

# E3: Economy, Energy, and Environment

## Supporting Sustainable Manufacturing in Region 4



# Agenda

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- Benefits for manufacturers, communities, utilities, and federal government
- What is E3?
- Who is involved in E3?
- E3 on the Ground:
  - Region 4: Alabama, North Carolina and South Carolina
  - Pilot Projects: Columbus, Ohio and San Antonio, Texas
- How to Get Started: Four Steps to Progress

# Benefits for Manufacturers

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## Cost Savings

- Significant cost savings result from increased process efficiencies and reduced waste
- Profitable sustainability practices



## Increased Competitiveness

- State-of-the-art sustainable business practices
- Technical support to drive entry into new markets
- Job creation and retention



## Access to Technical and Financial Resources

- Additional funding through federal and state programs
- Enhanced skills and capabilities for workers

# Cost Savings for Manufacturers

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By combining an energy assessment and a *Lean and Clean* assessment, cost savings are significant. For example:

- *Lean and Clean* assessments at 11 facilities in Grand Rapids, MI resulted in potential annual savings of **\$860,000** per facility under the **Green Suppliers Network**
- Recommendations from energy assessments have averaged **\$55,000** in potential annual savings for each manufacturer under *Save Energy Now*

# Benefits for Communities

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## **Economic Growth**

- Improved competitiveness of existing manufacturers
- Enhanced ability to attract new business
- Increased manufacturing jobs and/or job retention
- Trained workforce with skills for a sustainable economy



## **Progress toward Environmental and Climate Change Goals**

- Catalyze meeting local government's environmental and climate change goals

# Benefits for Utilities

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## Increased Competitiveness

- Invest in local communities
- Strengthen and stabilize industrial rate-payers



## Progress toward Environmental and Climate Change Goals

- Catalyze meeting environmental and climate change goals
- Achieve organizational carbon reduction goals

# What is E3?

**A model for collaboration among manufacturers, utilities, local government, and federal resources intended to:**

- Invest in local communities
- Address energy and sustainability challenges
- Provide valuable technical training and assessments
- Enable economic growth



# E3 in Action

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- Establish replicable, self-sustaining initiatives to increase the sustainability and profitability of local and regional manufacturers
- Harness *existing* federal, state and local expertise and resources
- Develop *new* sources of technical assistance, technology, knowledge, expertise, and labor from federal, state and local resources



# E3 Package

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1. Technical Assessment
2. Implementation Support
3. Training and Continuous Improvement

# Technical Assessment

A **Lean Review** which leads to increased productivity and reduced costs

An **Energy Assessment** which provides tools and insight to reduce energy demand and costs

A **Greenhouse Gas (GHG) Evaluation** that teaches manufacturers how to calculate GHG emissions and evaluate reduction strategies

A **Clean Review** which results in water and energy conservation, reduced emissions, and additional cost savings

**Post-Assessment Recommendations** that guide each facility toward improvements in overall efficiency, reduced waste, more efficient use of resources including energy and water, and cost savings

# Implementation Support

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**E3 will identify appropriate implementation resources, such as:**

- **Leveraged Funding**
  - o DOC Economic Development Administration grants
  - o DOL “green jobs” and workforce development grants
- **Loan Guarantee Programs**
  - o SBA 7(a) and 504 loans provide general equipment and working capital loans up to \$2 million and manufacturers’ equipment financing up to \$10 million

# Who is involved in E3?

## E3 MODEL: Federal Programs Working Together with Local Communities

### ECONOMY:

**DOC's** NIST Manufacturing Extension Partnership (**MEP**), **SBA** financing, and **DOL** skills training

### ENERGY:

**DOE's** Industrial Technologies Program (**ITP**) program

### ENVIRONMENT:

**EPA's** Green Suppliers Network (**GSN**) and Climate Leaders (**CL**) program

### COMMUNITIES:

Large and small manufacturers, utilities, local government, and other municipal authorities

# Manufacturing Extension Partnership

- An initiative of the Department of Commerce (DOC), National Institute of Standards and Technology (NIST)
- Technical specialists help small businesses grow and profit
- In FY 2007 alone, MEP helped create over \$5 billion in new sales for partner businesses
- 59 Centers, 1,600 Field staff in 440 service locations
- MEP brings proven lean manufacturing knowledge to the E3 Team
- MEP brings years of experience in cost reduction, business growth, lean manufacturing, and innovation to the E3 team



**MEP** • MANUFACTURING  
EXTENSION PARTNERSHIP

# Small Business Administration

A federal agency that helps Americans start, build, and grow businesses

## Loan Guarantee Programs

- General equipment and working capital loans up to \$2 million
- Manufacturers' equipment financing up to \$10 million

## Small Business Development Centers (SBDCs)

- Provide business counseling, training, and other services
- Help businesses identify how equipment retrofitting can be integrated into the company's profit plan
- Provide services related to energy efficiency and green buildings for small businesses through energy competitive grants



U.S. Small Business Administration

# Department of Labor

- Employment and Training Administration awards workforce development grants with an energy focus
- Support for cross agency “green” skills certification program with focus on energy and environmental skills
- Coordination of E3 activities and information across DOL outreach resources
- Coordination of One Stop Career Center with DOC and DOE one-stop-shop staff
- \$500 million in "green job training grants" under five separate competitions



# Save Energy Now

- An initiative of DOE, Office of Energy Efficiency and Renewable Energy (EERE), Industrial Technologies Program (ITP)
- 26 Industrial Assessment Centers (IACs) that conduct energy audits
- Promotes energy efficiency as a profitable business model and expands markets for new energy technology
- Aims to reduce industrial energy intensity by **25%** in 10 years



U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy



# Save Energy Now LEADER

- U.S. companies have partnered with DOE's Industrial Technologies Program (ITP) to significantly reduce industrial energy intensity
- National recognition for energy management achievements and access to a portfolio of technical and financial resources
- SEN Leader Pledge – a voluntary commitment to achieve energy efficiency and waste reduction targets
- Raise the bar for all industrial facilities, while benefiting their own bottom line



U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy

# Green Suppliers Network

## A joint program between EPA and MEP that

- Provides *Lean and Clean* assessments to small- and medium-sized enterprises
- Has helped over 100 small businesses identify more than **\$60 million** in *Lean and Clean* opportunities
- Works with the automobile, aerospace, healthcare, office furniture, and utility industries, among others



# Climate Leaders

- EPA's partnership with industry to:
  - measure greenhouse gas (GHG) emissions
  - set aggressive GHG reduction goals
- 287\* partners, 70 of which are small enterprises
- Climate Leaders tool:
  - simple calculator to help organizations estimate their GHG emissions
  - GHG Inventory management plan to help organizations with continuous improvement



**EPA Climate Leaders Simplified GHG Emissions Calculator (SGEC)** Version 2.8

*This calculator is designed as a simplified calculation tool to help organizations in estimating their greenhouse gas (GHG) emissions for reporting to the EPA's Climate Leaders program. All methodologies and default values provided are based on the most current Climate Leaders Greenhouse Gas Inventory Protocol guidance. The calculator will determine the direct and indirect emissions from all sources at a company when activity data is entered into the various sections of the workbook.*

**Tool Instructions:**

(A) Click on the grey boxes below to go to the appropriate Tool Sheet.  
 (B) Enter data in Tool Sheet in ORANGE cells only. Final GHG emissions will be provided in CO<sub>2</sub> equivalent emissions in BLUE or GREEN cells. If data is not known or applicable, leave default value (blank, zero or other) in cell.  
 (C) Enter data in appropriate units, if needed convert units prior to entering into tool.  
 (D) Guidance for each calculation method is provided in the references at bottom of each sheet.

**Tool Sheets:**

Direct 1.0	Direct Emissions from Stationary Combustion Sources - Traditional Sources
Direct 2.0	Direct Emissions from Mobile Sources
Direct 3.0	Direct Emissions from Refrigeration and Air Conditioning Equipment
Direct 4.0	Direct Emissions from Fire Suppression Equipment
Direct 5.0	Direct Emissions from Stationary Combustion Sources - Gas Waste Streams
Indirect 1.0	Indirect Emissions from Purchase of Electricity
Indirect 2.0	Indirect Emissions from Purchase of Steam
Optional 1.0	Optional Emissions from Business Travel
Optional 2.0	Optional Emissions from Employee Commuting
Optional 3.0	Optional Emissions from Product Transport
Conversion Factors	Useful Conversion Factors

\*As of July 31, 2009

# Who is involved in E3?

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- EPA's **Green Supplier's Network** provides *Lean and Clean* assessments to small- and medium-sized manufacturers
- EPA's **Climate Leaders** program provides greenhouse gas (GHG) assessments and sets aggressive GHG reduction goals
- **MEP** brings years of experience in cost reduction, business growth, lean manufacturing, and innovation to the E3 team
- **SBA** can provide implementation financing through loans and Small Business Development Centers (SBDCs)
- **DOL** provides green job training grants and energy-focused workforce development grants
- **DOE's Save Energy Now** program provides energy assessments and technical assistance

# E3 Metrics

## Economic Metrics:

- Environmental savings identified
- Lean savings identified
- Other cost savings
- One time potential cost savings identified
- Individuals trained
- Jobs created
- Jobs retained
- Total annual potential impact identified
- Number of small businesses engaged
- Percentage of small businesses engaged
- Number and value of SBA loans granted
- Capital infusion dollars invested
- Hours of counseling provided

## Energy Metrics:

- Energy conserved (MM BTU/kWh)
- Energy intensity per unit of production
- Carbon reductions (tons)
- Carbon intensity per unit of production

## Environment Metrics:

- Air emissions reduced (lbs)
- Solid waste reduced (lbs)
- Material intensity per unit of production
- Hazardous waste reduced (lbs)
- Hazardous materials reduced (lbs)
- Water pollution reduced (lbs)
- Water used/conserved (gal)
- Water intensity per unit of production

# E3: San Antonio, Texas

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## Pilot Update:

- 6 pilot facilities:
  - Southern Folger
  - Munters
  - Danbury (AirCool Motors)
  - San Antonio Aerospace
  - UEMC
  - Pratt & Whitney
- Technical assessments completed by August 2009
- Each assessment spans 3 to 4 days
- Facilities invited to join pilot program based upon utility review of rate-payers
- Several assessment recommendations expected to be low outlay or fast payback

# E3: San Antonio, Texas

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## Example of E3 assessment results:

At Southern Folger, a detention equipment manufacturer, identified energy efficiency opportunities include:

- \$85,000 in potential energy savings
- Reduced annual electric consumption of 159,000 kwh
- Reduced monthly electric demand of 48 kW
- Reduced annual natural gas usage of 36,000 CCF

# E3 in Region 4

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## Alabama

- Statewide focusing on automotive suppliers to Hyundai, Mercedes and Honda in Montgomery, Tuscaloosa and Huntsville
- Leveraging stimulus funding for Lean and Energy Assessments
- Governor's support with \$400,000 workforce development grant

## North Carolina

- Statewide effort launched by NC MEP with \$400,000 DOC NIST grant
- Started in Winston Salem
- Lead by Duke Energy, MEP and NC P2 Program

## South Carolina

- Small pilot project in Spartanburg
- Lead by Duke Energy, MEP and SC P2 Program
- Great partnership with consolidated reporting

## Others??

- Discussions occurring in Kentucky, Florida and Mississippi



# How to Get Started

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## Four Steps to Progress:



# Contact Us

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## Office of Pollution Prevention and Innovation U.S. EPA, Region 4 Atlanta, Georgia

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