Assessing the Economic Impacts of Publicly Funded Investments in Energy Efficiency Programs

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Study Overview
**IMPLAN**

**Model Inputs**
- Changes in demand
- Changes in income
- Changes in spending patterns

**IO Multiplier Analysis**
- Static economic conditions
- Based on real regional data
- User-defined policy and baseline scenarios

**Model Outputs**
- Employment
- Value Added
- Income
- Output

**Total Effect**
- Direct Effect
- Indirect Effect
- Induced Effect

IMPLAN Group, LLC. 16740 Birkdale Commons Parkway, Suite 206, Huntersville, NC 28078
Scenarios Compared

1. Better Buildings Neighborhood Programs (BBNP)
2. Supply-Side Energy Infrastructure
3. Renewable Energy Infrastructure
4. Top 10 Manufacturing Sectors

$26.1 Million (ARRA)
Modeled Cash Flows
Model Inputs:
Better Buildings Neighborhood Programs
BBNP Administration and Delivery

• U.S. Department of Energy
  – Energy Efficiency and Conservation Block Grants
  – State Energy Program

• Southeast Energy Efficiency Alliance (SEEA)
  – 2010–2013
  – Eight States
  – Residential, Multifamily, and Commercial

<table>
<thead>
<tr>
<th>Program</th>
<th>State</th>
<th>City</th>
<th>Year(s)</th>
</tr>
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<tbody>
<tr>
<td>Huntsville WISE</td>
<td>AL</td>
<td>Huntsville</td>
<td>2011-2013</td>
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<tr>
<td>ShopSmart with JEA</td>
<td>FL</td>
<td>Jacksonville</td>
<td>2011-2012</td>
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<tr>
<td>Atlanta SHINE</td>
<td>GA</td>
<td>Atlanta</td>
<td>2010-2013</td>
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<tr>
<td>Decatur WISE</td>
<td>GA</td>
<td>Decatur</td>
<td>2011</td>
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<tr>
<td>NOLA WISE</td>
<td>LA</td>
<td>New Orleans</td>
<td>2011-2013</td>
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<tr>
<td>Carrboro WISE</td>
<td>NC</td>
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<td>Chapel Hill WISE</td>
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<td>Charleston WISE</td>
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<td>Nashville Energy Works</td>
<td>TN</td>
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<td>2011-2013</td>
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<td>LEAP</td>
<td>VA</td>
<td>Charlottesville</td>
<td>2011-2013</td>
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<tr>
<td>NEXT STEP Program</td>
<td>VA</td>
<td>Hampton Roads</td>
<td>2011</td>
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http://www.seealliance.org/
BBNP Spending

Spending By State

Spending By Year

AL FL GA LA NC SC TN VA

$276,638 $8,673,608 $10,461,448 $6,692,411

2010 2011 2012 2013
BBNP Spending & Project Payments

**Spending By Category**

- Implementation: 16%
- Incentives: 49%
- Administration: 14%
- Marketing: 10%
- EM&V: 8%
- Travel: 3%

**Project Payments**

- Sum of incentives and participant co-funding
- Participant co-funding equal incentives received
  - Simplifying assumption
  - 15.7% of $26.1 million, or $4.1 million
Total Energy Bill Reductions

![Graph showing total energy bill reductions from 2010 to 2018 in 2011 dollars.]
Total Avoided Utility Costs
Model Inputs:
Counterfactual Baselines
Alternative Participant Expenditures

Total: $4,096,589
Supply-Side Energy Infrastructure

$26.1 Million (ARRA)

- $13.05 Million: Electricity generation, transmission, and distribution
- $13.05 Million: Natural gas distribution
Renewable Energy Infrastructure

- Semiconductor and related device manufacturing
- Maintenance and repair construction of nonresidential maintenance and repair
- Maintenance and repair construction of residential structures
- Ferrous metal foundries
- All other miscellaneous electrical equipment and component manufacturing
- Plate work and fabricated structural product manufacturing
- Mechanical power transmission equipment manufacturing
- Turbine and turbine generator set units manufacturing
- Other plastics product manufacturing
- Motor and generator manufacturing
- Wiring device manufacturing
- Plastics material and resin manufacturing
- Plastics packaging materials and un laminated film and sheet manufacturing
- Flat glass manufacturing
- Ornamental and architectural metal products manufacturing
- Ball and roller bearing manufacturing
- Speed changer, industrial high-speed drive, and gear manufacturing
- Switchgear and switchboard apparatus manufacturing
- Watch, clock, and other measuring and controlling device manufacturing
- Copper rolling, drawing, extruding and alloying
- Electricity and signal testing instruments manufacturing
- Storage battery manufacturing
- Bare printed circuit board manufacturing
- Printed circuit assembly (electronic assembly) manufacturing
Top 10 Manufacturing Sectors

- Construction of new nonresidential manufacturing structures: 21.3%
- Motor vehicle parts manufacturing: 6.5%
- Other plastics product manufacturing: 7.0%
- Plate work and fabricated structural product manufacturing: 7.2%
- Aircraft manufacturing: 7.3%
- Paperboard container manufacturing: 8.2%
- Bread and bakery product manufacturing: 9.6%
- Ornamental and architectural metal products manufacturing: 7.0%
- Pharmaceutical preparation manufacturing: 7.0%
- Surgical appliance and supplies manufacturing: 5.8%
Findings
### Summary Effects by Scenario

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Impact Type</th>
<th>Employment</th>
<th>Labor Income</th>
<th>Employee Comp.</th>
<th>Value Added</th>
<th>Output</th>
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<tbody>
<tr>
<td>BBNP</td>
<td>Direct Effect</td>
<td>207</td>
<td>$14,149,760</td>
<td>$11,681,338</td>
<td>$12,658,425</td>
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<tr>
<td><strong>Total Effect</strong></td>
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<td><strong>627</strong></td>
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<td>Supply-Side Energy Infrastructure</td>
<td>Direct Effect</td>
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<tr>
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<td>Indirect Effect</td>
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<td><strong>Total Effect</strong></td>
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<td>Renewable Energy Infrastructure</td>
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<td>Induced Effect</td>
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<td><strong>Total Effect</strong></td>
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<td>Top 10 Manufacturing Sectors</td>
<td>Direct Effect</td>
<td>117</td>
<td>$6,386,664</td>
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<td>Indirect Effect</td>
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<td><strong>Total Effect</strong></td>
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Total Effects by Scenario
### Direct Employment and Employee Compensation Effects by Scenario

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#### Average Annual Compensation per Job (2015 Dollars)

- **Supply-Side Energy Infrastructure**: $113,127
- **BBNP**: $56,422
- **Top 10 Manufacturing Sectors**: $51,612
- **South Atlantic Census Region**: $50,523
- **Renewable Energy Infrastructure**: $48,745
- **East South Central Census Region**: $44,732
Conclusions

1. ARRA investment in BBNP programs created more jobs, generated more income, and led to greater economic impacts than any of the three alternative spending options analyzed.
   - Primarily driven by induced effects resulting from program participants and employees of directly and indirectly affected industries spending newfound money on regional goods and services.

2. Average annual compensation per job created via BBNP was higher than actual average annual compensation per job in the study region.
   - Suggests a positive impact on regional consumer spending power associated with BBNP activities completed from 2010–2013.
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