



P2: POLLUTION PREVENTION

South Carolina Project Highlights



Did You Know?

E3 is a nationwide technical assistance framework. Since 2009, E3 communities have identified opportunities to reduce air emissions by over 182 million pounds while creating 1,500 jobs. Visit www.epa.gov/e3 for more information.

This fact sheet highlights the pollution prevention achievements of the South Carolina Economy, Energy and Environment (SC E3) Program operated by Clemson University. SC E3 provides energy and pollution prevention assessments to the state's manufacturers and wastewater treatment plants, helping them reduce their environmental impact while saving energy and money. USEPA Region 4's Pollution Prevention Program has supported SC E3 since its start in 2014. In collaboration with the Clemson Industrial Assessment Center, which is funded by the U.S. Department of Energy, SC E3 is improving the state's sustainability and economy as well as providing valuable real-world industrial experience for students.



Manufacturers

SC E3 conducts energy and pollution prevention assessments for small to mid-size manufacturers in South Carolina. After initial data collection, a team of faculty and graduate students conducts a one-to-two-day site visit. SC E3 then provides a report with recommended steps to save energy, improve sustainability and reduce costs. After six months, a follow-up survey collects information on the steps implemented and the savings realized.

HEALTHCARE MANUFACTURING:

An assessment for a healthcare products manufacturer identified potential annual savings of 16.1 million kilowatt-hours (kWh) and \$884,000.

FABRIC MANUFACTURER: An assessment for a fabric manufacturing company identified potential annual savings of 260,000 kWh and \$32,000, with a payback period of only nine months.

METAL FINISHING SHOP: An assessment for a metal finishing shop identified potential annual savings of 639,000 kWh and \$55,000, with a payback period of only six months.



Wastewater Treatment Plants

SC E3 is now extending its pollution prevention impact by offering energy and pollution prevention assessments to wastewater treatment plants. Because these facilities use large amounts of electricity and chemicals, there are many opportunities to save energy and make pollution prevention improvements.

ENERGY SAVINGS:

A recent assessment for a wastewater treatment plant found opportunities to save 3.4 million kWh and \$306,000 per year.

AERATORS:

By replacing mechanical mixers with fine bubble aerators, the plant could save \$162,000 a year.

LIGHTING:

Using higher-efficiency lights and occupancy sensors could save \$24,000 a year, with the effort paying for itself in less than a year.



Graduate Education

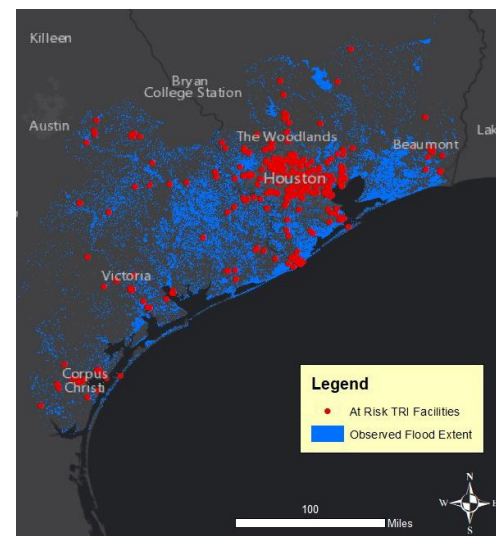
With support from EPA's Pollution Prevention Program, SC E3 is helping train the next generation of sustainability professionals. Clemson University faculty members work with graduate students on the energy and pollution prevention assessments, extending the reach of the program while providing valuable real-world industrial experience to students.

WATER NEEDS AT POWER PLANTS:

Power plants are the largest users of water in the country. One SC E3 graduate student recently explored how the need for new power plants could affect water availability in the eastern United States.

ANALYZING TRI DATA:

Another SC E3 graduate student used data visualization software to analyze data from EPA's Toxics Release Inventory (TRI).



Pollution Prevention Results

With grant funding from EPA's Region 4 Pollution Prevention program, SC E3 is able to have face-to-face interactions with manufacturers and treatment plant operators to share suggestions on ways their processes can be improved, saving energy and reducing pollution. EPA's support also provides graduate students with real-world industrial pollution-prevention experience, training the next generation of P2 practitioners. In addition, SC E3 has created a network of sustainability professionals across the state, promoting the sharing of P2 knowledge.

The impact of SC E3's industrial assessments has been growing rapidly. The six assessments conducted in 2017 recommended steps to save 6 million kWh and \$620,000. In 2019, 14 assessments were completed and the recommended energy savings had more than doubled, to 12 million kWh, with potential cost savings of over \$1 million. SC E3's goal is to reach 20 assessments per year.

Manufacturers have implemented many of SC E3's recommendations and are reporting significant energy and cost savings.

By the Numbers: 2017-2018



\$580,000 dollars
saved.



7 million kilowatt-hours
of energy saved.



15 assessments
conducted.

**2019 assessments recommended steps to save
\$1 million and 12 million kilowatt-hours.**

*SC E3 performs an energy and P2 assessment
at a heavy equipment manufacturing plant in
South Carolina.*



Resources

Clemson Industrial Assessment Center

cecas.clemson.edu/iac

The website describes the free energy, productivity and waste assessments offered by the Center.

SC E3

cecas.clemson.edu/sce3

The SC E3 website provides a brief overview of the technical assistance program and explains how it can help manufacturers improve productivity, strengthen the economy and reduce environmental impacts.



“ The P2 grant has hastened the work of sustainability in South Carolina. By bringing together students, energy providers and manufacturers to focus on reducing waste, the program is saving energy, improving the environment and strengthening the economy.”

- David Ladner,
Associate Professor, Clemson University



Images used with permission of Clemson University.



For more information:
EPA Pollution Prevention www.epa.gov/p2