRECs from nearby states of Pennsylvania, West Virginia, Michigan, Indiana, and Kentucky.<sup>179</sup>
- Ohio should pass (1) narrowly tailored state-level legislation preventing electricity providers from buying SRECs outside the state, and (2) legislation in areas participating in Southeast Ohio Public Energy Council (SOPEC) requiring the council to purchase SRECs from solar installations located within the SOPEC member communities before purchasing them from other areas.

## Key Beneficiaries

- Residents and businesses will have increased access to solar due to the improved project economics from increased SREC prices.
- Solar companies in Appalachian Ohio will see increased demand for their services.
- SOPEC members will achieve their goal of increasing renewable energy in their electricity mix.

<sup>178</sup> [www.appvoices.org/2018/12/19/advancing-a-democratic-energy-system/](http://www.appvoices.org/2018/12/19/advancing-a-democratic-energy-system/)

<sup>179</sup> [www.solsystems.com/srec-customers/state-markets/ohio/](http://www.solsystems.com/srec-customers/state-markets/ohio/); [www.seia.org/national-solar-database](http://www.seia.org/national-solar-database); [www.solsystems.com/srec-customers/state-markets/ohio/](http://www.solsystems.com/srec-customers/state-markets/ohio/)

## Potential economic impact

- Requiring the purchase of local SRECs would lead to increased deployment of solar in Appalachian Ohio, ensuring that Appalachian counties experience the benefits of the state's growing solar sector. Ohio is home to 166 solar companies providing 6,518 jobs, according to the Solar Energy Industries Association (SEIA). SEIA identifies over a dozen solar companies in the Appalachian region itself, and those companies have already demonstrated significant successes. Third Sun Solar in Athens County went from a “mom-and-pop shop” run out of the owners’ attic to a company with over 600 solar projects with an installed capacity of 11MW, making it “the leading solar installer in Ohio and a top 100 installer in the US.”<sup>180</sup>
- AEP has proposed to build 400 MW across two projects in Highland County, which the ARC identifies as an at-risk county. The project is expected to lead to 150 sustainable manufacturing jobs and an additional 4,000 jobs created or sustained through the construction of the projects. AEP also expects the projects will contribute \$24 million in new state tax revenue and \$6.7 million in local tax revenue. An SREC policy that encourages utilities to build solar within the state could lead to further projects like this one.<sup>181</sup>
- Credits in states that do not allow utilities to buy out-of-state SRECs can be worth significantly more for owners of solar installations. In December 2018, an SREC through Sol Brokerage cost \$220 in New Jersey, compared to \$7 in Ohio. While prices in Ohio are unlikely to escalate to the levels in New Jersey due to a credit backlog in Ohio, the market will have no opportunity to recover without a change.<sup>182</sup>

## Best practices and lessons learned from similar policies

- Pennsylvania previously allowed SRECs to be purchased from generators outside the state, similar to Ohio's current SREC program. State legislators passed a bipartisan fix in 2017 that created an “in-border” only SREC policy, which went into effect October 30, 2017. In April 2018, the Pennsylvania Public Utilities Commission (PUC) decided that out-of-state systems could not be grandfathered in under the new law, making it a truly in-state credit.<sup>183</sup>
- The City of Athens Opt-out Carbon Fee was designed to ensure that RECs created by the program benefit the local community. In May 2018, Athens residents approved a 0.2 cents per kilowatt-hour carbon fee for SOPEC customers that will be used to fund solar installations on public buildings in the city. SRECs from those projects funded through the community solar program will be transferred back to the carbon fee payers through the opt-out electric aggregation program.<sup>184</sup> The successful campaign to pass the carbon fee provides a template for future advocacy efforts to develop local SREC markets.

<sup>180</sup> [www.seia.org/state-solar-policy/ohio-solar](http://www.seia.org/state-solar-policy/ohio-solar); [thirdsunsolar.com/company/our-mission-values/](http://thirdsunsolar.com/company/our-mission-values/)

<sup>181</sup> [www.arc.gov/images/appregion/economic\\_statusFY2019/CountyEconomicStatusandDistressAreasFY2019Ohio.pdf](http://www.arc.gov/images/appregion/economic_statusFY2019/CountyEconomicStatusandDistressAreasFY2019Ohio.pdf); [www.aepohio.com/info/news/viewRelease.aspx?releaseID=2730](http://www.aepohio.com/info/news/viewRelease.aspx?releaseID=2730)

<sup>182</sup> <https://news.energysage.com/srec-prices-explaining-u-s-srec-solar-market/>

<sup>183</sup> [www.srectrade.com/srec\\_markets/pennsylvania](http://www.srectrade.com/srec_markets/pennsylvania); [www.solsystems.com/blog/2018/04/27/pennsylvanias-srec-market-the-borders-have-officially-closed/](http://www.solsystems.com/blog/2018/04/27/pennsylvanias-srec-market-the-borders-have-officially-closed/)

<sup>184</sup> <http://v.fastcdn.co/u/23c49c7d/29631937-0-SOPEC-Opt-Out-Carbon.pdf>; [www.athensmessenger.com/spotlight/voters-approve-athens-carbon-fee/article\\_df783851-8aa1-5b7f-b022-51bc6e450164.html](http://www.athensmessenger.com/spotlight/voters-approve-athens-carbon-fee/article_df783851-8aa1-5b7f-b022-51bc6e450164.html)

## Potential allies

- Green Energy Ohio: Statewide nonprofit organization dedicated to promoting economically and environmentally sustainable energy policies and practices in Ohio.<sup>185</sup>
- Rural Action: Promotes social, economic, and environmental justice by training, organizing and supporting communities. The Sustainable Energy Solutions Program supports regional efforts to scale up energy efficiency, renewable energy, and clean transportation initiatives.<sup>186,187</sup>
- Solar United Neighbors of Ohio: Since January 2016, Solar United Neighbors of Ohio has formed 14 co-ops that have helped more than 200 homeowners collectively install 1.4 megawatts of solar PV capacity.<sup>188</sup>
- Ohio Advanced Energy Economy: A business organization that includes local and national advanced energy companies seeking to make Ohio's energy system more secure, clean, and affordable.<sup>189</sup>
- Appalachian Ohio Solar Jobs Network: Coalition of organizations and individuals who have joined forces to advance the job creation and economic development opportunity presented by AEP Ohio's plan to build 400 MW of solar power generation in the Appalachian region of OH.<sup>190</sup>
- BlueGreen Alliance: Has field staff in OH and has connections with local unions.<sup>191</sup>
- Ohio Partners for Affordable Energy: Organization of around 60 member agencies, including many CAAs and nonprofits, providing energy-related services to low income residents.

**PRIORITY:** Advocate for a more robust NEM policy in Ohio. This could include a policy that covers not just the price of electricity, but also capacity charges, which make up approximately 10% - 15% of customers' utilities bills. The NEM policy should allow system sizes to be larger than the current limit, which is 120% of a customer's annual electricity usage at the time of connection to the grid. The NEM policy should require Competitive Retail Electric Service Providers to participate in NEM tariffs and should apply evenly across investor owned utilities, co-ops, and municipal utilities.<sup>192</sup>

- Advocates should work with and support partners, such as the Ohio Environmental Council, Ohio Chapter of the Sierra Club, and the Environmental Law and Policy Center, to develop legislation, forge alliances with legislators, and support legislative and gubernatorial candidates who would support a stronger NEM policy in the state.
- Advocates should also participate in the Public Utility Commission of Ohio's (PUCO's) next five-year review process, which began in August 2017, and participate in the next phases of PUCO's PowerForward initiative, which will include a Distribution System Planning Workgroup (PWG) and a Data and Modern Grid Workgroup (DWG).<sup>193</sup>

## Key Beneficiaries

- Residential and commercial ratepayers who lost benefits after the most recent updates to NEM rules in November 2017 will recover those benefits. AEP customers with rooftop panels, for example, saw benefits from NEM drop as much as one-third after PUCO changed its policies last year to no longer allow customers to receive a NEM credit to cover capacity charges.<sup>194</sup>
- Households interested in installing rooftop solar will be able to size their systems with future energy needs in mind (e.g. due to growing families and/or purchasing an electric vehicle) if size limits are removed.

<sup>185</sup> [www.greenenergyoh.org/](http://www.greenenergyoh.org/)

<sup>186</sup> [www.upgradeohio.org/](http://www.upgradeohio.org/); [www.upgradeohio.org/solar-access/](http://www.upgradeohio.org/solar-access/)

<sup>187</sup> [ruralaction.org/](http://ruralaction.org/)

<sup>188</sup> [www.solarunitedneighbors.org/ohio/](http://www.solarunitedneighbors.org/ohio/)

<sup>189</sup> <https://www.ohioadvancedenergy.org/home>

<sup>190</sup> [www.ohiosolarjobsnetwork.com/](http://www.ohiosolarjobsnetwork.com/)

<sup>191</sup> [www.bluegreenalliance.org/work-state/ohio/](http://www.bluegreenalliance.org/work-state/ohio/)

<sup>192</sup> [dis.puc.state.oh.us/CaseRecord.aspx?CaseNo=17-1842](http://dis.puc.state.oh.us/CaseRecord.aspx?CaseNo=17-1842); [www.energynews.us/2018/01/16/midwest/in-ohio-no-signs-of-cooling-or-compromise-in-net-metering-fight/](http://www.energynews.us/2018/01/16/midwest/in-ohio-no-signs-of-cooling-or-compromise-in-net-metering-fight/)

<sup>193</sup> [www.puco.ohio.gov/industry-information/industry-topics/powerforward/](http://www.puco.ohio.gov/industry-information/industry-topics/powerforward/)

<sup>194</sup> [www.dispatch.com/business/20171108/puco-ruling-expected-to-shrink-credits-paid-for-sending-excess-electricity-to-power-grid](http://www.dispatch.com/business/20171108/puco-ruling-expected-to-shrink-credits-paid-for-sending-excess-electricity-to-power-grid)

- Solar installers and developers will benefit from the market certainty that would be created by a state-wide NEM policy, rather than one that is a patchwork based on local utilities.

### Potential economic impact

- Ohio is home to 166 solar companies providing 6,518 jobs, according to the Solar Energy Industries Association (SEIA). Third Sun Solar in Athens County is the leading solar installer in Ohio and a top 100 solar installer in the United States. A more robust NEM policy would allow these companies to grow their markets with individual and corporate purchasers of solar.<sup>195</sup>

### Best practices and lessons learned from similar policies

- Model rules from the Interstate Renewable Energy Council provide additional detail regarding NEM policy design and best practices.<sup>196</sup> The website “Freeing the Grid” grades states on NEM policy environment and has information on best practices.<sup>197</sup>
- SEIA has developed principles for NEM including foundational to considerations for considering rate design and compensation for distributed solar generation, criteria and conditions for considering alternatives to NEM, and guiding principles for solar rate design and alternative compensation.<sup>198</sup>

### Potential allies

- Ohio Environmental Council: Part of a coalition of organizations in the state that advocates for stronger NEM policies
- Environmental Law & Policy Center: Part of a coalition of organizations in the state that advocates for stronger NEM policies
- Ohio Chapter of the Sierra Club: Part of a coalition of organizations in the state that advocates for stronger NEM policies
- Green Energy Ohio: Statewide nonprofit organization dedicated to promoting economically and environmentally sustainable energy policies and practices in Ohio.<sup>199</sup>
- Rural Action: Promotes social, economic, and environmental justice by training, organizing and supporting communities. The Sustainable Energy Solutions Program supports regional efforts to scale up energy efficiency, renewable energy, and clean transportation initiatives.<sup>200</sup>
- Solar United Neighbors of Ohio: Since January 2016, Solar United Neighbors of Ohio has formed 14 solar co-ops that have helped more than 200 homeowners collectively install 1.4 megawatts of solar PV capacity.<sup>201</sup>
- Ohio Advanced Energy Economy: A business organization that includes local and national advanced energy companies seeking to make Ohio’s energy system more secure, clean, and affordable.<sup>202</sup>
- BlueGreen Alliance: Has field staff in OH and has connections with local unions.<sup>203</sup>
- Ohio Partners for Affordable Energy: Organization of around 60 member agencies, including many CAAs and nonprofits, providing energy-related services to low income residents.

<sup>195</sup> [www.seia.org/state-solar-policy/ohio-solar](http://www.seia.org/state-solar-policy/ohio-solar); [thirdsunsolar.com/company/our-mission-values/](http://thirdsunsolar.com/company/our-mission-values/)

<sup>196</sup> [www.irecusa.org/publications/irec-model-net-metering-rules-2009/](http://www.irecusa.org/publications/irec-model-net-metering-rules-2009/)

<sup>197</sup> [www.freeingthegrid.org/](http://www.freeingthegrid.org/)

<sup>198</sup> [www.seia.org/initiatives/principles-evolution-net-energy-metering-and-rate-design](http://www.seia.org/initiatives/principles-evolution-net-energy-metering-and-rate-design)

<sup>199</sup> [www.greenenergyoh.org/](http://www.greenenergyoh.org/)

<sup>200</sup> [www.ruralaction.org/](http://www.ruralaction.org/)

<sup>201</sup> [www.solarunitedneighbors.org/ohio/](http://www.solarunitedneighbors.org/ohio/)

<sup>202</sup> [www.ohioadvancedenergy.org/home](http://www.ohioadvancedenergy.org/home)

<sup>203</sup> [www.bluegreenalliance.org/work-state/ohio/](http://www.bluegreenalliance.org/work-state/ohio/)

**PRIORITY:** Continue to defend Ohio's RPS and EERS by working with a strong and permanent coalition of advocates, legislators, and corporations. The coalition should include both businesses and clean energy advocates and should be prepared to engage and educate legislators and Governor Mike DeWine about the benefits of the RPS/EERS for the Appalachian region specifically.

- Ohio's state legislature froze its RPS and EERS program from 2014-2016. An attempt to make the program voluntary in 2016 was vetoed by then-Governor John Kasich (R).<sup>204</sup>
- In 2017, the Ohio House of Representatives passed HB 114 in an attempt to lower the RPS target from 12.5% to 8.5%, with a reduction in the solar carve out from 0.5% to 0.34%. It would lower the EERS annual targets from 2% to 1.5% and cumulative savings goals from 22.2% to 17.2%. This legislation is likely to be brought back again for consideration in the 2019 session, and it remains unclear how Governor Mike Dewine will respond if it comes across his desk.<sup>205</sup>
- Proponents of the EERS should supplement their advocacy with politicians with participation in Ohio's Power Forward proceeding. This could provide opportunities to drive energy efficiency investments through the Distribution System Planning and/or Data Modern Grid Workgroups.

### Key Beneficiaries

- A greater number of residents and companies will have access to efficiency and renewable energy solutions through the programs utilities offer to meet RPS and EERS targets.
- Industrial ratepayers in Ohio will benefit from strong energy efficiency and renewable energy standards that reduce the costs of electricity for this energy-intensive industry. An ACEEE commissioned by the Ohio Manufacturers' Association found that if the EERS program had continued without interruption from 2013-2012, it would have resulted in \$5.6 billion in avoided energy expenditures with only \$2.7 billion in utility energy efficiency program administration costs.<sup>206</sup>
- Workers in Ohio will benefit from additional jobs created by the new energy economy. A report commissioned by Environmental Entrepreneurs (E2) found that the clean energy economy in Ohio either directly employs 89,000 jobs at over 7,200 clean energy businesses, and 17% of new hires were veterans of the U.S. Armed forces.<sup>207</sup>

### Potential economic impact

- In a 2012 filing, FirstEnergy projected more than \$100 million in cost savings for customers as a result of the EERS.<sup>208</sup>
- Maintaining and strengthening Ohio's RPS will promote continued deployment of renewable energy in the state along with the associated job creation. Ohio is home to a leading U.S. component supplier for wind turbine equipment manufacturers and a top producer of solar materials across the supply chain, and more than 160 companies are providing jobs in the solar industry. A report commissioned by the Environmental Law & Policy Center found more than 300 companies in Ohio were involved in the manufacturing of solar and wind products in 2016.<sup>209</sup>

<sup>204</sup> [www.governor.ohio.gov/Media-Room/Press-Releases/ArticleId/586/kasich-announces-actions-on-three-bills-12-27-16](http://www.governor.ohio.gov/Media-Room/Press-Releases/ArticleId/586/kasich-announces-actions-on-three-bills-12-27-16)

<sup>205</sup> [www.legislature.ohio.gov/legislation/legislation-status?id=GA132-HB-114](http://www.legislature.ohio.gov/legislation/legislation-status?id=GA132-HB-114); [www.eenews.net/assets/2018/06/20/document\\_daily\\_01.pdf](http://www.eenews.net/assets/2018/06/20/document_daily_01.pdf)

<sup>206</sup> [aceee.org/research-report/e138](http://aceee.org/research-report/e138)

<sup>207</sup> [www.cleanjobsohio.org/](http://www.cleanjobsohio.org/)

<sup>208</sup> [energynews.us/2014/09/29/midwest/firstenergy-follows-pattern-by-cutting-ohio-energy-efficiency-programs-sb310/](http://energynews.us/2014/09/29/midwest/firstenergy-follows-pattern-by-cutting-ohio-energy-efficiency-programs-sb310/)

<sup>209</sup> [www.nrdc.org/resources/state-renewable-portfolio-standards-create-jobs-and-promote-clean-energy](http://www.nrdc.org/resources/state-renewable-portfolio-standards-create-jobs-and-promote-clean-energy); [www.elpc.org/newsroom/publications/?slug=ohio-clean-energy-supply-chain](http://www.elpc.org/newsroom/publications/?slug=ohio-clean-energy-supply-chain)



- A 2016 study conducted by the Lawrence Berkeley National Lab analyzed possible impacts from RPS implementation across the US. The study found that depending on the region and specific scenario, there could be incremental costs to the system and electricity prices, but anticipated benefits in areas related to air quality improvement, greenhouse gas reductions, water usage reduction, and developing a renewable energy workforce.<sup>210</sup>
- RPS policies in other states are benefiting state economies. North Carolina's RPS contributed \$1.4 billion in investment in clean energy projects between 2007 and 2012 (a 13-fold increase) while creating or saving more than 20,000 jobs and holding electricity rates steady.<sup>211</sup>

### Best practices and lessons learned from similar policies

- In May 2018, Michigan's two large IOUs, DTE Energy and Consumers Energy, agreed to a commitment of 50% clean energy by 2030, which would be comprised of achieving 25% of the electric mix coming from renewables by 2030, with the remaining 25% represented by energy efficiency upgrades.<sup>212</sup> The utilities agreed to the commitment after Clean Energy, Healthy Michigan, a campaign backed by dollars from Tom Steyer's NextGen America, gathered 350,000 signatures for a ballot initiative that would have required 30% of the electricity in the state to come from renewable energy by 2030.<sup>213</sup> An attempt to achieve these goals failed previously, when a 2012 ballot campaign cost \$14 million and lost 62% to 38%. Proponents of the ballot measure at the time were outspent by the utilities who raised \$25.3 million in opposition.<sup>214</sup>
- The Future Energy Jobs Act (SB 2814) in Illinois was passed on a bipartisan basis and signed by Republican Governor Bruce Rauner in 2016. Competing interest groups, including Exelon looking for a bailout for its nuclear plants, environmental and clean energy advocates, and utilities looking for better incentives to deploy energy efficiency programs and technologies, undertook a two-year negotiation process to reach a final deal that included an expansion of state RPS and EERS requirements. These talks could serve as one model for discussions between advocates and utilities that disagree over Ohio's RPS/EERS.<sup>215</sup>

<sup>210</sup> <https://emp.lbl.gov/news/new-study-costs-benefits-and-impacts-state>

<sup>211</sup> [www.nrdc.org/resources/state-renewable-portfolio-standards-create-jobs-and-promote-clean-energy](http://www.nrdc.org/resources/state-renewable-portfolio-standards-create-jobs-and-promote-clean-energy)

<sup>212</sup> [www.pv-magazine-usa.com/2018/05/21/michigan-utilities-accede-to-25-renewable-energy-by-2030/](http://www.pv-magazine-usa.com/2018/05/21/michigan-utilities-accede-to-25-renewable-energy-by-2030/)

<sup>213</sup> *Ibid.*

<sup>214</sup> [www.detroitnews.com/story/news/politics/2018/02/12/michigan-renewable-energy-mandate-ballot/110332354/](http://www.detroitnews.com/story/news/politics/2018/02/12/michigan-renewable-energy-mandate-ballot/110332354/)

<sup>215</sup> [www.vox.com/energy-and-environment/2016/12/8/13852856/illinois-energy-bill](http://www.vox.com/energy-and-environment/2016/12/8/13852856/illinois-energy-bill)

## Potential allies

- Energy and Policy Institute: Watchdog tracking attacks on renewable energy, closely covered previous attempts to overturn the standards in Ohio
- NextGen America: Funded Clean Energy, Healthy Michigan ballot measure that resulted in Michigan's IOUs agreeing to 25% renewables by 2030 in 2018<sup>216</sup>
- JobsOhio: dedicated to Ohio economic development by helping companies seize innovative growth opportunities in Ohio
- Ceres: Led a campaign to support the RPS and EERS, working companies and financial organizations with operations in Ohio<sup>217</sup>
- BlueGreen Alliance: Has field staff in OH and has connections with local unions
- Renewable manufacturing companies in Ohio, such as First Solar
- Ohio businesses, employers, and investors that wrote to the Ohio Senate Committee on Energy and Natural Resources in opposition to HB 114: Burton Snowboards, Clif Bar & Co., CREE, Friends Fiduciary Corporation, Gap Inc., IKEA North America Services, JLL, Nestlé, Schneider Electric, Trillium Asset Management, Unitarian Universalist Association<sup>218</sup>
- Ohio companies and trade associations that wrote to the Ohio Senate Committee on Energy and Natural Resources in support of the existing energy efficiency standards: Whirlpool Corporation; National Electrical Manufacturers Association (NEMA); The Dow Chemical Company; Schneider Electric, Air-Conditioning, Heating, and Refrigeration Institute (AHRI); Polyisocyanurate Insulation Manufacturers Association (PIMA); National Association of Energy Service Companies (NAESCO); Cree, Inc.; Ameresco; Ingersoll Rand.<sup>219</sup>

## Tennessee

**PRIORITY:** Develop and advocate for legislation in support of advanced energy manufacturing growth in Appalachian Tennessee. Legislation should include performance-based tax incentives that require companies to meet job and investment targets in order to retain a portion of the corporate incentives.

- “Advanced energy” refers to technology that makes energy “cleaner, safer, more secure, and more efficient.”<sup>220</sup> Examples of advanced energy include electric or hybrid vehicles, pollution control equipment, bio energy, high-performance buildings, more efficient industrial processes, power reliability, smart grids, combined heat and power and the latest wind and solar technologies.<sup>221</sup>
- Tennessee Advanced Energy Business Council has produced a roadmap and analysis of growing Tennessee's advanced energy sector.<sup>222</sup>

<sup>216</sup> [www.detroitnews.com/story/news/politics/2018/02/12/michigan-renewable-energy-mandate-ballot/110332354/](http://www.detroitnews.com/story/news/politics/2018/02/12/michigan-renewable-energy-mandate-ballot/110332354/)

<sup>217</sup> [www.ceres.org/news-center/press-releases/ohio-employers-and-investors-urge-senate-oppose-energy-bill](http://www.ceres.org/news-center/press-releases/ohio-employers-and-investors-urge-senate-oppose-energy-bill)

<sup>218</sup> [www.ceres.org/sites/default/files/Letters/BICEP/OH%20HB114%20Business%20and%20Investor%20Opponent%20Testimony.pdf](http://www.ceres.org/sites/default/files/Letters/BICEP/OH%20HB114%20Business%20and%20Investor%20Opponent%20Testimony.pdf)

<sup>219</sup> [www.ceres.org/sites/default/files/Letters/BICEP/OhioBusinessTestimony\\_HB114Opposition.pdf](http://www.ceres.org/sites/default/files/Letters/BICEP/OhioBusinessTestimony_HB114Opposition.pdf)

<sup>220</sup> TAEBC 2018, [www.tnadvancedenergy.com/site/wp-content/uploads/2018/08/TAEBC-Economic-Impact-Report-2018.pdf](http://www.tnadvancedenergy.com/site/wp-content/uploads/2018/08/TAEBC-Economic-Impact-Report-2018.pdf)

<sup>221</sup> Ibid.

<sup>222</sup> Roadmap: [www.tnadvancedenergy.com/site/wp-content/uploads/2014/07/TAEBC\\_roadmap.pdf](http://www.tnadvancedenergy.com/site/wp-content/uploads/2014/07/TAEBC_roadmap.pdf); Analysis from August 2018: [www.tnadvancedenergy.com/site/wp-content/uploads/2018/08/TAEBC-Economic-Impact-Report-2018.pdf](http://www.tnadvancedenergy.com/site/wp-content/uploads/2018/08/TAEBC-Economic-Impact-Report-2018.pdf)

## Key beneficiaries

- Advanced energy manufacturers, installers, researchers, entrepreneurs, professional service providers and companies that are end users of advanced energy technologies will benefit from growth of the advanced energy sector.<sup>223</sup>
- Advanced energy represents an opportunity to promote rural economic development. Currently, almost 80 percent of Advanced Energy activity is centered in just 20 counties in Tennessee. Rural Tennessee could benefit from further growth in Advanced Energy activity.<sup>224</sup>

## Potential economic impact

- According to the Tennessee Advanced Energy Business Council, advanced energy employs 358,360 Tennesseans, accounting for nearly 14% of total employment in the state and with total payroll expenditures of \$21.4 billion. The advanced energy manufacturing sector represents the largest share of the advanced energy employment at 41.6%, followed by advanced energy utilities and construction at 27.7% of total advanced energy employment. Workers in the advanced energy sector earn an average wage of \$59,665, compared to the state's economy-wide average of \$44,317.<sup>225</sup>
- Tennessee's advanced energy sector contributed approximately \$39.7 billion to state GDP and comprises more than 10 percent of the state's total GDP.<sup>226</sup>
- Total state sales tax revenue for the advanced energy sector totaled \$823 million in 2016 and local sales tax revenue amounted to \$289 million.<sup>227</sup>

## Best practices and lessons learned from similar policies

- EnerBlu Inc, a Battery Storage Company in Pikeville, KY, is developing a manufacturing facility on a previous coal mine. The Kentucky Economic Development Finance Authority has given preliminary approval for incentives worth up to \$30 million over 15 years for EnerBlu's facilities.<sup>228</sup> The company relocated its headquarters from Riverside, CA to Lexington, KY in March 2018.<sup>229</sup> To encourage investment and job growth, the Kentucky Economic Development Finance Authority (KEDFA) preliminarily approved performance-based tax incentives for EnerBlu Inc of up to \$27.5 million through the Kentucky Business Investment program for the Pikeville project and up to \$2.5 million for its relocation to Lexington. The incentives allow EnerBlu to keep a portion of its investment over the agreement term through corporate income tax credits and wage assessments by meeting job and investment targets. In addition, EnerBlu can receive resources from the Kentucky Skills Network, which provides companies no-cost recruitment and job placement services, reduced-cost customized training, and job training incentives. In fiscal year 2017, the Kentucky Skills Network provided training for more than 120,000 Kentuckians and 5,700 companies from a variety of industry sectors.<sup>230</sup>
- Braidy Industries is developing a \$1.3 billion advanced aluminum manufacturing plant in Greenup County that would create 550 full time jobs. Kentucky taxpayers own 20 percent of the company, a fact that even more directly connects the success of the plant with benefits for Kentuckians.<sup>231</sup>

223 TAEBC 2018, [www.tnadvancedenergy.com/site/wp-content/uploads/2018/08/TAEBC-Economic-Impact-Report-2018.pdf](http://www.tnadvancedenergy.com/site/wp-content/uploads/2018/08/TAEBC-Economic-Impact-Report-2018.pdf)

224 Ibid.

225 Ibid.

226 Ibid.

227 Ibid.

228 [www.usnews.com/news/best-states/kentucky/articles/2017-12-15/battery-maker-plans-kentucky-plant-to-employ-hundreds](http://www.usnews.com/news/best-states/kentucky/articles/2017-12-15/battery-maker-plans-kentucky-plant-to-employ-hundreds)

229 [www.prnewswire.com/news-releases/enerblu-completes-relocation-of-corporate-headquarters-to-lexington-kentucky-300641145.html](http://www.prnewswire.com/news-releases/enerblu-completes-relocation-of-corporate-headquarters-to-lexington-kentucky-300641145.html)

230 [www.thinkkentucky.com/Newsroom/NewsPage.aspx?x=12152017\\_EnerBlu.html](http://www.thinkkentucky.com/Newsroom/NewsPage.aspx?x=12152017_EnerBlu.html)

231 [www.usnews.com/news/best-states/kentucky/articles/2017-12-15/battery-maker-plans-kentucky-plant-to-employ-hundreds](http://www.usnews.com/news/best-states/kentucky/articles/2017-12-15/battery-maker-plans-kentucky-plant-to-employ-hundreds)

## Potential allies

- Tennessee Advanced Energy Business Council
- Tennessee Valley Authority
- Oak Ridge National Lab
- Howard Baker Jr. Center for Public Policy at the University of Tennessee
- TN Manufacturing Companies (e.g. Silicon Ranch Corporation and Shoals Technology group)<sup>232</sup>
- Tennessee Technological University: A U.S. Department of Energy-funded Industrial Assessment Center.<sup>233</sup>

**PRIORITY:** Develop and advocate for the introduction of legislation to create viable C-PACE programs in Tennessee.

- PACE legislation (SB 794 / HB 464) was proposed to the Tennessee General Assembly with no movement in 2017. This legislation included residential PACE authorization, which has proven to be a sticking point for policymakers in supporting this model of financing. Advocates should focus the legislation on commercial and multifamily entities.

## Key beneficiaries

- Commercial customers interested in reducing utility bills but unable to afford the up-front costs of energy efficiency improvements will have access to a financing solution.
- Vendors of energy efficiency technologies, including those selling equipment, lighting and other companies will benefit from increased demand for their services.<sup>234</sup>

## Potential economic impact

- From 2013-2017, \$52.7 million in funding was used to complete 95 C-PACE projects in Arkansas, Kentucky, Florida, and Texas (the Southern states with active C-PACE programs). C-PACE funding has been most often used by mixed use buildings, and 93% of funding has gone to energy efficiency projects.<sup>235</sup>
- The U.S. Bureau of Economic Analysis uses its Regional Input-Output Modeling System (RIMS II) to estimate the state-specific job creation and other economic activity multipliers resulting from investments in commercial properties. The combined weighted average of state multipliers is 9.6 jobs created per million dollars of C-PACE investment. For total economic activity, the combined weighted average is \$1.37 of economic activity generated as a result of \$1 of C-PACE investment.<sup>236</sup>
- As reported in the CAN Economic Impact Report Inventory, “Extensive data suggests that buildings which meet or exceed energy codes often create their own market advantage, and tend to be more sought after by knowledgeable buyers and tenants. This is because they are generally more comfortable for their occupants, which correlates to higher productivity, and they are more cost effective to operate over time. Together, these factors can represent an important competitive advantage.”

<sup>232</sup> [www.siliconranch.com/](http://www.siliconranch.com/); [www.shoals.com/](http://www.shoals.com/)

<sup>233</sup> [www.tntech.edu/engineering/research/cmr/tennessee-3-star-industrial-assessment-center/iac-students/](http://www.tntech.edu/engineering/research/cmr/tennessee-3-star-industrial-assessment-center/iac-students/)

<sup>234</sup> [www.pathwaylending.org/news-and-blog/ee-financing-esa/](http://www.pathwaylending.org/news-and-blog/ee-financing-esa/)

<sup>235</sup> [www.pacenation.us/wp-content/uploads/2018/08/2017-C-PACE-Annual-Impact-Report-Optimized-1.pdf](http://www.pacenation.us/wp-content/uploads/2018/08/2017-C-PACE-Annual-Impact-Report-Optimized-1.pdf)

<sup>236</sup> *Ibid.*

## Best practices and lessons learned from similar policies

- Capital providers are sometimes less likely to lend to properties if they are not very valuable, so it is easier to finance larger commercial projects. However, local banks (particularly Community Banks) can address this market gap with smaller loans in the \$30,000 to \$250,000 range. Alternatively, smaller banks can originate loans and have larger banks hold these on their balance sheet.
- **State examples:**
  - **Kentucky:** As of 2017, Kentucky was one of the top C-PACE states, with \$5.2 million invested to date and 2 buildings improved with PACE.<sup>237</sup>
  - **Ohio:** As of 2017, Ohio was one of the top C-PACE states, with \$33.3 million invested to date and 114 buildings improved with PACE.<sup>238</sup>
  - **Arlington County, VA:** Launched in November 2018, the Arlington C-PACE program is self-financed through fees charged to participants. The program can be used to finance both existing building retrofits and new construction projects.<sup>239</sup>

## Potential allies

- Supporters of the 2017 proposed PACE legislation (see Tennessee Conservation Voters Scorecard)<sup>240</sup>
  - Representative Bob Freeman, R-56 was elected with support from Sierra Club. Bob graduated from Middle Tennessee State University with a degree in Construction Management and Land Development and went on to earn his master's degree in Sustainability from Lipscomb University's Institute for Sustainable Practice.
  - Senator Steven Dickerson, R-20<sup>241</sup>
  - Representative Bill Dunn, R-16<sup>242</sup>
  - Representative Darren Jernigan, D-60<sup>243</sup>
  - Representative Rick Staples, D-15<sup>244</sup>
- TN Chapter of Sierra Club: Contributed substantially to drafting 2017 PACE bill language.
- Nicole Robben: Former PACE administrator from Wisconsin that now works for Pathway Lending and leads PACE TN working group.
- TDEC - Molly Cripps
- PACE TN Working Group: Members include representatives from TNN Chapter of Sierra Club, Tennessee Environmental Council, Tennessee Conservation Voters, PACENation.
- Energy service company (e.g. Ameresco)
- Tennessee Valley Authority: Has indicated support for PACE.
- Community Banks in Tennessee

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<sup>237</sup> *Ibid.*

<sup>238</sup> *Ibid.*

<sup>239</sup> [arlington-pace.us/about/](http://arlington-pace.us/about/)

<sup>240</sup> [www.tnconservationvoters.org/sm\\_files/2017ScorecardforWebsite.pdf](http://www.tnconservationvoters.org/sm_files/2017ScorecardforWebsite.pdf)

<sup>241</sup> [www.capitol.tn.gov/senate/members/s20.html](http://www.capitol.tn.gov/senate/members/s20.html)

<sup>242</sup> [www.capitol.tn.gov/house/members/h16.html](http://www.capitol.tn.gov/house/members/h16.html)

<sup>243</sup> [www.darrenjernigan.com/](http://www.darrenjernigan.com/)

<sup>244</sup> [www.capitol.tn.gov/house/members/h15.html](http://www.capitol.tn.gov/house/members/h15.html)



**PRIORITY:** Develop and advocate for legislation or regulation that would allow Local Power Companies (LPCs) receiving power from the TVA to review and renegotiate their contracts with TVA on a recurring (3-5 year) basis.

- This policy would provide LPCs with an opportunity to renegotiate “must take” power contracts with TVA. Possible areas for discussion or renegotiation during these more frequent negotiation opportunities include:
  - Allowing LPCs to own and operate distributed energy resources (including battery storage, distributed or central PV systems, demand management or non-wires alternatives). Allowing LPCs to own distributed energy resources would increase the efficiency of the local management of the distribution grid.
  - Determining what types of services TVA can provide outside of traditional generation and transmission uses, such as aggregated cybersecurity protection or data management offerings to participating LPCs. TVA could offer more innovative or new projects to LPCs (such as new forms of technology, rates, or other mechanisms), eventually allowing the LPCs the option to run the program independently.
  - Determining how TVA can support LPCs in adopting greater renewable energy assets through incentives, particularly to LPCs that operate in areas where adopting more sophisticated distribution grid management techniques would decrease the overall transmission and generation costs to TVA.

### Key beneficiaries

- LPCs operating in TVA’s service territory will benefit from increased flexibility and support for expanding clean energy offerings to its customers.
- Residents and businesses will benefit from reduced rates and energy savings as a result of greater localization of energy generation and grid management techniques. Note that larger commercial and industrial entities are likely direct access customers with TVA.
- Vendors of energy efficiency measures and renewable energy technologies will see an increased opportunity to sell their products or services if working with an LPC.

### Potential economic impact

- Job creation through the emergence of new, local clean energy markets.

### Best practices and lessons learned from similar policies

- There is a role for state policy to incentivize TVA to recognize energy efficiency as an energy resource and therefore increase TVA’s role in promoting energy efficiency offerings to its LPCs. This could be a recommendation through policy or an approach taken as a result of the contract renegotiations. Bonneville Power Administration is a leader on EE implementation. Under the Northwest Power Act, energy efficiency is considered an energy resource. Therefore, the Northwest Power and Conservation Council works with the Bonneville Power Administration, utilities and other organizations in the region to acquire energy efficiency as a resource through the design and delivery of energy efficiency programs.

- In 2016, New Mexico-based Kit Carson Electric Cooperative bought themselves out of a long-term power purchase contract with Tri-State Generation and Transmission that would have lasted until 2040 and under which Kit Carson was limited to generating 5% of its own renewable energy. After negotiating a new 10-year contract with another power provider, Kit Carson's board announced an ambitious plan to meet 100% of daytime demand with solar power by 2022.<sup>245</sup>
- Due to the difficulty of quickly renegotiating these long-term contracts, if possible it is productive for distribution utilities to work with the generation and transmission (G&T) cooperative or power agency to advance clean energy. For instance, G&T cooperative Great River Energy recently helped twenty of its member cooperatives construct small solar arrays in their communities. Great River Energy constructed and owns these arrays.<sup>246</sup>
- **Examples of cooperation between LPCs:**
  - Three local Minnesota utilities — the Freeborn-Mower Electric Cooperative, People's Cooperative Services, and Tri-County Electric Cooperative — jointly built a solar array that sells power to their G&T cooperative, Dairyland.
  - The Michigan Energy Optimization Collaborative was created by eight cooperatives and four municipal utilities in response to a 2008 law mandating an annual 1 percent reduction in electricity usage. The Collaborative has streamlined and lowered the cost of compliance through rebates for energy efficient appliances, energy audits, and agricultural programs.
  - Niles, a town of 7,000 people located in Indiana, estimates that it has been spending 20-30 percent above the market cost of power in its current contract. This spurred Niles to partner with ten other utilities to end their contracts with Indiana Michigan Power six years early by 2020. This was possible when the smaller utilities renegotiated their contract together.

### Potential allies

- The 154 Local Power Companies served by TVA<sup>247</sup>
- Southern Alliance for Clean Energy (SACE)
- Appalachian Voices
- Industry trade groups such as:
  - Tennessee Solar Energy Industries Association
  - Energy Storage Associations (e.g. Energy Storage North America and Energy Storage Association)
- Tennessee Renewable Energy & Economic Development Council: A statewide network of 101 city and county mayors and businesses working together to create a path to fast-track renewables in Tennessee.<sup>248</sup>
- Tennessee Public Power Association: Is already working to mandate contract carve outs for renewable energy
- Tennessee Municipal Electric Power Association<sup>249</sup>

<sup>245</sup> [www.appvoices.org/2018/12/19/reform-at-one-southwestern-co-op-spurs-change-at-another/](http://www.appvoices.org/2018/12/19/reform-at-one-southwestern-co-op-spurs-change-at-another/)

<sup>246</sup> [www.renewableenergyworld.com/ugc/articles/2016/12/16/local-utilities-have-lost-local-control.html](http://www.renewableenergyworld.com/ugc/articles/2016/12/16/local-utilities-have-lost-local-control.html)

<sup>247</sup> [www.tva.gov/Energy/Public-Power-Partnerships/Local-Power-Companies](http://www.tva.gov/Energy/Public-Power-Partnerships/Local-Power-Companies)

<sup>248</sup> [www.treedc.us/](http://www.treedc.us/)

<sup>249</sup> [www.tnepa.org/](http://www.tnepa.org/)

# Virginia

**PRIORITY:** Leverage the new SCC stakeholder process to select and develop robust utility energy efficiency programs.

- Work with Appalachian Power Company and Dominion to strengthen and defend current EE programs. Identify energy efficiency program gaps (e.g. underserved customer segments or energy efficiency services not delivered) and work with utilities to craft strong programs then propose them to the SCC.
- Develop protocols for SCC stakeholder working group (e.g. scope and duration), as they are not clearly set forth in the 2018 Grid Transformation and Security Act (GTSA/SB 966). If necessary, introduce legislation and/or regulation to formalize these protocols. The stakeholder group should meet regularly and on an ongoing basis throughout the 2018-2028 implementation period of the GTSA.
- If the SCC continues to reject Dominion and APCo's energy efficiency programs (e.g. on the basis of cost-effectiveness), educate legislators that commissioners are slowing utilities' compliance with EE spending requirements under SB 966 to remove the Ratepayer Impact Measure test in Virginia.

## Key beneficiaries

- Residents, businesses, and institutions in Virginia will benefit from financing and incentives to lower the cost of energy efficiency services and technologies.
- Low-income households will also see greater access to energy efficiency programs. Virginia households with incomes of below 50% of the FPL pay 45% of their annual income simply for their home energy bills. Bills for households with incomes between 150% and 185% of the FPL take up 11% of income. Virginia households with incomes between 185% and 200% of the FPL have energy bills equal to 10% of income.<sup>250</sup>
- Energy efficiency businesses will experience greater demand for their services.

## Potential economic impact

- ACEEE estimates that if Dominion spends \$870 million and APCO spends \$140 million on energy efficiency programs between 2019 and 2028, as required in SB 966, they will save 1.4 million MWh in 2022 or 3.3 million MWh in 2028. This assumes that Dominion spends \$87 million per year and APCo spends \$14 million per year, for a total of \$101 million each year.

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<sup>250</sup> [www.homeenergyaffordabilitygap.com/03a\\_affordabilityData.html](http://www.homeenergyaffordabilitygap.com/03a_affordabilityData.html)

## Best practices and lessons learned from similar policies

- Energy efficiency collaboratives have been used in over half of U.S. states. While they take many forms, it is best practice to consider a few overarching principles: a clear objective; defined procedures; transparent meetings and materials; periodic evaluation of efforts; experienced facilitation; and influence with state commissions.<sup>251</sup>
- In the Southeastern and Appalachian regions, the following states saw 2017 net incremental electricity savings over the national median of 0.66% of 2016 retail electricity sales: Ohio (0.96%), Arkansas (0.69%), and North Carolina (0.69%). The following states saw 2017 net incremental natural gas and fuel savings equal to or above the national median of 0.15% of commercial and residential sales: Arkansas (0.56%), Kentucky (0.39%), Mississippi (0.15%), and Ohio (0.15%).
- **State examples:**
  - **Arkansas:** Arkansas is one of the only southeastern states to have an energy efficiency resource standard that sets long-term savings targets and performance incentives, which are awarded annually to utilities for meeting efficiency goals. Electricity savings have increased consistently in recent years and are poised to continue their growth thanks to new, approved 2020–22 program cycle efficiency targets of 1.2% and 0.5% for electricity and natural gas, respectively.<sup>252</sup> Additionally, the Arkansas Public Service Commission (APSC) convenes a stakeholder working group called the Parties Working Collaboratively (PWC).<sup>253</sup>

## Potential allies

- Virginia Energy Efficiency Council : Advocates for expanded utility-sector EE programs
- Virginia Housing Authority: State agency that could leverage ratepayer EE dollars alongside state and federal resources for EE program delivery
- Dominion and Appalachian Power Company: Investor-owned utilities charged with increasing spending on energy efficiency
- Virginia Conservatives for Clean Energy: Educates policy makers and industry leaders on the benefits of clean energy development, and serve as a voice for the many conservatives who want to increase the choices and availability of clean energy sources in Virginia.
- Virginia Poverty Law Center: Experienced in low-income EE program design
- Virginia Advanced Energy Economy: Advocates for expanded utility-sector EE programs
- Southern Energy Efficiency Alliance: Advocates for expanded utility-sector EE programs

<sup>251</sup> The U.S. DOE describes types of energy efficiency collaboratives, defines overarching principles, and offers consideration for collaborative design: [www4.eere.energy.gov/seeaction/publication/energy-efficiency-collaboratives](http://www4.eere.energy.gov/seeaction/publication/energy-efficiency-collaboratives). The Midwest Energy Efficiency Alliance (MEEA) reviews midwestern energy efficiency collaboratives here: [www.mwalliance.org/sites/default/files/meea-research/meea\\_2017\\_midwest-ee-collaboratives\\_v1.0-final.pdf](http://www.mwalliance.org/sites/default/files/meea-research/meea_2017_midwest-ee-collaboratives_v1.0-final.pdf).

<sup>252</sup> [database.aceee.org/state/arkansas](http://database.aceee.org/state/arkansas)

<sup>253</sup> The PWC consists of APSC staff, utilities, the Arkansas Attorney General, the Arkansas Community Action Agencies Association, the Arkansas Advanced Energy Association, Walmart, consumer advocacy groups, and environmental organizations. See APSC orders initiating the collaborative ([www.apscservices.info/pdf/10/10-010-u\\_120\\_1.pdf](http://www.apscservices.info/pdf/10/10-010-u_120_1.pdf)) and determining group guidelines ([www.apscservices.info/pdf/13/13-002-u\\_159\\_1.pdf](http://www.apscservices.info/pdf/13/13-002-u_159_1.pdf)). This paper describes the PWC process in greater detail: [www.johnsonconsults.com/presentations/IEPPEC%202014%20All%20Together%20Now%20AR.pdf](http://www.johnsonconsults.com/presentations/IEPPEC%202014%20All%20Together%20Now%20AR.pdf).

**PRIORITY:** Advocate for amendments to Virginia’s Electric Utility Regulation Act to expand NEM in Virginia. It should remove the current statewide cap on net metered energy systems across all utility service territories, currently set at 1% of each electric distribution company’s adjusted Virginia peak load forecast for the previous year. The legislation should also allow all customers with multiple meters to aggregate their meters, enable virtual NEM, and increase individual NEM size limits (currently based on customer’s energy use in the previous year).

- SB 966 required Dominion and APCo to investigate potential improvements to their net energy metering programs, so advocates should explore opportunities to engage utilities in this process on an ongoing basis. Such an investigation could include a grid feasibility study to evaluate the impact of increased distributed solar penetration on the grid.
- As suggested by participants in the 2018 VEP comment process, “[the grid feasibility] study could examine both the level of distributed generation penetration that results in cost shifting, the level that creates grid reliability issues, as well as other issues that could inform policymaker’s decisions relating to whether to keep or modify the 1% cap.”<sup>254</sup>
- Clarify that power PPAs are legal for all NEM customers to use as a means of financing solar projects.

### Key beneficiaries

- Residential and commercial ratepayers
- Solar installers and developers benefit from the market certainty created by NEM policies that is necessary to investing in the solar market statewide.
- Cooperative utilities and their members, such as Old Dominion Electric Cooperative (ODEC): some co-ops have come close to the NEM cap in their territories.
- Households interested in installing rooftop solar: removing the aforementioned limits will enable them to size their systems with future energy needs in mind (e.g. due to growing families and/or purchasing an electric vehicle)

### Potential economic impact

- An economic analysis from the Solar Workgroup found that aspirational growth in residential, commercial, and utility-scale solar deployment between 2018 and 2028 would create 255 jobs in Southwest Virginia (43 jobs in residential and commercial solar and about 212 in utility-scale). They found that residential installations would be the most effective strategy for increasing local employment per unit of solar installed, creating about 23 total jobs per MW of installed capacity over the 10-year period, compared 11 jobs per MW from commercial installations and 9 jobs per MW from utility-scale installations. Across all categories, about 90% of jobs are tied to the installation of new solar projects and 10% tied to the maintenance of existing projects. Additionally, they expect all types of solar jobs are to earn about \$68,000 per year in revenue.<sup>255</sup>
- The Solar Energy Industries Association (SEIA) projects that solar energy will grow by an additional 2,293 MW over the next five years. SEIA projects most of this growth to come from utility-scale solar, however, they also expect distributed solar to grow (over 196% annually between 2015 and 2018) continue beyond the phase-out of the federal Investment Tax Credit beginning at the end of 2019.<sup>256</sup>

<sup>254</sup> See page 78: <https://www.governor.virginia.gov/media/governorvirginiagov/secretary-of-commerce-and-trade/2018-Virginia-Energy-Plan.pdf>

<sup>255</sup> [www.swvasolar.org/resources/Solar\\_Workgroup\\_Solar\\_Roadmap\\_SWVA\\_2017.pdf](http://www.swvasolar.org/resources/Solar_Workgroup_Solar_Roadmap_SWVA_2017.pdf)

<sup>256</sup> <https://www.seia.org/state-solar-policy/virginia-solar>



## Best practices and lessons learned from similar policies

- Model rules from the Interstate Renewable Energy Council provide additional detail regarding NEM policy design and best practices.<sup>257</sup> The website “Freeing the Grid” grades states on NEM policy environment and has information on best practices.<sup>258</sup>
- In the 2018 Virginia Energy Plan, the Northam Administration notes that “Of the states that allow NEM, eight have capacity limits above one percent, and 21 states have no limit.” It recommends the cap be raised to 5% of each electric distribution company’s adjusted peak-load forecast for the previous year.
- **State examples:**
  - **Maryland** places an aggregate statewide cap of 1,500 MW on NEM systems (about 9-10% of statewide peak demand), but the formulation of this cap as capacity-based is unique and transparent compared to similar caps in other states. Moreover, their individual system capacity limit is 2 MW (or 30 kW for micro-combined heat and power) or electricity needed to meet 200% of customer’s baseline annual electricity use.<sup>259</sup>
  - **South Carolina** requires that any distributed energy resource program shall, at a minimum, result in the development by January 1, 2021, of renewable energy facilities located in South Carolina with a cumulative installed nameplate capacity equal to at least 2% of the previous five-year average of the utility’s South Carolina retail peak demand. Between 2014 and 2016, From the time Act 236 was signed into law to the completion of the first status report in 2016 report, the IOUs reached 36% of the 5-year 190.5 MW goal (actual and reserved capacity), and collaboration continues as the stakeholders work together to ensure that a firm foundation is laid for incorporating renewable energy resources into our state’s generation portfolio.<sup>260</sup>
  - **Illinois** sets their limit at 5% of utility’ peak demand in a previous year.

## Potential allies

- Virginia Advanced Energy Economy: Harry Godfrey is the Executive Director and has indicated support for changes to net energy metering in Virginia.
- Maryland-DC-Delaware-Virginia Solar Energy Industries Association: David Murray is the Executive Director and has indicated support for changes to net energy metering in Virginia.
- Sierra Club: Ivy Main is renewable energy chair for the Virginia Chapter of the Sierra Club. Preparing omnibus clean energy bill in 2020.
- Rubin Group: A group of third-party facilitated representatives from companies, solar advocacy organizations, utility firms, energy education groups, the Virginia Manufacturers Association, the MD DC DE VA Solar Energy Industries Association, Powered by Facts and others.<sup>261</sup> The group has worked to generate consensus around solar legislation, with a particular focus on NEM reform.
- Virginia Solar Energy Development and Energy Storage Authority: Created to facilitate, coordinate, and support the development of the solar industry and solar projects.
- Solar United Neighbors of Virginia
- Southern Environmental Law Center
- Natural Resources Defense Council: Has a strong presence in Virginia, including a representative on the state’s Advisory Council on Environmental Justice
- The Nature Conservancy
- Virginia Coalfield Economic Development Authority and Virginia Tobacco
- Region Revitalization Commission: Administers business incentive programs that could support solar infrastructure and job development<sup>262</sup>
- Community Housing Partners: Partner for energy efficiency training

<sup>257</sup> [www.irecusa.org/publications/irec-model-net-metering-rules-2009/](http://www.irecusa.org/publications/irec-model-net-metering-rules-2009/)

<sup>258</sup> [www.freeingthegrid.org/](http://www.freeingthegrid.org/)

<sup>259</sup> See DSIRE for the specific bills and regulations that have changed Maryland’s net-metering law: [programs.dsireusa.org/system/program/detail/363](http://programs.dsireusa.org/system/program/detail/363)

<sup>260</sup> <https://www.scstatehouse.gov/reports/ORS/FINAL%20DER%20and%20NEM%20Report%202017.pdf>

<sup>261</sup> [www.poweredbyfacts.com/2017/08/rubin-group-creates-5-working-committees-to-take-deep-dive-into-energy-for-virginia/](http://www.poweredbyfacts.com/2017/08/rubin-group-creates-5-working-committees-to-take-deep-dive-into-energy-for-virginia/)

<sup>262</sup> [www.swvasolar.org/resources/Solar\\_Workgroup\\_Solar\\_Roadmap\\_SWVA\\_2017.pdf](http://www.swvasolar.org/resources/Solar_Workgroup_Solar_Roadmap_SWVA_2017.pdf)

- Virginia Conservation Network
- Appalachian Voices
- VA League of Conservation Voters

**PRIORITY:** Develop and advocate for legislation to expand PPAs in Virginia. Legislation should expand the aggregate and individual caps for PPAs and specify that PPAs shall not be regulated as public utility companies. Legislation should enable PPAs for all customers, including homes, businesses, and nonprofits in both Dominion and APCO service territories.

#### Key beneficiaries:

- For-profit solar companies that can monetize tax credits and capitalize on commercial benefits like depreciation will see increased demand for their services.
- Residents and businesses will benefit from lower to zero up-front solar installation costs and fixed electricity rates (per kWh) that are often comparable to, or lower than, established utility rates.<sup>263</sup>
- Solar will be more accessible to tax-exempt entities like nonprofits, churches, and local governments.
- PPAs are the first step toward enabling community solar, which would benefit low and moderate income residents and renters as an additional option to access solar.

#### Potential economic impact

- An economic analysis from the Solar Workgroup of Southwest Virginia found that aspirational growth in residential, commercial, and utility-scale solar deployment between 2018 and 2028 would create 255 jobs in Southwest Virginia (43 jobs in residential and commercial solar and about 212 in utility-scale). They found that residential installations would be the most effective strategy for increasing local employment per unit of solar installed, creating about 23 total jobs per MW of installed capacity over the 10-year period, compared 11 jobs per MW from commercial installations and 9 jobs per MW from utility-scale installations. Across all categories, about 90% of jobs are tied to the installation of new solar projects and 10% tied to the maintenance of existing projects. Additionally, they expect all types of solar jobs are to earn about \$68,000 per year in revenue.<sup>264</sup>

#### Best practices and lessons learned from similar policies

- Legal authorization for residential third-party solar PV PPA arrangements usually lies in the definition of a “utility” in state statutes, regulations or case law; in state regulatory commission decisions or orders; and/or in rules and guidelines for state incentive programs.
- Localize the economic benefits of utility-scale solar by working with project developers to identify opportunities to incorporate workforce development into their projects.
- **State examples:**
  - **Ohio:** Legalized solar PPAs in Ohio PUC Order 14-1693-EL-RDR (2014) as part of its approval of AEP Ohio’s electric security plan for June 2015 through May 2018.
  - **Georgia:** Legalized solar PPAs in House Bill 57 (2015). Solar advocates and Georgia Power struck a compromise, limiting third-party ownership financing to residential solar installations under 10 kW and commercial-industrial systems to 125% of the system host’s electricity use.
  - **Oklahoma:** In June 2018 the Oklahoma Attorney General issued an opinion affirming the legality of third-party solar ownership and declaring that a third-party owner of solar panels would not be considered a “utility” by the Oklahoma Corporation Commission.<sup>265</sup>

<sup>263</sup> [www.solarpowerrocks.com/solar-lease-map/](http://www.solarpowerrocks.com/solar-lease-map/)

<sup>264</sup> [www.swvasolar.org/resources/Solar\\_Workgroup\\_Solar\\_Roadmap\\_SWVA\\_2017.pdf](http://www.swvasolar.org/resources/Solar_Workgroup_Solar_Roadmap_SWVA_2017.pdf)

<sup>265</sup> [http://www.oag.ok.gov/Websites/oag/images/Documents/Opinions/AG/2018/AG%20Opinion%202018-5%20\(T-25\).pdf](http://www.oag.ok.gov/Websites/oag/images/Documents/Opinions/AG/2018/AG%20Opinion%202018-5%20(T-25).pdf)

- **North Carolina and Virginia:** NC House Bill 245<sup>266</sup> and VA House Bill 1252267<sup>267</sup> may also serve as reference for drafting PPA legalization legislation.

### Potential allies

- Virginia Advanced Energy Economy: Harry Godfrey is the Executive Director and is pursuing 2019 PPA legislation.
- Appalachian Voices: Peter Anderson and Kate Boyle work on Virginia clean energy policy and are pursuing 2019 PPA legislation.
- Maryland-DC-Delaware-Virginia Solar Energy Industries Association: David Murray is the Executive Director.
- Sierra Club: Ivy Main is renewable energy chair for the Virginia Chapter of the Sierra Club. She is preparing an omnibus clean energy bill in 2020.
- Rubin Group: A group of third-party facilitated representatives from companies, solar advocacy organizations, utility firms, energy education groups, the Virginia Manufacturers Association, the MD DC DE VA Solar Energy Industries Association, Powered by Facts and others.<sup>268</sup> The group has worked to generate consensus around solar legislation, with a particular focus on NEM reform.
- Virginia Solar Energy Development and Energy Storage Authority: Created to facilitate, coordinate, and support the development of the solar industry and solar projects.
- Solar United Neighbors of Virginia
- Southern Environmental Law Center
- Natural Resources Defense Council
- The Nature Conservancy
- Virginia Coalfield Economic Development Authority and Virginia Tobacco Region Revitalization Commission: Administers business incentive programs that could support solar infrastructure and job development<sup>269</sup>

## West Virginia

**PRIORITY:** Develop and advocate for legislation or regulation to clarify the legality of PPAs in West Virginia. Legislative language should specify that solar PPAs shall not be regulated as public utility companies. Legislation should enable PPAs for all customers, including homes, businesses, and nonprofits. Consider folding into other energy-related legislation in order to increase the likelihood of passage and/or collaborate across multiple energy generation sectors.

### Key beneficiaries

- For-profit solar companies that can monetize tax credits and capitalize on commercial benefits like depreciation will see increased demand for their services.
- Residents and businesses will benefit from lower to zero up-front solar installation costs and fixed electricity rates (per kWh) that are often comparable to, or lower than, established utility rates.<sup>270</sup>
- Solar will be more accessible to tax-exempt entities like nonprofits, churches, and local governments.
- PPAs are the first step toward enabling community solar, which would benefit low and moderate income residents and renters as an additional option to access solar.

<sup>266</sup> [www.ncwarn.org/energy-freedom/](http://www.ncwarn.org/energy-freedom/)

<sup>267</sup> <https://lis.virginia.gov/cgi-bin/legp604.exe?181+sum+HB1252>

<sup>268</sup> [www.poweredbyfacts.com/2017/08/rubin-group-creates-5-working-committees-to-take-deep-dive-into-energy-for-virginia/](http://www.poweredbyfacts.com/2017/08/rubin-group-creates-5-working-committees-to-take-deep-dive-into-energy-for-virginia/)

<sup>269</sup> [www.swvasolar.org/resources/Solar\\_Workgroup\\_Solar\\_Roadmap\\_SWVA\\_2017.pdf](http://www.swvasolar.org/resources/Solar_Workgroup_Solar_Roadmap_SWVA_2017.pdf)

<sup>270</sup> [www.solarpowerrocks.com/solar-lease-map/](http://www.solarpowerrocks.com/solar-lease-map/)

## Potential economic impact

- There are few projections on the future economic impact of expanding solar deployment in West Virginia; however, several resources estimate the size of the current West Virginia solar market. The Solar Energy Industries Association (SEIA) estimates that the West Virginia solar industry has seen \$24.5 million of investments and it currently includes 311 jobs.<sup>271</sup>
- An economic analysis from the Solar Workgroup found that aspirational growth in residential, commercial, and utility-scale solar deployment between 2018 and 2028 would create 255 jobs in Southwest Virginia (43 jobs in residential and commercial solar and about 212 in utility-scale). They found that residential installations would be the most effective strategy for increasing local employment per unit of solar installed, creating about 23 total jobs per MW of installed capacity over the 10-year period, compared 11 jobs per MW from commercial installations and 9 jobs per MW from utility-scale installations. Across all categories, about 90% of jobs are tied to the installation of new solar projects and 10% tied to the maintenance of existing projects. Additionally, they expect all types of solar jobs are to earn about \$68,000 per year in revenue.<sup>272</sup>
- Unleashing distributed solar will move the West Virginia solar market and catalyze the labor force.

## Best practices and lessons learned from similar policies

- Legal authorization for third-party PPA arrangements usually lies in the definition of a “utility” in state statutes, regulations or case law; in state regulatory commission decisions or orders; and/or in rules and guidelines for state incentive programs.<sup>273</sup>
- Localize the economic benefits of large-scale solar by working with project developers to identify opportunities to incorporate workforce development into their projects.
- **State examples:**
  - **Ohio:** Legalized solar PPAs in Ohio PUC Order 14-1693-EL-RDR (2014) as part of its approval of AEP Ohio’s electric security plan for June 2015 through May 2018.<sup>274</sup>
  - **Georgia:** Legalized solar PPAs in House Bill 57 (2015).<sup>275</sup> Solar advocates and Georgia Power struck a compromise, limiting third-party financing to residential solar installations under 10 kW and commercial-industrial systems to 125% of the system host’s electricity use.<sup>276</sup>
  - **Oklahoma:** In June 2018 the Oklahoma Attorney General issued an opinion affirming the legality of third-party solar ownership and declaring that a third-party owner of solar panels would not be considered a “utility” by the Oklahoma Corporation Commission.<sup>277</sup>
  - **North Carolina and Virginia:** NC House Bill 245<sup>278</sup> and VA House Bill 1252279<sup>279</sup> may also serve as reference for drafting PPA legalization legislation.

271 [www.seia.org/sites/default/files/2018-09/Factsheet\\_State\\_West\\_Virginia\\_2018Q2.pdf](http://www.seia.org/sites/default/files/2018-09/Factsheet_State_West_Virginia_2018Q2.pdf)

272 [www.swvasolar.org/resources/Solar\\_Workgroup\\_Solar\\_Roadmap\\_SWVA\\_2017.pdf](http://www.swvasolar.org/resources/Solar_Workgroup_Solar_Roadmap_SWVA_2017.pdf)

273 [https://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2018/03/DSIRE\\_3rd-Party-PPA\\_March\\_2018.pdf](https://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2018/03/DSIRE_3rd-Party-PPA_March_2018.pdf)

274 [dis.puc.state.oh.us/CaseRecord.aspx?CaseNo=14-1693](http://dis.puc.state.oh.us/CaseRecord.aspx?CaseNo=14-1693)

275 [www.legis.ga.gov/legislation/en-US/Display/20152016/HB/57](http://www.legis.ga.gov/legislation/en-US/Display/20152016/HB/57)

276 [www.utilitydive.com/news/georgia-gov-deal-signs-solar-third-party-ownership-bill-into-law/397173/](http://www.utilitydive.com/news/georgia-gov-deal-signs-solar-third-party-ownership-bill-into-law/397173/)

277 [www.oag.ok.gov/Websites/oag/images/Documents/Opinions/AG/2018/AG%20Opinion%202018-5%20\(T-25\).pdf](http://www.oag.ok.gov/Websites/oag/images/Documents/Opinions/AG/2018/AG%20Opinion%202018-5%20(T-25).pdf)

278 [www.ncwarn.org/energy-freedom/](http://www.ncwarn.org/energy-freedom/)

279 <https://lis.virginia.gov/cgi-bin/legp604.exe?181+sum+HB1252>

## Potential allies

- Advocates involved in the West Virginians for Energy Freedom campaign to develop legislative language. This includes NCIF, Solar United Neighbors of WV, EE WV, and TNC.
- Natural gas, biogas, and wood pellet industries, who could benefit from legalizing PPAs. Discuss opportunities for aligning priorities and crafting legislation.
- Local businesses and farmers that have accessed USDA REAP funding and can speak to its benefits.
- Mine land owners could be interested in developing utility-scale solar on their property. This is the case in nearby Pikeville, KY, where Berkeley Energy Group (Berkeley) is working with EDF Renewables to develop an 80 MW solar farm on unused mine land. Berkeley leadership has received a lot of calls from coal companies and landholding companies that are interested in exploring solar as a means of utilizing land and increasing employment.
- Local government officials that would benefit from being able to do solar PPAs on municipal buildings.
- West Virginia Dept of Education: school facility managers are interested in PPAs to save money.
- CollectiveSun, a company that helps nonprofits and tax exempt organizations fund solar projects nationwide.

**PRIORITY:** Develop and advocate for the introduction of legislation to create viable C-PACE programs in West Virginia, known as the Local Energy and Efficiency Partnership (LEEP).

- Energy Efficient West Virginia (EEWV) has led ongoing efforts to pass legislation that authorizes municipalities and counties to create a funding mechanism (LEEP) for energy efficiency in commercial buildings. EEWV plans to re-introduce legislation 2019 that sets forth the process by which local governments can establish a LEEP, the provisions to be contained in the LEEP, and the types of funds a LEEP may procure, among other guidelines. Their legislation also requires participants to take advantage of applicable utility programs.<sup>280</sup>
- Consider future legislation that would enable LEEP-financed commercial renewable energy projects. Show Mon Power that their parent company (FirstEnergy) and Appalachian Power and their parent company (AEP) have several active C-PACE projects in their Ohio service territories.<sup>281</sup>

## Key beneficiaries

- Commercial customers interested in reducing utility bills but unable to afford the up-front costs of energy efficiency improvements will have access to a financing solution.
- Vendors of energy efficiency technologies, including those selling equipment, lighting and other companies will benefit from increased demand for their services.<sup>282</sup>

<sup>280</sup> [docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbmVlbnVlZ3llZmZpY2llbnR3dnxneDo1ZTMwNDUwZGY5OTU0YmU0](https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbmVlbnVlZ3llZmZpY2llbnR3dnxneDo1ZTMwNDUwZGY5OTU0YmU0)

<sup>281</sup> [www.pacenation.us/pace-in-ohio/](http://www.pacenation.us/pace-in-ohio/)

<sup>282</sup> [www.pathwaylending.org/news-and-blog/ee-financing-esa/](http://www.pathwaylending.org/news-and-blog/ee-financing-esa/)



## Potential economic impact

- In the South, \$52.7 million in funding was used to complete 95 projects from 2013-2017. C-PACE funding has been most often used by mixed use buildings, and 93% of funding has gone to energy efficiency projects.<sup>283</sup>
- The U.S. Bureau of Economic Analysis uses its Regional Input-Output Modeling System (RIMS II) to estimate the state-specific job creation and other economic activity multipliers resulting from investments in commercial properties. The combined weighted average of state multipliers is 9.6 jobs created per million dollars of C-PACE investment. For total economic activity, the combined weighted average is \$1.37 of economic activity generated as a result of \$1 of C-PACE investment.<sup>284</sup>
- As reported in the CAN Economic Impact Report Inventory, “Extensive data suggests that buildings which meet or exceed energy codes often create their own market advantage, and tend to be more sought after by knowledgeable buyers and tenants. This is because they are generally more comfortable for their occupants, which correlates to higher productivity, and they are more cost effective to operate over time. Together, these factors can represent an important competitive advantage.”

## Best practices and lessons learned from similar policies

- Lessons from other states: Capital providers are sometimes less likely to lend to properties if they are not very valuable, so it is easier to finance larger commercial projects. However, local banks (particularly Community Banks) can address this market gap with smaller loans in the \$30,000 to \$250,000 range. Alternatively, smaller banks can originate loans and have larger banks hold these on their balance sheet.
- **State examples:**
  - **Kentucky:** As of 2017, Kentucky was one of the top C-PACE states, with \$5.2 million invested to date and 2 buildings improved with PACE.<sup>285</sup>
  - **Ohio:** As of 2017, Ohio was one of the top C-PACE states, with \$33.3 million invested to date and 114 buildings improved with PACE.<sup>286</sup>
  - **Arlington County, VA:** Launched in November 2018, the Arlington PACE program is self-financed through fees charged to participants. The program can be used to finance both existing building retrofits and new construction projects.<sup>287</sup>

## Potential allies

- Energy Efficient West Virginia: Leading the legislative push to enable LEEP.
- Sierra Club, West Virginia Chapter - WV Chapter’s Energy Efficiency Campaign Team
- APCo: Advocates have indicated that APCo already collects lost revenues from energy efficiency programming, so they could be more amenable to this conversation.
- Home Builders Association of WV
- American Society of Heating, Refrigerating and Air-Conditioning Engineers, West Virginia Chapter

<sup>283</sup> [www.pacenation.us/wp-content/uploads/2018/08/2017-C-PACE-Annual-Impact-Report-Optimized-1.pdf](http://www.pacenation.us/wp-content/uploads/2018/08/2017-C-PACE-Annual-Impact-Report-Optimized-1.pdf)

<sup>284</sup> *Ibid.*

<sup>285</sup> *Ibid.*

<sup>286</sup> *Ibid.*

<sup>287</sup> [www.arlington-pace.us/about/](http://www.arlington-pace.us/about/)

**PRIORITY:** Advocates should organize, collect research, and conduct educational outreach in order to propose utility-focused legislation in two to three years. Such legislation should enable full revenue decoupling for West Virginia utilities and offer them performance incentives for reaching or exceeding specified energy savings goals.

- Both FirstEnergy and AEP/Appalachian Power offer EE programs in neighboring states that are different from offerings in West Virginia.<sup>288</sup> This demonstrates the role of supportive state policy in encouraging or requiring robust utility sector energy efficiency investments.
- Virginia law requires Appalachian Power (APCo) to ramp up energy efficiency programming in the Commonwealth through 2028.<sup>289</sup> Advocates in West Virginia should work to simultaneously transition these programs in their state.
- Engage the West Virginia Public Service Commission to educate them about the value of decoupling and performance incentives in driving long-term energy savings from utilities.

### Key beneficiaries

- Residential customers in West Virginia who face high utility bills will be able to reduce their energy burdens through clean energy projects incentivized by their utility.
- Commercial customers interested in reducing utility bills but unable to afford the up-front costs of energy efficiency improvements will be more easily able to invest in those projects. As reported in the CAN Economic Impact Report Inventory, “Extensive data suggests that buildings which meet or exceed energy codes often create their own market advantage, and tend to be more sought after by knowledgeable buyers and tenants. This is because they are generally more comfortable for their occupants, which correlates to higher productivity, and they are more cost effective to operate over time. Together, these factors can represent an important competitive advantage.”
- Energy efficiency companies will benefit from increased demand for their services.

### Potential economic impact

- In 2012 Optimal Energy estimated that if APCo and FirstEnergy cumulatively realized their total savings potential of 1,375,000 MWH between 2013 and 2016, they would save customers \$800 million over the life of the efficiency investments, \$550 million more than with the companies’ actual efficiency plans at the time.<sup>290</sup>
- With forward-thinking policies, West Virginia’s energy efficiency industry could support 6,100 direct, indirect, and induced manufacturing and supply chain jobs, on average, annually from 2017 through 2030.<sup>291</sup>

<sup>288</sup> [www.energywv.org/assets/files/EnergyPlan/Energy-Efficiency-Opportunities-for-West-Virginia-2017-Update.pdf](http://www.energywv.org/assets/files/EnergyPlan/Energy-Efficiency-Opportunities-for-West-Virginia-2017-Update.pdf)

<sup>289</sup> SB 966 requires APCo to spend \$140 million on energy efficiency programs between 2018 and 2028.

<sup>290</sup> [www.scribd.com/document/117716627/Save-Money-Create-Jobs-How-Energy-Efficiency-Can-Work-for-West-Virginia](http://www.scribd.com/document/117716627/Save-Money-Create-Jobs-How-Energy-Efficiency-Can-Work-for-West-Virginia)

<sup>291</sup> [www.americanjobsproject.us/wp-content/uploads/2017/05/WV-Full-Report-5.31.17.pdf](http://www.americanjobsproject.us/wp-content/uploads/2017/05/WV-Full-Report-5.31.17.pdf)

## Best practices and lessons learned from similar policies

- Fifteen states offer full revenue decoupling for utilities, which dissociates revenues from their sales, thereby removing their disincentive to promote efficiency programs. Sixteen states have lost-revenue adjustment mechanisms (LRAM), which allow utilities to recover lost revenues from savings resulting from efficiency programs.<sup>292</sup> An LRAM does not fully eliminate utilities throughput incentive, so the decoupling is preferable and an LRAM should be treated as a short-term solution.<sup>293</sup>
- Twenty-nine states offer a performance incentive for at least one major electric utility, and seventeen states have incentives for natural gas energy efficiency programs. Some states with third-party program administrators have performance incentives for the administrator rather than for the utilities.<sup>294</sup> It is advantageous to base performance incentives on the achievement of energy savings targets, rather than on efficiency program spending goals.
- **State examples:**<sup>295</sup>
  - **Michigan:** In 2016, the Michigan Legislature passed a bill (PA 342) that created enhanced performance incentives for utilities to hit 1.25% and 1.5% annual savings targets; eliminated the existing utility efficiency spending cap; and required and laid out guidelines for utilities to do integrated resource plans. When Michigan enacted this legislation, Republicans controlled both chambers of the legislature and governorship (as they do now).<sup>296</sup>
  - **Pennsylvania:** In September 2018 a bipartisan group of state legislators introduced a bill (SB 1236) to offer utilities performance incentives for meeting energy savings and peak demand reduction goals established by the Pennsylvania Public Utility Commission. It also decouples utility revenues from electricity sales and removes a cap on efficiency spending.<sup>297</sup>
  - **Ohio:** The Public Utilities Commission of Ohio (PUCO) has both decoupling and lost revenue adjustment mechanisms in place for electric utilities. All of Ohio's electric utilities except Duke recover program costs and lost revenues resulting from their portfolio of energy efficiency programs through the demand side management rider. In 2011, both Duke Ohio and AEP Ohio agreed provisionally to forgo collection of lost revenues and develop a decoupling mechanism for total rate recovery for residential and small commercial customers. The PUCO must approve and finalize the agreements.<sup>298</sup> Rather than true decoupling, the gas utilities have all been allowed to implement straight-fixed-variable rate designs.<sup>299</sup> Incentives for electric and gas utilities may be approved on a case-by-case basis. First Energy and AEP have had performance incentives approved. The recovery mechanism is an annually reconciled rider, which includes conditioned adjustments for shared savings with a maximum 10% shareholder incentive if at least 65% of targeted savings are achieved.

## Potential allies

- Energy Efficient West Virginia: A group of residents, businesses, and organizations that promote energy efficiency among residential, commercial, and industrial customers.
- U.S. Green Building Council, West Virginia Chapter

<sup>292</sup> [www.aceee.org/state-policy/scorecard](http://www.aceee.org/state-policy/scorecard)

<sup>293</sup> For an extended description of best practices for aligning utility business models with energy efficiency, see ACEEE's toolkit [www.aceee.org/sector/state-policy/toolkit/aligning-utility](http://www.aceee.org/sector/state-policy/toolkit/aligning-utility).

<sup>294</sup> [www.aceee.org/state-policy/scorecard](http://www.aceee.org/state-policy/scorecard)

<sup>295</sup> See ACEEE State and Local Policy Database compilation of Utility Business Models by state for additional information: <https://database.aceee.org/state/utility-business-model>

<sup>296</sup> [www.aceee.org/blog/2018/08/good-news-midwest-michigan-emerges](http://www.aceee.org/blog/2018/08/good-news-midwest-michigan-emerges);  
[www.legislature.mi.gov/documents/2015-2016/publicact/pdf/2016-PA-0342.pdf](http://www.legislature.mi.gov/documents/2015-2016/publicact/pdf/2016-PA-0342.pdf)

<sup>297</sup> [www.keealliance.org/new-energy-efficiency-bill-introduced-to-pennsylvania-senate/](http://www.keealliance.org/new-energy-efficiency-bill-introduced-to-pennsylvania-senate/);  
[www.legis.state.pa.us/cfdocs/billinfo/billinfo.cfm?year=2017&sind=0&body=S&type=B&bn=1236](http://www.legis.state.pa.us/cfdocs/billinfo/billinfo.cfm?year=2017&sind=0&body=S&type=B&bn=1236)

<sup>298</sup> See AEP: Docket 11-0351-EL-AIR; Duke: Docket 11-3549-EL-SSO.

<sup>299</sup> Rule: ORC §4928.143(B)(2)(h); Duke riders: Docket Nos. 06-0091-EL-UNC, 06-0092-EL-UNC, and 06-0093-GA-UNC.

# Appendix B: Additional Opportunities for Clean Energy Advocates to Grow the Region's Clean Energy Economy

## Organize a Regional Campaign to Put the “Member” Back in Member-Owner

An organized regional campaign focused on empowering local member-owners to fight for change at their co-ops, including by running for Board positions, could be transformative. It would also be resource-intensive due to the many co-ops (13 in NC and TN alone) and the time required to run a campaign for each one. Pursuing such an effort through a regional coalition such as CAN may open up access to the necessary organizational support and funding. Potential leaders of this effort are Appalachian Voices, which is already working to make co-op Boards more transparent and accountable, and the Cooperative Leadership Network (CLN), which has developed a toolkit for residents who want to elect progressive Board members.<sup>300</sup> Once progressive Board members are elected, they can best practices for promoting economic development through the CLN. Another effort a member-owner campaign can draw inspiration from is the Electric Cooperative Leadership Institute (ECLI) hosted by the organization One Voice. ECLI educates cooperative member-owners in Mississippi regarding co-op governance and thus helps them engage in that governance to benefit their communities.<sup>301</sup>

## Establish Tariff-based On-bill Financing Programs at Co-ops

There is growing interest in tariff-based on-bill financing across the U.S. because it does not require municipal action and it is more accessible to low-income customers than loan-based financing. Clean energy advocates can learn from and build off of longstanding and ongoing on-bill financing efforts, namely MACED's How\$martKY and Appalachian Voices' Energy Savings for Appalachia programs. MACED worked with several co-ops to set up efficiency upgrade and on-bill financing programs that enables residential energy efficiency; however, reduced financial incentives for supporting energy efficiency and reduced overall electric demand has caused the co-ops to stay minimally engaged in How\$martKY. Through its Energy Savings for Appalachia program, Appalachian Voices is working to develop on-bill financing programs at co-ops in Tennessee and western North Carolina.

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<sup>300</sup> [www.cln.coop/](http://www.cln.coop/)

<sup>301</sup> [www.onevoicems.org/electric-cooperative-leadership-institute/](http://www.onevoicems.org/electric-cooperative-leadership-institute/)

## Promote Utility Portfolio Diversification with Broadband Provision

Broadband expansion can be a key avenue for growing clean energy markets in rural areas by enabling coops to tap into grid connected appliances for demand response programs. In this way, broadband is a way to facilitate the inclusion of more people in the new energy economy. Additionally, expanded broadband can be key to enabling workforce development because it allows for online trainings. Co-ops in Central Appalachia have expressed interest in providing broadband, and TVA is already getting involved: in 2017, TVA announced its plan to invest \$300 million in installing 3,500 miles of fiber optic across their seven-state region.<sup>302</sup> Because of the overall economic benefits and the connection to growing clean energy markets, clean energy advocates across the region may want to establish a role for themselves in the movement toward more co-ops providing broadband.

## Explore Securitization of Power Plants as an Opportunity to Secure Community Transition Funds

Securitization is a complex legal and regulatory process that creates a unique type of utility bond that allows utilities to finance large capital expenditures at a substantially lower cost than without securitization and to pass those savings along to consumers. A utility does so by creating new financial property rights that are packaged and sold to investors through bond offerings that are repaid through a dedicated charge on the customers' bill.<sup>303</sup> For the past 20 years, securitization has been used by the electric utility industry in numerous ways, including: paying for the capital cost of pollution control retrofits, bundling and financing stranded costs, early retirement of generating facilities, and paying for hurricane storm damage. A state legislator in Colorado announced plans to introduce a bill giving utilities the ability to issue ratepayer-backed bonds and use the proceeds to accelerate retirement of uneconomic power plants. The proposal will reportedly also include assistance for communities and workers impacted by the plant closures.<sup>304</sup> New Mexico has a draft Energy Transition Act under discussion that would allow for securitization to facilitate that state's energy transition.<sup>305</sup> The language of plant securitization legislation is important because it establishes what entity manages the bonds issued that are backed by ratepayers. In Colorado, for example, the Colorado Energy Impact Authority would manage the bonds. Ohio and West Virginia are the two Appalachian states that have legislation in place to allow for securitization.<sup>306</sup> Research would have to be done to assess the opportunity for securitization of power plants in Central Appalachia.

<sup>302</sup> [www.appvoices.org/2017/06/15/new-tennessee-broadband-law/](http://www.appvoices.org/2017/06/15/new-tennessee-broadband-law/)

<sup>303</sup> [www.sierraclub.org/sites/www.sierraclub.org/files/sierra-club-harnessing-financial-tools-electric-sector.pdf](http://www.sierraclub.org/sites/www.sierraclub.org/files/sierra-club-harnessing-financial-tools-electric-sector.pdf)

<sup>304</sup> [www.energynews.us/2018/10/02/west/how-refinancing-could-help-retire-colorado-coal-plants-sooner/](http://www.energynews.us/2018/10/02/west/how-refinancing-could-help-retire-colorado-coal-plants-sooner/)

<sup>305</sup> [www.nmlegis.gov/Committee/Handouts\\_List?CommitteeCode=WNR&Date=7/26/2018](http://www.nmlegis.gov/Committee/Handouts_List?CommitteeCode=WNR&Date=7/26/2018)

<sup>306</sup> [www.saberpartners.com/roc-map/](http://www.saberpartners.com/roc-map/)