



Clean and lean: Building wealth...efficiently!

Appalachian Kentucky, where coal has long been king, is a region looking for new economic engines. An unconventional mix of energy efficiency upgrades, creative financing and unprecedented partnerships is now bringing low-income residents, utility companies, shopkeepers, community service agencies and local firms to the same table to save energy and money while creating jobs and generating wealth for the region.

► The catalysts

Appalachian transition. Eastern Kentucky is a region riddled by poverty and marked with the effects—good and bad—of the coal industry. For generations, coal mining supported area families and communities. But times changed. Cheaper natural gas and coal became available elsewhere, and the cost of mining the remaining coal grew. Less mining meant fewer jobs: 7,000 Kentucky coal jobs have been lost since 2011, a 55 percent decrease. New economic opportunities to help low and moderate-income families were essential.

Energy conundrum. Historically, energy prices in coal-rich Kentucky were the 5th lowest of any state. That low cost, combined with highly inefficient housing and buildings, helped make Kentucky the 19th highest state in electricity usage. Repairs and upgrades to conserve energy seemed unneeded because of energy's low cost.

This easy-come, easy-go approach worked until the past decade. Electricity rates increased by 10.3 percent from 2013 to 2014, possibly the highest annual increase ever. Making buildings more efficient now mattered. Energy was seeping out through window cracks and rooftops, taking cash along with it.

Trusted community development innovator. Navigating the energy sector fault lines in Kentucky is complicated. It requires a trusted leader with a strong community economic development mission. The Mountain Association for Community Economic Development (MACED), a 40-year-old, multi-strategy organization working in Appalachian Kentucky, fit

the bill. MACED brought dedication to sorting through options, building unlikely relationships, and fashioning a way forward. MACED's leaders started bringing together homeowners, rural electric cooperatives (RECCs), businesses, shopkeepers, researchers and policymakers. They found ample interest in trying something new that could weave into a "value chain" of mutual-win results.

► The value opportunity

Coal-fired power plants currently generate 92 percent of Kentucky's electricity—and a host of adverse environmental impacts. Many eastern Kentucky



Coal generates much of the state's power—and environmental issues.

homeowners, besides wanting lower energy bills, were increasingly interested in cleaner energy.

Utility companies faced several pressures. As energy bills rose, so did customer frustration—and delinquency in paying bills. And the cost of providing power during periods of peak usage necessitated finding ways to reduce peak demand. Faced with aging infrastructure, consumer pressure and potential regulatory changes, eastern Kentucky RECCs, and some investor-owned utilities, were open to considering renewable energy and energy efficiency. But they needed

help identifying locally appropriate options and best practices.

Elected officials and state regulators also felt the heat from consumers and environmental groups to move toward cleaner energy. Others stood to gain as well. Community agencies providing energy assistance to low-income families foresaw stretching their limited funds further. Contractors saw new business potential in energy-efficient upgrades for homeowners. And with real area unemployment at 40 percent, workers hoped for more secure jobs, plus maybe some new ones for their friends and neighbors.

MACED's conclusion? Clean energy was a niche worth developing. It could provide better livelihoods for low-income firms and families, and generate a wealth of positive outcomes for the region.

► The demand

Despite knowing that more energy-efficient homes would save them money, many homeowners—particularly low-income families—simply couldn't afford the upfront costs of energy retrofits. With roughly two-thirds of the region's population qualifying as low- and moderate-income, MACED and its growing set of partners set out to solve this conundrum.

Another source of demand was commercial, particularly grocery store owners, who are important employers and resources in small towns. Food stores have high, round-the-clock energy usage to keep their lights on and perishables refrigerated. Most operate so close to the margin that money saved by reducing energy consumption can make enough difference to keep their people working and their doors open.

Adding to the mix were new federal dollars available for investing in renewable and energy efficiency infrastructure and practices. The region's utilities wanted to tap these resources to lower costs and risk, but applying for federal grants was new territory.

► Putting it together

With key players in place, MACED began looking to answer two key questions: What connections could be made to engage utilities in increasing residential and commercial energy efficiency? What state policy changes could support the growth of clean energy?

To unlock residential demand, MACED adapted programs from Kansas and South Carolina. They created HowSmartKY™, which enables residents to apply future savings to pay for immediate retrofit upgrades. MACED or its partners conduct an energy assessment of the home, identify options for improving energy efficiency, and then oversee and test the retrofits. The homeowner is assigned a fixed monthly charge on their bill that pays for the upgrade over time—a practice called “on-bill financing.” With no upfront cost, even low-income residents can afford a retrofit.

To make that happen, the four participating RECCs had to file for permission from Kentucky's Public Service Commission to charge consumers a “tariff”—the on-bill financing charge. With all the partners in place to support it, the tariff pilot was approved.

Just as important—and with more visible benefits to policymakers—was a way to jumpstart commercial demand. For this, MACED created the Energy Efficient Enterprises (E3) program. E3 provides small businesses with technical support—energy audits and billing analyses, consultation on efficiency or renewable energy systems, connections to utility rebates and other incentives, and analysis of the impact of upgrades on cash flow. If needed, MACED provides capital for financing energy retrofits.

But more was still needed. The region lacked the infrastructure for this work, particularly energy efficiency contractors. And policy work was needed to level the energy playing field. So, the Kentucky Sustainable Energy Alliance (KySEA) was born, with 55 members, 40 percent of which are small businesses.

Most of their efforts are directed toward moving the state from requiring “least cost” energy generation toward a mandate that includes a Renewable and Efficiency Portfolio Standard, as many other states have done.

► The bottom line: Grow your own wealth

With six rural electric cooperatives in the (now permanent) HowSmartKY™ program, 468 residential assessments and 238 retrofits have been done, many for low-income homeowners, saving households an estimated average of \$592/year in energy costs. Likewise, with E3's assistance, 126 commercial retrofits are saving local businesses \$1.4 million each year. In the last five years, both E3 and HowSmart™ have created or saved 35 clean energy jobs in Appalachia Kentucky.

KySEA has drafted legislation, educated legislators, secured 10 bill sponsors, and participated in legislative hearings. Small business members who benefited from energy efficient retrofits became effective advocates for renewable and energy efficiency standards. In late 2013, the on-bill financing tariff was made permanent, enabling Kentucky utilities to more easily take advantage of on-bill financing across the state.

A thriving clean energy sector is a pathway toward a more prosperous future in Kentucky. According to a study conducted by Synapse Energy Economics, if a Renewable and Efficiency Portfolio Standard passes, within a decade the state's energy requirement would be offset by 10 percent through energy efficiency and 12.5 percent with the added inclusion of renewable energy. That would translate into 28,000 net new jobs, \$1.1 billion in new local income, and \$1.5 billion growth in gross state product—plus lower utility bills and greater protections against future rate hikes.

For low-income families, more energy-efficient homes mean increased home values, lower utility bills, and money freed up for health care, education and other wealth-building endeavors. It also means new opportunities for low-income entrepreneurs and workers. The infrastructure has been built, the policy environment seeded, and moving this sector to scale is now full of...energy.

inventory

Kentucky's Clean Energy Value Chain is focused on building a range of capital today that creates a better economy tomorrow. Here's a list of future-building results so far.

- **Individual capital.** Increased skills for energy contractors. Scores of homeowners with better energy-saving practices.
- **Intellectual capital.** New policy models for renewable and efficiency portfolio standards. New on-bill financing model for the state.
- **Social capital.** Expanded membership in KY Sustainable Energy Alliance. Utility partnerships with consumers.
- **Natural capital.** Kilowatt hours of energy avoided due to retrofits. Reduced greenhouse gas emissions.
- **Built capital.** Improved housing stock and increased commercial building value through energy retrofits.
- **Political capital.** New business advocates for energy efficiency. Proposed and advanced new legislation, Clean Energy Opportunity Act, for renewable and efficiency portfolio standards. Legislative sponsors landed.
- **Financial capital.** Annual dollars saved through residential and commercial retrofits. Greater equity in retrofitted buildings.
- **Local ownership and control.** Expanded group of local energy efficiency contractors. Greater local control of energy costs via on-bill financing of retrofits for homeowners and small business owners.
- **Better livelihoods.** Energy savings and higher home value for low income households. Entrepreneurial and job opportunities created. Reduced energy costs for small businesses.