$3.6 Million in Savings Identified in AMCAST Assessment

AMCAST and its partners applied a systematic plant-wide assessment (PWA) approach to identify energy- and cost-saving opportunities at the company’s facility in Wapakoneta, Ohio. The team initially identified $3.6 million in savings opportunities resulting from increased energy and productivity efficiencies with paybacks ranging from 0 to 29 months. Additional savings opportunities surfaced as plant personnel were implementing the initial recommendations, and the total saving opportunities have grown to nearly $6 million.

Encouraged by these savings, AMCAST has replicated the PWA methodology at five plants throughout the corporation and introduced projects from the assessment into its other plants. AMCAST’s strategy is succeeding; personnel predict that company-wide savings will reach nearly $36 million over the next several years.

The Wapakoneta facility spends millions of dollars and uses energy-intensive processes in its production of low-pressure aluminum castings for automotive suspensions. The team focused the assessment on all energy-intensive plant systems, including furnaces, boilers, electrical equipment, compressed air, fans, and pumps. The assessment resulted in 12 separate projects that would improve efficiency of production processes, decrease energy consumption, and reduce scrap rate.

DOE funded the assessment at $75,000 and required at least a matching amount from AMCAST. The table below highlights the overall savings opportunities identified.

### AMCAST Wapakoneta Assessment

<table>
<thead>
<tr>
<th>Cost savings</th>
<th>$3.6 million/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant savings realized</td>
<td>$6 million/year</td>
</tr>
<tr>
<td>Electrical energy savings</td>
<td>672,000 kWh/year</td>
</tr>
<tr>
<td>Natural gas savings</td>
<td>91,000 MMBtu/year</td>
</tr>
</tbody>
</table>

### Project Partners

- AMCAST Industrial Corporation
- Capital Surini Group International, Inc.
- Edison Materials Technology Center
- Miami Valley Diagnostics
- Ohio Department of Development Office of Energy Efficiency
- University of Dayton

### Conduct your own Plant-Wide Assessment

- DOE Information Clearinghouse
  - Phone: (800) 862-2086
  - Fax: (360) 586-8303
clearinghouse@ee.doe.gov

- Industrial Technologies Program
  - Energy Efficiency and Renewable Energy
  - U.S. Department of Energy
  - Washington, DC 20585-0121

- Respond to annual PWA solicitations:
  - www.oit.doe.gov

### For technical details, visit:

- www.oit.doe.gov/bestpractices/factsheets/amcast.pdf
- www.oit.doe.gov/bestpractices/case_studies_pwa.shtml

### Or, contact:

- Bob Leach, Oak Ridge National Laboratory
  - Phone: (865) 946-1352
  - E-mail: leachre@ornl.gov

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**U.S. Department of Energy**

**Energy Efficiency and Renewable Energy**

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable
Plant-Wide Energy Assessments

Plant-wide energy assessments (PWAs) investigate overall energy use in industrial facilities—energy use can account for 10% or more of an industry's total operating costs. PWAs also highlight opportunities for best energy management practices for industry, including the adoption of new, efficient technologies. The Office of Energy Efficiency and Renewable Energy's Industrial Technologies Program works with companies to identify energy-saving projects that can be replicated in other facilities and industries for multiplied savings. On average, the findings from a single assessment can be replicated multiple times—often ten times or more—at other facilities with equivalent systems and energy use. For a relatively low initial investment, companies that participate in assessments can realize a minimum of $1 million in savings annually from diminished energy costs, reduced waste, and increased productivity—usually with a payback of less than 18 months. For more information, visit www.oit.doe.gov/bestpractices/assessments.shtml.

The Industrial Technologies Program publishes a case study for each completed PWA. The case studies describe how the companies have conducted plant-wide assessments to achieve energy and cost savings, improve productivity, and reduce environmental impacts. You can help your company replicate these savings by learning about and implementing the cost- and energy-saving projects identified in these case studies. Frequently, projects can be replicated across many industries. Find out which projects could benefit your company! To learn more, visit www.oit.doe.gov/bestpractices/case_studies_pwa.shtml.

### Annual Savings Opportunities Identified Through Plant-Wide Energy Assessments

<table>
<thead>
<tr>
<th>Company</th>
<th>Savings (Annual)</th>
<th>Company</th>
<th>Savings (Annual)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M</td>
<td>$1,094,000</td>
<td>Corning</td>
<td>$25,920,000</td>
</tr>
<tr>
<td>Akzo Nobel</td>
<td>1,170,000</td>
<td>Equilon Enterprises</td>
<td>52,500,000</td>
</tr>
<tr>
<td>Alcoa (alumina production)</td>
<td>1,072,000</td>
<td>Ford</td>
<td>3,280,000</td>
</tr>
<tr>
<td>Alcoa (aluminum extrusion)</td>
<td>1,974,000</td>
<td>Georgia-Pacific Crossett</td>
<td>9,600,000</td>
</tr>
<tr>
<td>AMCAST</td>
<td>3,600,000</td>
<td>Inland Paper</td>
<td>9,500,000</td>
</tr>
<tr>
<td>Anchor Glass Container</td>
<td>1,638,000</td>
<td>Metlab</td>
<td>518,000</td>
</tr>
<tr>
<td>Appleton Paper</td>
<td>3,459,000</td>
<td>North Star Steel</td>
<td>2,640,000</td>
</tr>
<tr>
<td>Bayer</td>
<td>1,478,000</td>
<td>Utica Corporation</td>
<td>1,880,000</td>
</tr>
<tr>
<td>Boise Cascade</td>
<td>707,000</td>
<td>Weyerhaeuser Longview</td>
<td>3,100,000</td>
</tr>
<tr>
<td>Caraustar</td>
<td>1,280,000</td>
<td>WR Grace</td>
<td>840,000</td>
</tr>
</tbody>
</table>

### Additional Assessment Opportunities

Small- to medium-sized manufacturers, with annual energy bills between $100,000 and $2 million, may be eligible to receive energy assessments by university-based Industrial Assessment Centers (IAC.) These IAC's are located at 26 universities located throughout the country. Teams of engineering faculty and students from the Centers conduct energy, waste-reduction, and productivity-improvement audits, and then provide recommendations to manufacturers. Manufacturers must meet certain minimum requirements, which include appropriate manufacturing NAICS codes that fall within the energy-use range. Recommendations from industrial assessments have averaged $55,000 in potential annual savings for each manufacturer. For more information, visit www.oit.doe.gov/iac/.

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A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy’s Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.