



Energy Efficiency in Appalachia

How much more is available, at what cost, and by when?



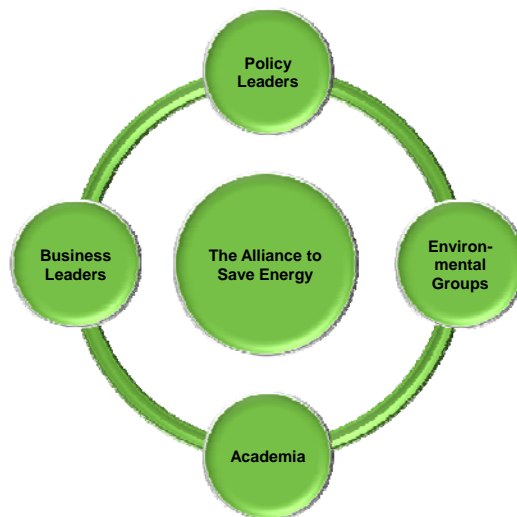
Partners: Alliance to Save Energy

Alliance to Save Energy Mission:

- To promote energy efficiency worldwide to achieve a healthier economy, a cleaner environment, and greater energy security.

The Alliance is...

- Staffed by 50+ professionals
- 31 years of experience in policy, research, education, communications, technology deployment and market transformation



Partners

The **American Council for an Energy-Efficient Economy** is a nonprofit, 501(c)(3) organization dedicated to advancing energy efficiency as a means of promoting economic prosperity, energy security, and environmental protection.

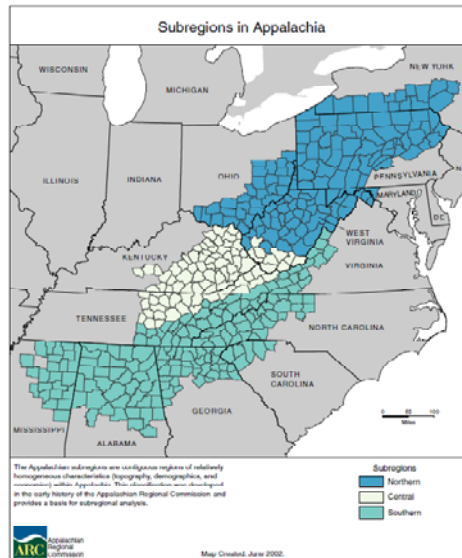
- Conducting in-depth technical and policy analyses
- Advising policymakers and program managers
- Working collaboratively with businesses, government officials, public interest groups, and other organizations
- Convening conferences and workshops, primarily for energy efficiency professionals
- Assisting and encouraging the media to cover energy efficiency policy and technology issues
- Educating businesses and consumers through our reports, books, conference proceedings, and media outreach

Founded on October 13, 1885, the **Georgia School of Technology** opened its doors in October 1888 to eighty-four students. The School's creation signaled the beginning of the transformation of the agrarian South to an industrial economy. During its first fifty years, Tech grew from a narrowly focused trade school to a regionally recognized technological university.

In 1948, the School's name was changed to the Georgia Institute of Technology to reflect a growing focus on advanced technological and scientific research. Women students were admitted in 1952, and in 1961 Georgia Tech became the first university in the Deep South to admit African American students without a court order.

The Appalachian Region

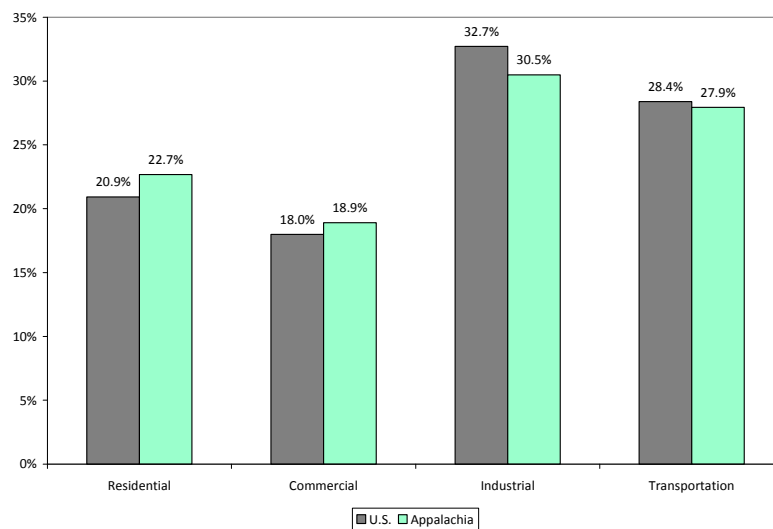
- All of West Virginia and parts of 12 other states
- 410 counties
- Divided into 3 Sub-regions and many Local Development Districts
- The Appalachian Regional Commission (ARC) was created by the Federal Government in 1965



Organization

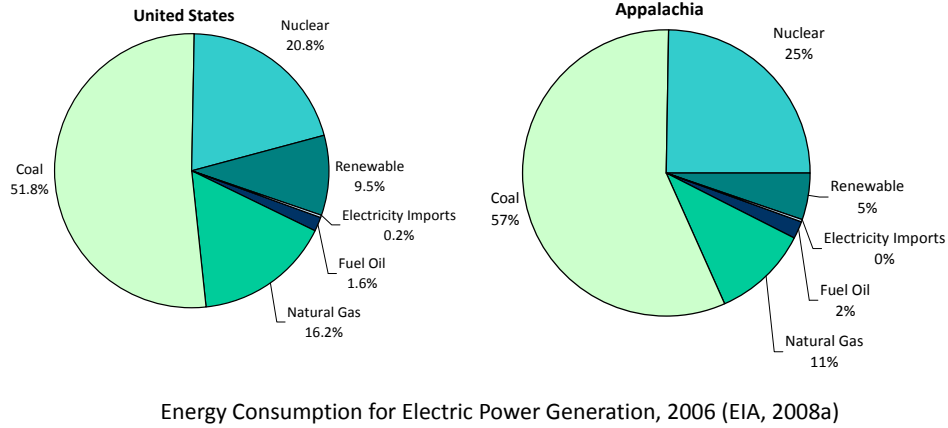
- Energy Use in Appalachia
- Methodology
- Energy Efficiency Potential for Appalachia
 - Results Overview
 - Most Impactful Policies
 - Transformative Technologies
 - Potential By Fuel and By Sector
 - Benefit-Cost Analysis
 - Sensitivity of Results
- Macroeconomic Impacts: Jobs, Wages, GRP
- Summary of Southeast Electric Efficiency Potential Studies

Energy Use in Appalachia vs. the U.S.: More Residential and Less Industrial

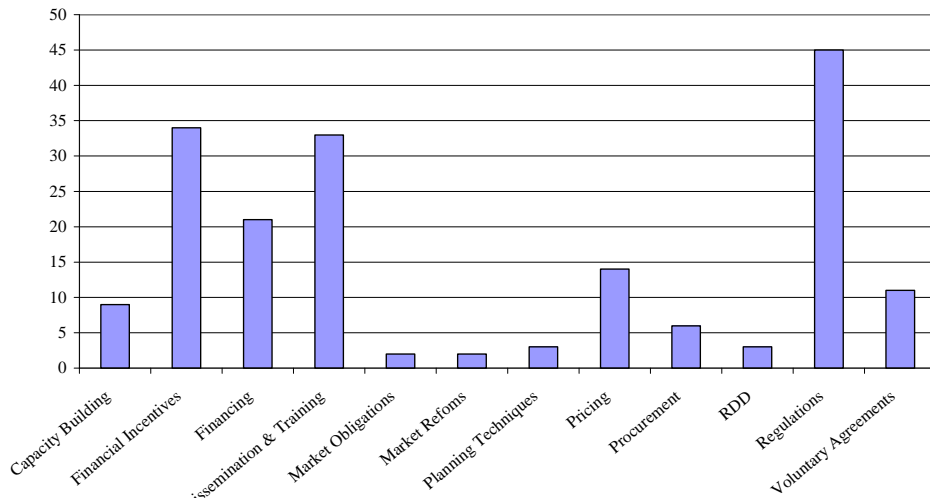


Energy Consumption Shares by End-Use Sectors, 2006 (EIA, 2008)

Energy Use in Appalachia vs. the U.S.: More Coal & Nuclear, Less Natural Gas & Renewables



Energy Efficiency Programs in Appalachia



Of more than 150 policies identified: 91% at the state level and 9% at the local level.

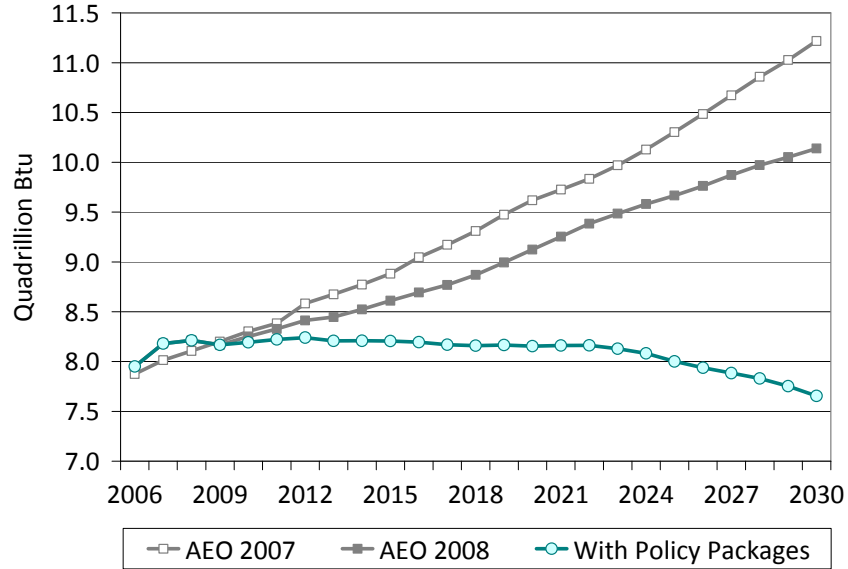
Methodology

- Baseline forecast ~ population weighted from EIA's AEO 2008 Reference Case
- Population estimates were generated by county using REMI data and mapped to Census divisions
- Estimates of savings and costs modeled by policy based on previous studies
- Macroeconomic impacts (employment and income effects) modeled using DEEPER

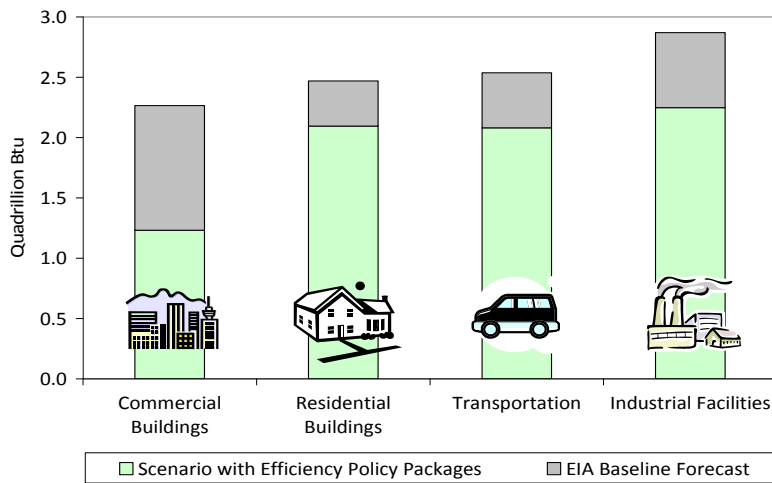
Fifteen Policies are Modeled

Residential Buildings	Commercial Buildings	Industry	Transportation
<i>Improved Building Energy Code with Third Party Verification and Compliance Incentive</i>	<i>Commercial Building Energy Codes with Third Party Verification and Compliance Incentives</i>	<i>Expanded Industrial Assessment Centers</i>	<i>Pay-as-You-Drive Insurance</i>
<i>Expanded Weatherization Assistance Programs</i>	<i>Support for Commissioning of Existing Commercial Buildings</i>	<i>Increasing Energy Savings Assessments</i>	<i>Clean Car Standards</i>
<i>Residential Retrofit Incentive with Resale Energy Labeling and Incremental Cost Incentives</i>	<i>Efficient Commercial HVAC and Lighting Retrofit Incentive</i>	<i>Supporting Combined Heat and Power (CHP) with Incentive</i>	<i>SmartWay Heavy Truck Efficiency Loan Program</i>
<i>Tightened Residential Appliance Standards with Incentive</i>	<i>Tightened Office Equipment Standards with Efficient Use Incentives</i>		<i>Speed Limit Enforcement</i>

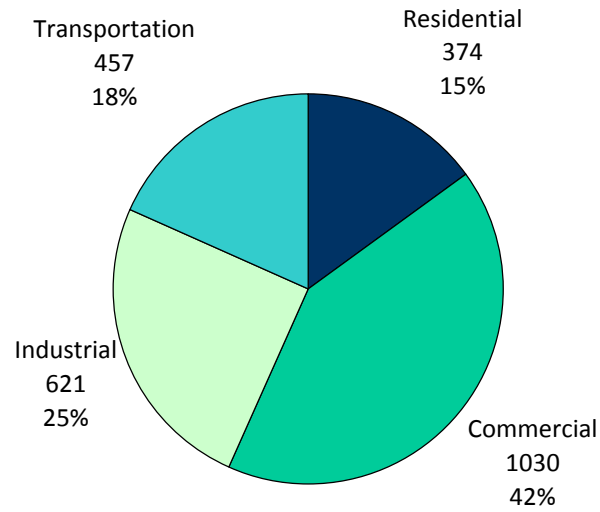
Results: Cost-Competitive Energy Efficiency Could Save 2.5 Quads by 2030



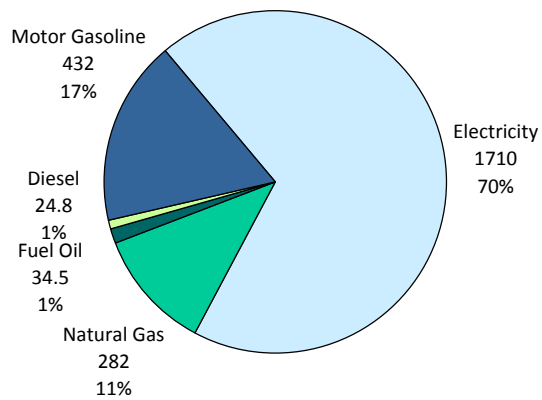
Energy Efficiency Potential in Appalachia Spans All Sectors



Savings by Sector: Commercial & Industrial Savings Dominate



Savings by Fuel



Energy Efficiency in Appalachia could offset:

- | | |
|---|--|
| <ul style="list-style-type: none"> • By 2020 • ≈20 new coal-fired electric power plants <li style="text-align: center;">AND • 63 million barrels of oil – about 3% of U.S. production in 2007 or 2.6 million light-duty vehicles | <ul style="list-style-type: none"> • By 2030 • ≈40 new coal-fired electric power plants <li style="text-align: center;">AND • 182 million barrels of oil – about 10% of U.S. production in 2007 or 6.7 million LDVs |
|---|--|

Most Impactful Policies

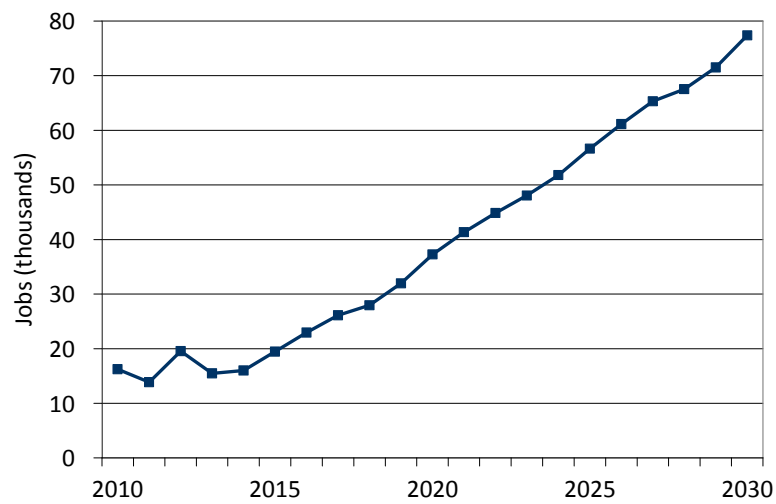
- *Efficient Commercial HVAC and Lighting Retrofit Incentive* (447 trillion Btu)
- *Expanded Industrial Assessment Centers* (413 trillion Btu)
- *Support for Commissioning of Existing Commercial Buildings* (391 trillion Btu)
- *Clean Car Standards* (338 trillion Btu)
- *Residential Retrofit Incentive with Resale Energy Labeling and Incremental Cost Incentives* (180 trillion Btu)

* Energy savings reported are annual savings in the year 2030

Macroeconomic Impacts: >77,000 Net New Jobs in 2030

Macroeconomic Impacts	2010	2020	2030
Jobs (Actual)	16,200	37,300	77,300
Wages (Million \$2006)	\$517	\$1,169	\$3018
GRP (Million \$2006)	\$763	\$1,197	\$3056

Year by Year Jobs from EE Package



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