



PROGRESS PRODUCTIVITY PROSPERITY

ENERGYPRO³ PRODUCTIVITY PROGRESS PROSPERITY EXECUTIVE SUMMARY

REPORT





About the Southeast Energy Efficiency Alliance (SEEA)

The Southeast Energy Efficiency Alliance (SEEA) is one of six regional energy efficiency organizations in the United States working to transform the energy efficiency marketplace through collaborative public policy, thought leadership, outreach programs and technical advisory services. SEEA promotes energy efficiency as a catalyst for economic growth, workforce development and energy security across 11 southeastern states. These states include Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia.

Visit SEEA online at www.seealliance.org.

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Energy Pro3: Productivity, Progress and Prosperity for the Southeast

This report is titled “Energy Pro3: Productivity, Progress and Prosperity for the Southeast.” It tells the story of the evolving nature of energy efficiency and the promise it holds for our region (“energy productivity”), demonstrates the results the Consortium has achieved to date (“progress”) and highlights how the multiple facets of the Consortium’s work has paved the way for sustained economic “prosperity” in the Southeast. It also offers an honest assessment of the infrastructure, resources and opportunities that support the deployment of energy efficiency programming, and the approaches that the Consortium has found best suited to the region.



“MAKING OUR BUILDINGS MORE ENERGY EFFICIENT IS ONE OF THE FASTEST, EASIEST AND CHEAPEST WAYS TO SAVE MONEY, COMBAT POLLUTION AND CREATE JOBS RIGHT HERE IN THE UNITED STATES OF AMERICA.” - **PRESIDENT BARACK OBAMA**

“WE’RE INNOVATING AND TRYING TO IDENTIFY THE BEST APPROACHES.” - **DANIELLE SASS BYRNETT, BETTER BUILDINGS NEIGHBORHOOD PROGRAM DIRECTOR, U.S. DEPARTMENT OF ENERGY**

“NOLA WISE IS A TREMENDOUS RESOURCE FOR THE PEOPLE OF NEW ORLEANS, HELPING FAMILIES SAVE MONEY AND ENERGY, TRAINING AND EXPANDING THE LOCAL GREEN WORKFORCE, AND IMPROVING OUR ENVIRONMENT. WITH SUPPORT FROM A DEDICATED NETWORK OF PARTNERS, THE PROGRAM HAS SUCCEEDED IN CHANGING THE CONVERSATION IN OUR CITY, DEMONSTRATING THAT SMART ENERGY USE CAN BUILD A STRONGER, MORE RESILIENT NEW ORLEANS.” - **NEW ORLEANS MAYOR MITCH LANDRIEU**

“THE SHINE PROGRAM WILL ASSIST RESIDENTS IN REDUCING ATLANTA’S CARBON FOOTPRINT AND HELP THE CITY REACH THE GOAL OF BECOMING A TOP 10 SUSTAINABLE CITY IN THE UNITED STATES. IT WILL ALSO CREATE A SURGE IN GREEN JOBS, AND MOST IMPORTANTLY, I HOPE THIS WILL SHOW RESIDENTS THE IMPORTANCE OF SUSTAINABLE INITIATIVES AS THEY EXPERIENCE FIRSTHAND THE IMPACT OF IMPROVEMENTS AND COST SAVINGS IN THEIR OWN HOMES.” - **ATLANTA MAYOR KASIM REED**

“THROUGH THE ALABAMA WISE PROGRAM, NEXUS ENERGY CENTER HAS TRANSFORMED THE RESIDENTIAL RETROFIT MARKET IN KEY COMMUNITIES STATEWIDE. MORE IMPORTANTLY, THEY’VE BUILT LOCAL CAPACITY TO SUSTAIN THIS KIND OF WORK LONG INTO THE FUTURE, THANKS TO EXTENSIVE WORKFORCE EDUCATION, CONTRACTOR AND REALTOR TRAINING, AN INNOVATIVE SUITE OF FINANCING OPTIONS AND TARGETED CONSUMER OUTREACH.” - **ELIZABETH GRIMES, ENERGY PROGRAM MANAGER, ALABAMA DEPARTMENT OF ECONOMIC AND COMMUNITY AFFAIRS**

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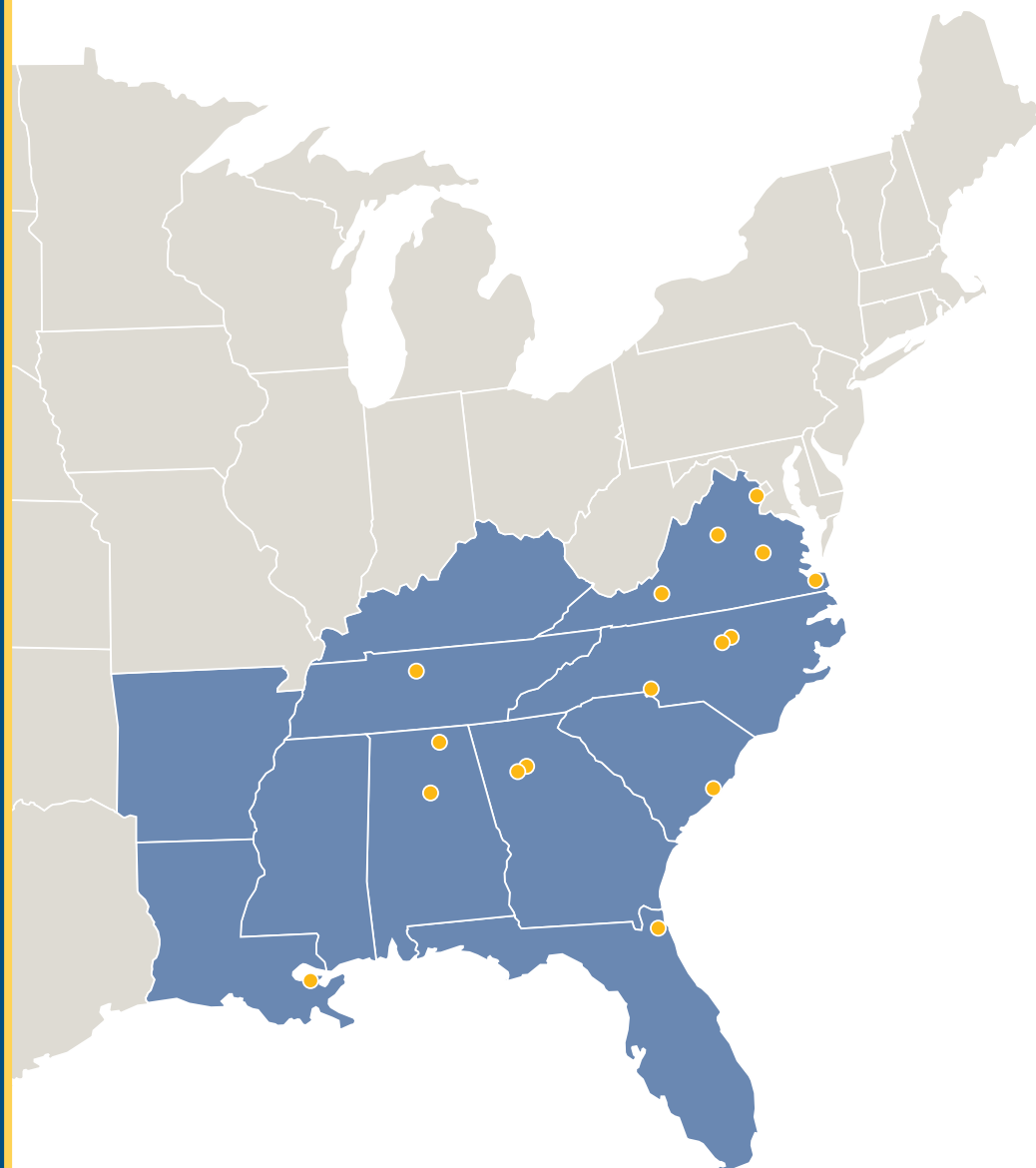
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EXECUTIVE SUMMARY

In 2010, the Southeast Energy Efficiency Alliance (SEEA) received more than \$20 million through the U.S. Department of Energy's Better Buildings Neighborhood Program and the Alabama and Virginia State Energy Programs to establish local energy efficiency retrofit initiatives in 16 partner cities.

Together, these cities formed the SEEA Southeast Community Consortium – the largest-ever coordinated effort to implement community-based energy efficiency retrofit programs across the Southeast. From New Orleans to Nashville, Birmingham to Blacksburg, these local “test labs” identified the key elements necessary for deploying successful, sustainable on-the-ground energy efficiency programs in southeastern markets. Facilitated by these new learnings, the programs rose in the national ranks, collectively becoming one of the most productive among DOE-funded retrofit programs nationwide, and providing innovative, locally tailored energy efficiency programming to help their communities grow and thrive.



The SEEA Southeast Consortium

The SEEA Southeast Consortium leveraged support from the U.S. Department of Energy (DOE) through the Energy Efficiency and Conservation Block Grant Program in addition to the Alabama and Virginia State Energy Programs to partner with non-profit organizations, local governments and utilities in eight states and one U.S. territory. This framework encouraged locally tailored programs, but fostered a spirit of collaboration between communities.

Arlington, Virginia

Program Name: LEAP NOVA

Administrator: Local Energy Alliance Program (LEAP)

Atlanta, Georgia

Program Name: Sustainable Home Initiative in the New Economy (SHINE)

Administrator: City of Atlanta

Birmingham, Alabama

Birmingham WISE (Worthwhile Investments Save Energy)

Administrator: Nexus Energy Center

Blacksburg/Roanoke, Virginia

Program Name: Community Alliance for Energy Efficiency (CAFE²)

Administrator: Community Housing Partners

Carrboro, North Carolina

Program Name: Carrboro WISE

Administrator: Town of Carrboro

Chapel Hill, North Carolina

Program Name: Chapel Hill WISE

Administrator: Town of Chapel Hill

Charleston, South Carolina

Program Name: Charleston WISE

Administrator: The Sustainability Institute

Charlotte, North Carolina

Program Name: Commercial Building Energy Efficiency Retrofit Program (CBRetro)

Administrator: City of Charlotte

Charlottesville, Virginia

Program Name: LEAP

Administrator: Local Energy Alliance Program (LEAP)

Decatur, Georgia

Program Name: Decatur WISE

Administrator: City of Decatur

Hampton Roads, Virginia

Program Name: Hampton Roads Next Step

Administrator: Green Jobs Alliance

Huntsville, Alabama

Program Name: Huntsville WISE

Administrator: Nexus Energy Center

Jacksonville, Florida

Program Name: ShopSmart with JEA

Administrator: JEA

Nashville, Tennessee

Program Name: Nashville Energy Works

Administrator: Metropolitan Government of Nashville and Davidson County

New Orleans, Louisiana

Program Name: NOLA Wise

Administrator: Global Green USA

Richmond, Virginia

Program Name: Richmond Region Energy Alliance (RREA)

Administrator: Richmond Region Energy Alliance (RREA)

U.S. Virgin Islands

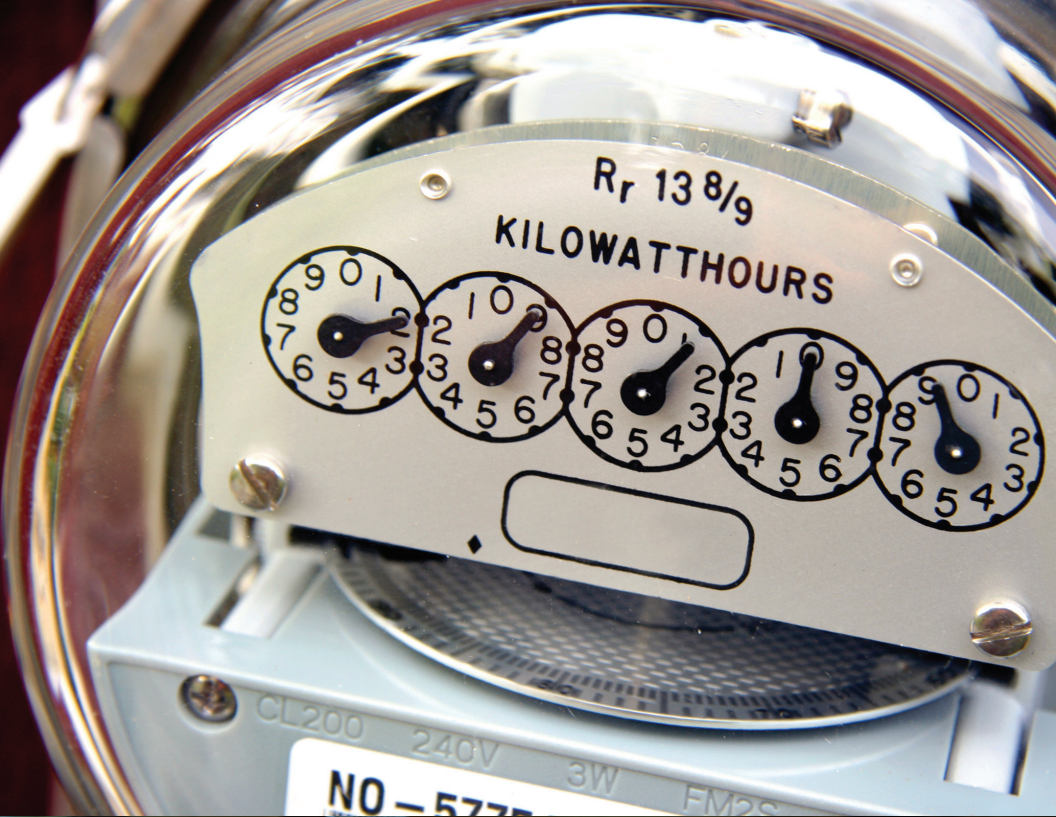
Program Name: USVI WISE

Administrator: Virgin Islands Energy Office

Sub-grantees funded
through the Energy
Efficiency and Conservation
Block Grant Program

Sub-grantees funded
through the State Energy
Program

Sub-grantees funded
through both programs



Regional Landscape: Energy Efficiency's Critical Role in the Southeast

The Southeast is a vibrant region, characterized by remarkable natural beauty, an abundance of unique cultures and an indomitable spirit. However, the region continues to be plagued by persistent problems, including high energy usage, poverty, pollution and water stress. Large-scale deployment of energy efficiency has the potential to address each of these issues, catalyzing a cleaner, more prosperous and more resilient Southeast.

High Energy Usage

Once dubbed the “Saudi Arabia of energy efficiency,” the Southeast is the region of the U.S. that is newest to energy efficiency but arguably has the most to gain from it. It is the nation’s fastest growing region, with Census data showing a nearly 20 percent population increase in the past decade. Since 1990, population growth and energy use per person in this region has outpaced the national average. In addition, the Southeast has among the highest per capita electricity consumption values and a far higher level of energy intensity, the amount of energy consumed to produce one dollar of gross state product. Residential consumption is also significantly higher in the Southeast. In 2009, average monthly residential energy consumption in SEEA’s eleven-state region stood at 1176 kWh, compared to the national average of 908 kWh.¹

High energy usage has negative implications, not only for consumers’ pocketbooks, but also for energy security. Most of the Southeast’s energy is produced by coal-fired power plants, and every year, the region sacrifices significant resources to import outside coal. In 2010, the Union of Concerned Scientists ranked the ten most coal-dependent states, based on their expenditures on net coal imports; five of these states (Georgia, North Carolina, Florida, Alabama and Tennessee) were in the Southeast.² Boosting energy efficiency in the Southeast has the potential to bring about a more productive, more competitive regional economy.

Poverty

As a whole, the Southeast has historically been plagued by high poverty levels. In 2011, an average of 18.5 percent of the residents within SEEA’s eleven-state geographic footprint lived in poverty, compared to a national average of 15.9 percent.³ Even as the region recovers from the recession, unemployment rates in more than half of these states are at least two-fifths of a percentage point above the national average.⁴

In 2009, average residential retail prices stood at 9.95 cents per kWh in SEEA’s eleven-state footprint, compared to the national average of 11.5 cents. Low rates, however, do not equate to low bills, and due factors like the significant cooling and heating loads associated with seasonal temperature variations in the Southeast, the lack of efficiency measures and utility riders, the region’s average utility bills are among the highest in the nation – in the same timeframe, average monthly residential energy bills in the Southeast were \$116.76, compared to the national average of \$104.52.⁵ According to an analysis conducted by the American Council for an Energy-Efficient Economy (ACEEE), four southeastern states – Mississippi, Alabama, Arkansas and South Carolina – fall into the top ten states in the nation for percent of household income spent on energy bills, and nine fall into the top 20.⁶

Pollution

Investments in energy efficiency are an effective means of cutting pollution and reducing greenhouse gas emissions. They are particularly important in a fast-growing region with environmentally sensitive coastal areas and unique ecosystems. Energy production is closely tied to air pollution, which remains a major problem for the Southeast. The Natural Resources Defense Council (NRDC) lists Kentucky, Florida, North Carolina, Tennessee, Virginia, South Carolina, Alabama and Mississippi among its “Toxic 20” states in a 2012 report. These states constitute a disproportionate share of toxic emissions from electricity production. The Southeast is also home to five of 2010’s top power plant polluters, based on emissions of toxic air pollutants like mercury and sulfur dioxide.⁷

In 2009, emissions in SEEA’s 11 states were characterized as follows:

- 677 million tons of carbon dioxide (28.2 percent of the national total). CO₂ contributes to global climate change, which will have adverse impacts on southeastern states, including potential sea level rises in coastal states and salt water intrusion into fresh water drinking supplies in Gulf States.⁸
- 1.7 million tons of sulfur dioxide (27.6 percent of national total). SO₂ causes a wide variety of health and environmental impacts because of the way the gas reacts with other substances in the air. SO₂ is the main contributor to fine particulate matter air pollution, which contributes to respiratory illnesses, and it also contributes to the formation of acid rain. When fine sulfate particles are breathed, they gather in the lungs and are associated with increased respiratory symptoms and disease, difficulty in breathing, and premature death. Across SEEA’s footprint, asthma affects an average of 8.4 percent of adults.⁹
- 553,000 tons of nitrogen oxide (25 percent of national total).¹⁰ Nitrogen oxide causes a wide variety of health and environmental impacts, including the formation of acid rain and ground-level ozone. When inhaled, even at very low levels, ground-level ozone can cause acute respiratory problems, aggravate asthma, inflammation of lung tissue, and lead to hospital admissions and emergency room visits.¹¹

Water Stress

The Southeast is already a water-stressed region, and emerging climate patterns have been marked by increased drought and flooding. These natural conditions, combined with population pressures, necessitate the judicious use of water resources. In a region where more than two-thirds of water withdrawals in the region are accounted for by thermoelectric power plants, energy efficiency has an important role to play, helping to ease strains on the demand side of the equation.¹²

¹ U.S. Energy Information Agency (2010), “Table 5A. Residential Average Monthly Bill by Census Division, and State,” http://www.eia.gov/electricity/sales_revenue_price/html/table5_a.html.

² Union of Concerned Scientists (2010), *Burning Coal, Burning Cash*. http://www.ucsusa.org/assets/documents/clean_energy/Burning-Coal-Burning-Cash_full-report.pdf.

³ Bishaw, Alemayehu (2012), *Poverty: 2010 and 2011*, <http://www.census.gov/prod/2012pubs/acsbr11-01.pdf>.

⁴ U.S. Bureau of Labor Statistics (2013), “Table 3: Civilian Labor Force and Unemployment by State and Selected Area, Seasonally Adjusted,” <http://www.bls.gov/news.release/laus.t03.htm>.

⁵ U.S. Energy Information Agency (2010), “Table 5A. Residential Average Monthly Bill by Census Division, and State,” http://www.eia.gov/electricity/sales_revenue_price/html/table5_a.html.

⁶ Neubauer, Max (2013), “Annual Energy Consumption, Expenditures and Income,” Email message to Jenah Zweig, May 24, 2013.

⁷ Natural Resources Defense Council (2012). *Toxic Power*, <http://www.nrdc.org/air/files/toxic-power-presentation.pdf>.

⁸ Renewable Energy Policy Project, *Powering the South: A Clean Affordable Energy Plan for the Southern United States*, January 2002, Washington DC.

⁹ American Lung Association (2012), *Trends in Asthma Morbidity and Mortality*, <http://www.lung.org/finding-cures/our-research/trend-reports/asthma-trend-report.pdf>.

¹⁰ U.S. Environmental Protection Agency (2012), “eGRID-12 Version 1.0,” http://www.epa.gov/cleanenergy/documents/egridzips/eGRID2012V1_0_year09_DATA.xls.

¹¹ U.S. Environmental Protection Agency (1997). *Health and Environmental Effects of Ground-Level Ozone*, <http://www.epa.gov/ttn/oarpg/naaqsfm/o3health.html>.

¹² Union of Concerned Scientists (2013), *Water-Smart Power*, http://www.ucsusa.org/assets/documents/clean_energy/Water-Smart-Power-Full-Report.pdf.

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Addressing Regional Challenges

Despite its potential as a tool for regional revitalization, energy efficiency has never been widely deployed throughout the Southeast for a variety of reasons. Culturally and politically conservative, the Southeast has prioritized having low electricity rates, and this has stymied conversations about energy conservation. As a result, the region is marked by a relatively weak energy conservation ethic, a dearth of trained energy efficiency professionals, a short supply of energy-efficient products and lower-than-average expenditures on energy-efficiency programs. Within the SEEA territory, states spent a median of 0.23 percent of utility revenues on electric efficiency programs in 2011, compared to a national median of 0.96 percent, and six of the eleven states spent no money on natural gas energy efficiency programs. This low level of investment is the primary reason that realized energy savings continue to lag. In 2010, median savings for states in SEEA's geographic footprint as a percentage of utility retail revenues was only 0.11 percent, compared to the national median of 0.38 percent. The same trend in utility programs largely holds true in other areas.¹³ SEEA's analysis of ENERGY STAR appliance sales figures shows a 20 percent market penetration in the Southeast, versus 31 percent in the Northeast and 30 percent in New York and California.¹⁴

Any nationwide review of successful geographies for energy efficiency penetration in buildings reveals a nexus of high utility prices, low reliance on coal for electricity generation, very little coal mining, progressive utility regulators, robust mandated utility-provided energy efficiency incentives, and strong environmental organizations. The Southeast lacks all of these attributes.

The SEEA Southeast Community Consortium sought to address these challenges and more, finding creative ways to tap into the significant regional opportunity to revitalize a flagging economy presented by energy efficiency market transformation. Their efforts – unprecedented for the region – saved energy; delivered millions in energy cost savings; provided training and jobs for a qualified contractor base; and built momentum for more productive economies throughout the Southeast.

TEST LABS FOR SUCCESS

The simultaneous deployment of funding resources in so many diverse markets created a unique “test lab” environment, allowing SEEA and its 16 sub-grantee partners to explore new approaches and best practices for energy efficiency program implementation. This “test lab” approach, together with a diverse Consortium mix, produced a range of results and lessons that hold major implications for the future of energy efficiency and related regional programming. These areas of focus include:



Program Administration

There is no “one size fits all approach” to developing an effective, self-sustaining energy efficiency retrofit program. Management structure, timelines and incentive pools must align with local market scope, resources, needs and opportunities.



Financing

To attract consumer interest, energy efficiency financing products must be streamlined, visible and competitive. Still, no matter how attractive the product, it is unlikely to succeed without an active, engaged lending partner.



Marketing and Consumer Education

In the Southeast, partnering with trusted, third-party groups with deep roots in the community is often one of the most effective ways of reaching customers. Across the Consortium, program information delivered through existing channels, including churches and trusted community groups, met with more success than traditional advertising and promotional approaches.



Workforce Development

In many parts of the region, there is a pronounced lack of credentialed, well-trained individuals to carry out high quality building retrofit work. This is a significant barrier to program delivery, but it also presents an opportunity to align programmatic activities with technical and community colleges, as well as related community development initiatives, including workforce reentry and veteran training programs.



Utility Partnerships

By and large, the regional energy policy environment does not currently support scaled energy efficiency programming because there are few mechanisms in place to incentivize utility investment. Until it makes business sense for utilities to broadly invest in energy efficiency as a least cost resource, the full potential and opportunity of energy efficiency within the Southeast will not be realized. Nearly all Consortium members met with challenges stemming from this fundamental policy misalignment, but the most successful ones were able to bring local utilities to the table by maintaining a constant dialogue and focusing on win-win partnership opportunities.

13. American Council for an Energy-Efficient Economy (2012). “State Spending and Savings Tables,” <http://aceee.org/files/pdf/fact-sheet/2012-spending-and-savings-tables.pdf>.
14. U.S. Environmental Protection Agency (2012), *ENERGY STAR® and Other Climate Protection Partnerships*, http://www.energystar.gov/ia/partners/publications/pubdocs/2011_AnnualReport_Final_low-res_12-13-12.pdf?36f5-5477&815c-8575.

Consortium Results

Prior to the Consortium's launch, SEEA and its sub-grantees identified key program-related areas essential to the success of local energy efficiency programs. Throughout the grant period, SEEA tracked program outcomes and performance across these areas of focus, resulting in a comprehensive, region-specific set of best practices and lessons learned. This report presents these findings, as well illustrative case studies that present the broader implications for future energy efficiency and demand response programming in the Southeast.

By all evaluation measures — ranging from energy savings metrics to intangibles like community vitality — the efforts of the SEEA Consortium created positive groundswells in each sub-grantee city.

POWER IN NUMBERS

349
JOBS
CREATED

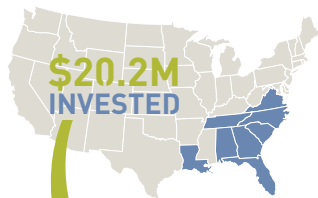
**REVENUES TO
CONTRACTORS**
\$39,209,921

5,397 PASSENGER VEHICLES
TAKEN OFF THE ROAD

EQUIVALENT
ELECTRICITY CONSUMPTION OF
3,194 AMERICAN
SINGLE-FAMILY
HOMES

6,135
RETROFITS

CARBON
SEQUESTERED BY
21,235
ACRES
OF FORESTS



36,719,212
ESTIMATED ^{kWh}
ENERGY SAVINGS
TOTAL

10,233
✓ **AUDITS**



ESTIMATED
ANNUAL \$2,745,246
UTILITY COST SAVINGS

Conclusion: The Path Forward

The establishment of the SEEA Southeast Consortium, with support from the U.S. Department of Energy and the States of Alabama and Virginia, represented an unprecedented investment in the region's energy efficiency infrastructure and a deliberate prioritization of energy efficiency as a tool to advance long-term regional economic growth. As the Consortium's performance period draws to a close, it is clear that the activities undertaken by the Consortium have yielded real benefits. These include:

1. Positive and encouraging economic impacts that have rippled through the local economies of the 16 participant cities;
2. The achievement of over 6,100 building retrofits, more than 36 million kWh of energy savings, annual consumer utility bill savings of nearly \$3 million, incremental contractor revenue of nearly \$40 million and 349 jobs created;
3. The development of new local partnerships and organizations throughout the Southeast that have begun the challenging work of addressing the barriers that constrain energy efficiency in the region;
4. The beginnings of a new attitude toward, and understanding of, the economic opportunity presented by energy efficiency, especially among the banks, credit unions, utilities and municipalities that embraced the Consortium opportunity and have worked through program challenges to achieve tangible financial successes;
5. The creation of a small corps of professionally trained energy efficiency experts across the region;
6. A baseline level of consumer energy efficiency knowledge; and
7. Increased recognition by regional utilities and policy makers of energy efficiency as a resource.





www.SEEALLIANCE.org