

Charleston's High-Visibility Bet on Clean Energy in Coal Country

Building a Clean Energy Investment Pipeline in Charleston, West Virginia

AT A GLANCE

Investment Priorities

Municipal Building Solar PV and High-Performance Efficiency Retrofits (Charleston Coliseum and Convention Center, City Hall, Community Centers), Civic Anchor Institution Upgrades (West Virginia State University Economic Development Center, Faith-Based Organizations)

Pipeline Value

Portfolio estimated to avoid up to 4,500 MT CO₂ annually upon full implementation; Charleston Coliseum and Convention Center energy costs exceeded \$710,000 in 2024; City Hall annual energy costs exceed \$100,000; community center portfolio carries substantial additional cost-reduction potential — aggregate project dollar totals are in predevelopment and not yet consolidated in source documents

Key Partners

Appalachian Voices / Appalachian Solar Finance Fund (lead); City of Charleston; Green Building Alliance (technical assessment); Sustainable Strategies DC; Invest Appalachia; Partner Community Capital; Element Federal Credit Union; Coalfield Development Corporation (workforce); Solar Holler; Secure Solar Futures; Energy Systems Group; CMTA, Inc.

Community Impacts

All targeted buildings serve priority communities; 4 community centers located across multiple disadvantaged census tracts providing youth programming, senior services, and neighborhood gathering spaces 68 hours per week; energy cost savings reinvested directly into public services; LIDAC communities in West Virginia face above-average air pollution risks contributing to elevated rates of premature death and childhood asthma

Strategic Role

Market Enabler / Project Originator

The Path Forward

Preliminary building assessments complete; City RFP for solar developers and lenders needed to advance to procurement; predevelopment funding required to complete full energy audits, design work, and capital stack formation; Phase II MIF resources would fund predevelopment activities across six priority areas

THE BIG PICTURE

Charleston is the capital of West Virginia — a state where energy consumption is projected to increase 28% by 2030, the clean energy finance market is early-stage by every measure, and municipal budgets are strained by aging public infrastructure that has deferred maintenance for decades. City Hall was built in 1921. The Charleston Coliseum and Convention Center, the city's largest economic driver and its most energy-intensive public building, consumed 33 million kBtu in 2024 alone — nearly 40% from natural gas — at a cost exceeding \$710,000. Four community centers built between 1922 and 1978 serve priority communities up to 68 hours a week on aging equipment with natural gas accounting for over 60% of energy use at two of the four sites. These are not hypothetical energy burdens. They are real budget line items that crowd out spending on emergency services, public health, and community programming year after year.

The Challenge: West Virginia's clean energy investment market is immature in ways that compound each other. Local lenders are unfamiliar with managing risk in solar and efficiency project finance. Regional solar developers have limited market presence in the state. There is no established pipeline of completed municipal projects to point to as proof that these deals work. The result is a market where the need is acute, the policy environment is navigable — Charleston sits in a federally designated energy community unlocking ITC bonus credits — but the transaction infrastructure simply does not yet exist to connect capital with projects efficiently.

The Solution: Appalachian Voices brings its Appalachian Solar Finance Fund (SFF) directly to bear on Charleston's problem. The SFF was built precisely for this situation: helping nonprofits and public institutions in complex Appalachian energy markets navigate solar development finance, connect with credit enhancements, and structure transactions that work within limited municipal balance sheet capacity. Rather than waiting for the West Virginia market to mature on its own, SAVES is using high-visibility public buildings — the Coliseum, City Hall, community centers — as deliberate proof-of-concept projects designed to demonstrate technical and financial viability to local lenders and catalyze a self-sustaining regional market. Every closed transaction lowers the perceived risk of the next one.



BUILDING A MARKET FROM A STANDING START

MIF funded the foundational market-building work Charleston's clean energy sector needed and could not self-fund.

- November 5, 2025 community convening (51 representatives, 29 organizations): The coalition formally launched SAVES with an in-person convening drawing financial institutions, energy industry firms, community-serving nonprofits, technical assistance providers, and City leadership. Structured cross-sector dialogue surfaced common barriers — limited capital access, regulatory uncertainty, workforce constraints, unclear project pipelines — while generating direct stakeholder input on financing tools, deal structures, and community priorities.
 - **Impact:** 29 organizations now have a shared understanding of the SAVES initiative, their potential roles in it, and the specific barriers that collective action can address. This is the foundation for the lender and developer relationships needed to close the first transaction.
- Preliminary building energy assessments (Green Building Alliance): Green Building Alliance (GBA) conducted targeted preliminary energy assessments across the SAVES priority portfolio, establishing baseline energy performance data and identifying specific upgrade opportunities by building. City Hall's aging HVAC systems, single-pane original windows, and absent building-wide automation were documented. The Coliseum's HVAC deficiencies in the Theater, loading bay heat gaps, and building-wide controls shortfalls were mapped. Community center natural gas dependency and deferred equipment replacement needs were quantified.
 - **Impact:** Building owners now have clear, data-driven evidence of the financial and operational benefits of retrofits — the single most important input for lender underwriting and for City leadership deciding whether to issue an RFP.
- Financing structure design and lender engagement: Appalachian Voices' SFF led active engagement with Element Federal Credit Union, Invest Appalachia, and Partner Community Capital to map financing pathways by project type, evaluate the capital stack tools available in West Virginia's market, and identify gaps where standard products don't fit. The coalition evaluated PPAs, energy performance contracts, solar leases, loans, and credit enhancements against the City's preference for risk transfer to private partners.
 - **Impact:** Lenders who entered Phase 1 unfamiliar with solar and efficiency project finance now have a direct relationship with Appalachian Voices' SFF team — and a specific project pipeline to evaluate.



- ITC and bonus credit mapping for energy community designation: Charleston's location in a federally designated energy community unlocks ITC bonus credits that can increase the total credit value from the baseline 30% to between 30% and 70% of eligible project costs depending on bonus stacking. Tax-exempt entities, including the City and nonprofit partners, can access these credits through direct pay (elective pay) provisions without a tax equity investor.
 - **Impact:** Appalachian Voices mapped the specific bonus credit pathways available to each site type in the SAVES portfolio, directly improving project economics and reducing the capital gap that would otherwise require additional grant or philanthropic funding to close.
- Retrofit guidance materials and market education: The coalition developed retrofit guidance materials for building owners across the region, translating the SAVES planning process into practical tools that other West Virginia municipalities and anchor institutions can use to initiate their own building upgrade programs.
 - **Impact:** Charleston's investment in market-building generates spillover value across the Appalachian region — every municipality that uses these materials reduces its own transaction costs and accelerates its path to project development.
- Workforce development integration with Coalfield Development Corporation: SAVES engaged Coalfield Development Corporation — a nationally recognized model for transitioning Appalachian workers into new industries — and local union partners to identify how on-the-job training models can be embedded directly in SAVES project implementation. The approach prioritizes hands-on solar installation and building retrofit training tied to specific project timelines.
 - **Impact:** Workforce integration ensures that capital invested in Charleston's public buildings creates accessible local employment pathways — not just energy savings — for priority community residents navigating the Appalachian energy transition.



A HIGH-VISIBILITY PORTFOLIO DESIGNED TO CATALYZE THE MARKET

Every project in the SAVES portfolio was selected for its combination of financial return, community benefit, and market signaling value.

- **Charleston Coliseum and Convention Center (529,000 square feet):** The Coliseum complex is Charleston's single largest economic driver and energy user. Its 2024 energy costs exceeded \$710,000 with nearly 40% of consumption from natural gas. The complex — which includes a 13,500-seat Coliseum, a 100,000-square-foot Convention Center, a 3,483-seat Municipal Auditorium, and a 738-seat Theater — is well-suited for rooftop solar given its extensive footprint. A rooftop installation here would be visible from the confluence of three major interstates, making it the highest-profile clean energy demonstration project in the state. Beyond cost savings, it positions the complex as a visible model of integrating clean energy with economic vitality at a landmark civic facility.
- **Charleston City Hall (built 1921):** City Hall's annual energy costs exceed \$100,000, with aging HVAC systems, original single-pane windows, and no building-wide automation. Part of the building is currently unoccupied and pending renovation, meaning current costs represent only a portion of the building's full energy load. HVAC upgrades, LED lighting, window replacements, and rooftop solar have the potential to stabilize costs at this anchor historical building for decades, directly freeing municipal budget capacity for emergency, public health, and economic development services.
- **Municipal community centers (4 facilities, built 1922–1978):** The Kanawha City, Martin Luther King Jr., North Charleston, and Roosevelt Neighborhood Community Centers serve multiple disadvantaged census tracts up to 68 hours per week, providing youth programming, senior services, educational activities, and community gathering space. Natural gas accounts for over 60% of energy use at Roosevelt and North Charleston, contributing to substantial ongoing costs on aging equipment. Targeted efficiency upgrades and rooftop solar at these sites directly reduce operating expenses that strain the programs these facilities deliver.
- **West Virginia State University Economic Development Center:** West Virginia State University (WVSU) is a historically Black college and university (HBCU) and a major anchor institution in the Kanawha Valley. Its Economic Development Center is a strong candidate for rooftop solar and efficiency upgrades that align with the university's educational mission and create a visible model for other institutional building owners in the region. Non-governmental institutions like WVSU can access elective pay ITC provisions directly, improving project economics relative to a private developer PPA.
- **Faith-based anchor institutions (A More Excellent Way Life Center Church; First Baptist Church Charleston):** These community-serving faith institutions in priority neighborhoods serve as trusted, LIDAC-embedded anchors for the SAVES initiative. Including them in the portfolio directly embeds the program in the communities it serves, builds trust with residents who are skeptical of outside-led initiatives, and creates early visible wins in neighborhoods where the energy burden is most acute.

PROJECT SEEKING CAPITAL — CHARLESTON COLISEUM AND CONVENTION CENTER

Charleston Coliseum and Convention Center — A 529,000 SF municipal complex that is West Virginia's largest entertainment and convention venue, located at the confluence of Interstates 64, 77, and 79 in downtown Charleston. The complex consumed 33 million kBtu in 2024 with energy costs exceeding \$710,000, making it the single highest-cost target in the SAVES portfolio and the highest-visibility site for a first transaction.

- **Capital Stack:** Preferred structure is a third-party ownership PPA or solar lease — private developer finances, owns, and operates the rooftop solar system; City purchases electricity at a contracted rate below current utility cost. The federal Section 48E Clean Electricity Investment Tax Credit (baseline 30%) plus energy community bonus credit (available due to Charleston's designated energy community status) can reduce developer project costs by 30% to 70%, supporting competitive PPA pricing. Elective pay provisions allow the developer to monetize credits without a tax equity partner. Supplemental philanthropic funding from partners such as the Claude Worthington Benedum Foundation or the Surdna Foundation may be available for remaining capital gaps. Efficiency retrofit components (HVAC, lighting, controls) may be structured under a separate energy performance contract with a guaranteed savings structure.
- **Revenue Streams:** City receives below-market electricity under PPA for the duration of the contract; developer captures ITC and potential Renewable Energy Credits (RECs); efficiency retrofit savings reduce operating costs directly, freeing municipal budget capacity for public services.
- **Investment Readiness:** Early Predevelopment — preliminary building assessment complete; energy cost baseline documented (\$710,000 annual, 2024); building suitability for rooftop solar confirmed; ITC and bonus credit pathway mapped. City RFP for solar developers and lenders is the immediate next step.
- **Timeline:** Phase II MIF predevelopment funding would support full energy audit, structural assessment, design work, and competitive RFP process; target first transaction close within 18 to 24 months of Phase II award.



PROVEN IMPACT & NEXT STEPS

Scale and Replication — The West Virginia Model

Charleston is the capital of West Virginia. When its largest civic building carries a rooftop solar installation visible from three interstates, and when City Hall's energy costs drop by a measurable percentage and that savings flows into public services, those are facts that every West Virginia municipal leader notices. The SAVES initiative was designed explicitly as a replicable pilot — not just for Charleston's benefit, but to create the proof of concept that the West Virginia clean energy finance market currently lacks entirely.

Appalachian Voices' Solar Finance Fund is the connective tissue. The SFF has navigated the specific complexity of nonprofit and public institution solar development in Appalachian energy markets across multiple states. The playbook it is building in Charleston — high-visibility municipal anchor projects, lender education alongside deal development, workforce integration through Coalfield Development Corporation, ITC bonus credit stacking through energy community designation — is directly applicable to every other West Virginia municipality dealing with aging public infrastructure and strained municipal budgets.

The activation gap is narrow. The building assessments are done. The lender relationships are established. The financing structures are mapped. The ITC pathway is clear. The workforce partner is engaged. Phase II predevelopment funding is what converts this well-built foundation into a competitive RFP, a signed PPA, and a closed transaction. The first closed deal in Charleston is the proof point that makes the second deal in Charleston easier, the first deal in Huntington or Morgantown possible, and the West Virginia clean energy finance market real in a way that no amount of planning documents can substitute for.

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