



**United
Technologies**

Energy and Climate Change:
Performance, Plans, Programs
@ UTC and its Suppliers

Chris Powell

Environmental Programs Manager

christopher.powell@utc.com

U.S. EPA Climate Leaders
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Agenda

- Path of Climate Change Programs
- Goals and Performance
- Environmental Footprint Analysis
- Supplier Encouragement
- UTC's Greenhouse Gas and Energy Conservation Program Elements
- Carrot to Suppliers: Leveraging from United Technologies' Experience

The Path to Developing United Technologies' Climate Change Program

1997

1997 Energy Conservation Program

External

1997 Kyoto Protocol

UTC efforts

2002 Johannesburg Summit

2002 New energy goals

2002 US Climate Leaders Program

2003 GHG Tracking through Climate Leaders

Climate Stewardship Act of 2003 (McCain-Lieberman)

2003 BRT Leadership Commitment

2003 product emission profiles

2003 Jeffords/Daschle

2004 EU Emissions Trading Directive

Continued support of 10X

Expanded disclosure of GHG emissions

Supplier Programs

Product stewardship

2005



YEAR 2007 ENVIRONMENTAL GOALS

Reduce waste

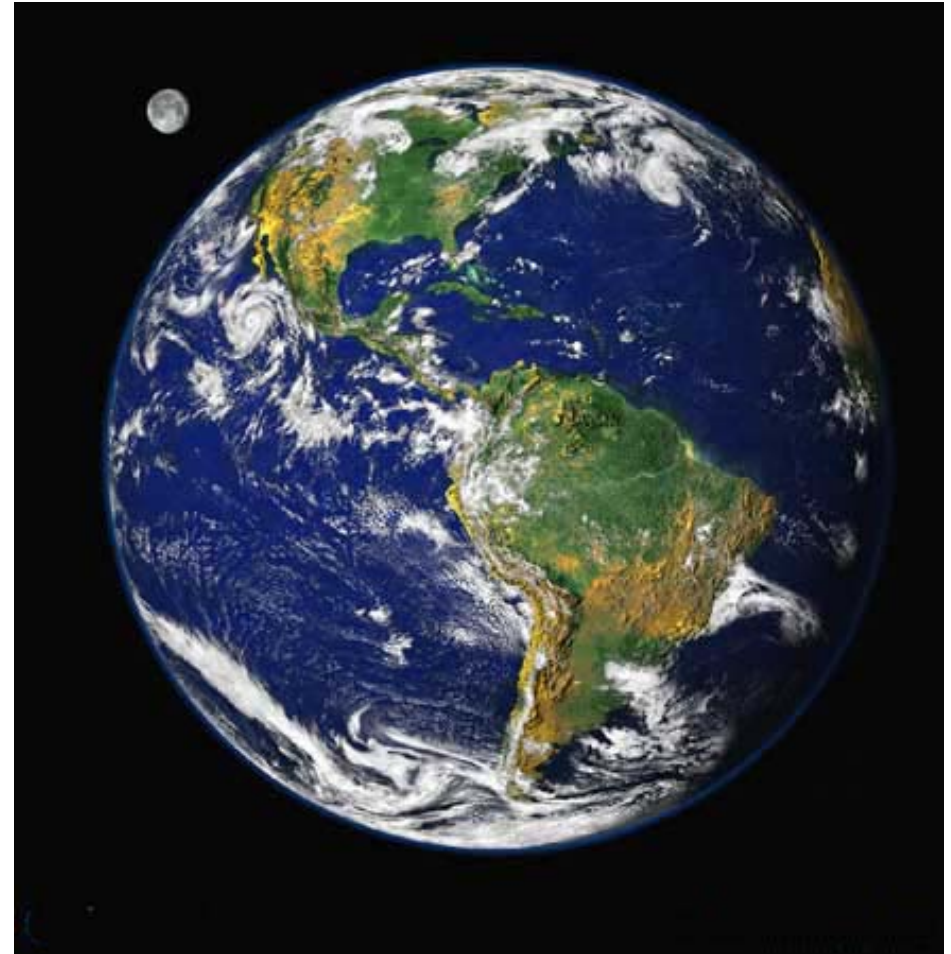
Not recycled by 60%

Recycled by 35%

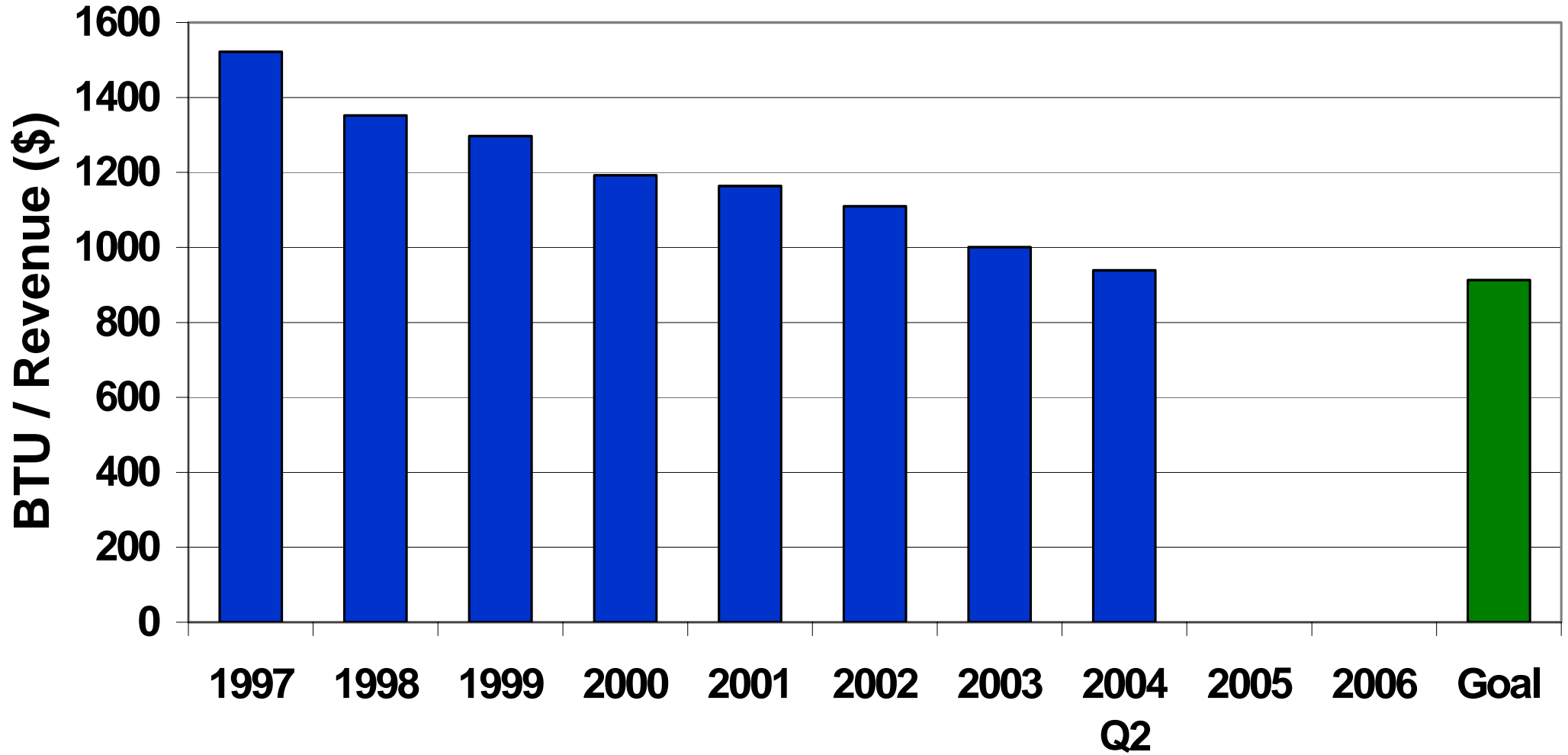
Reduce air emissions by 60%

*Reduce energy use by
40%*

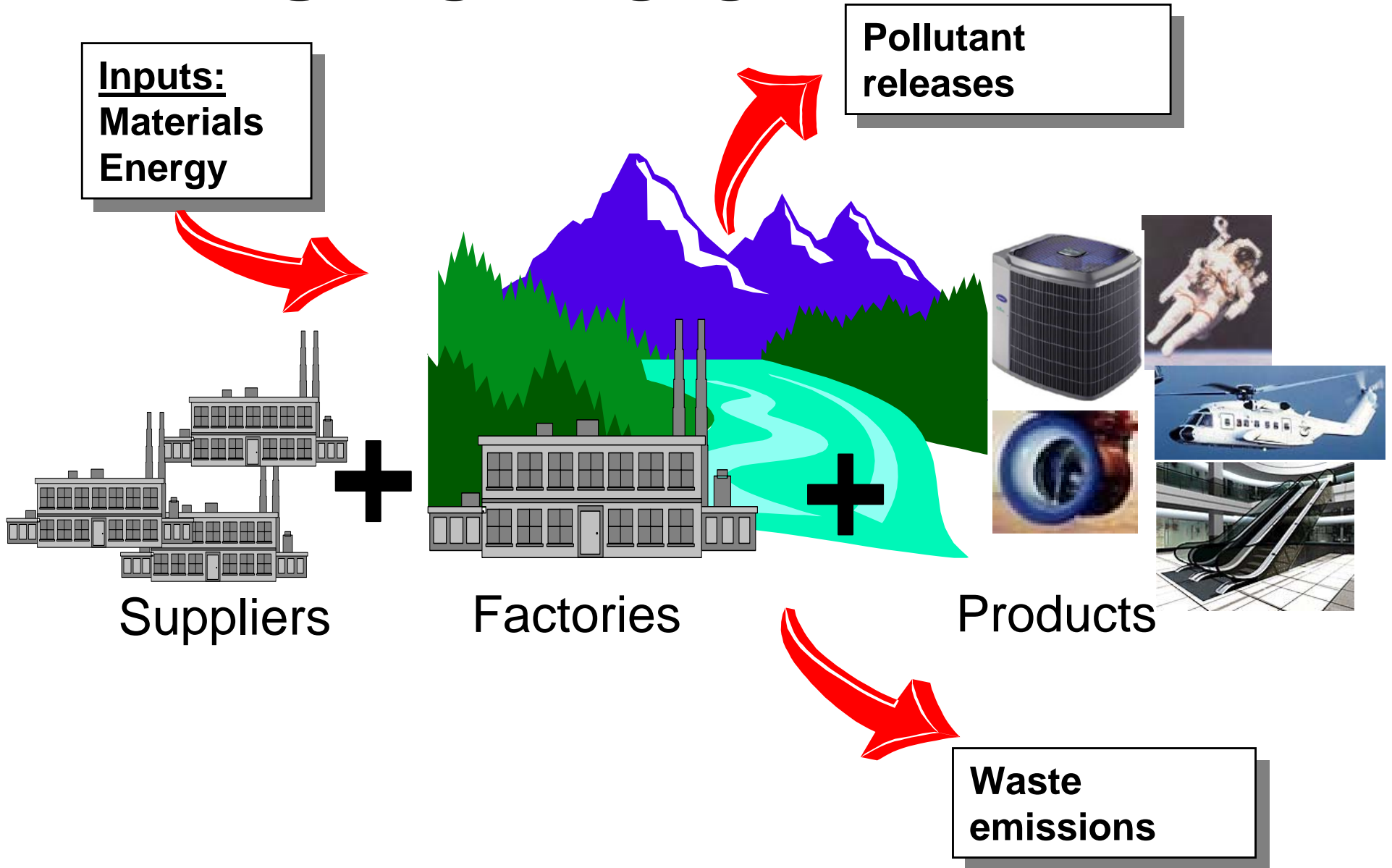
Reduce water use by 40%



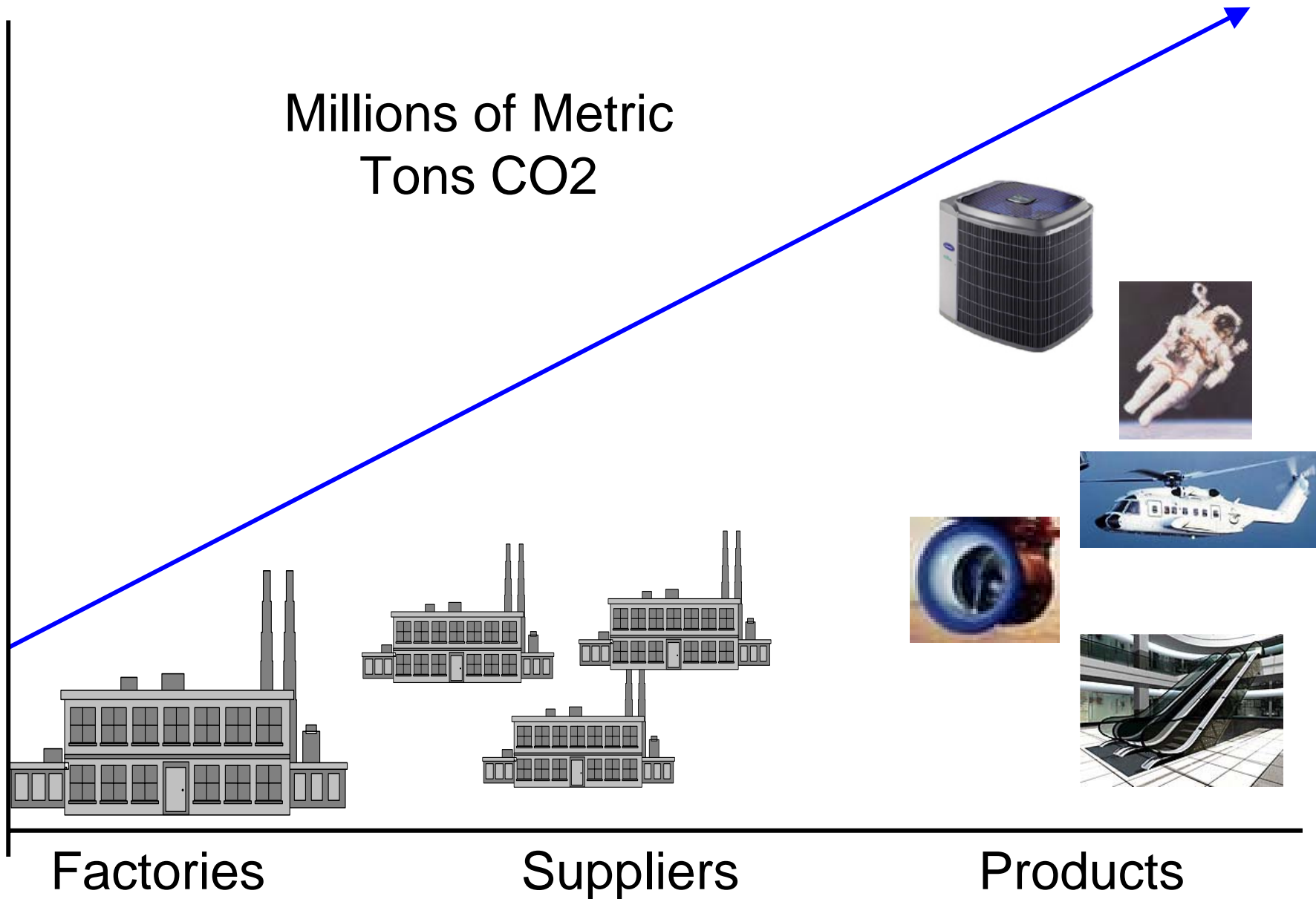
UTC NORMALIZED ENERGY



UTC FOOTPRINT



Challenges: UTC's Climate Change Footprint

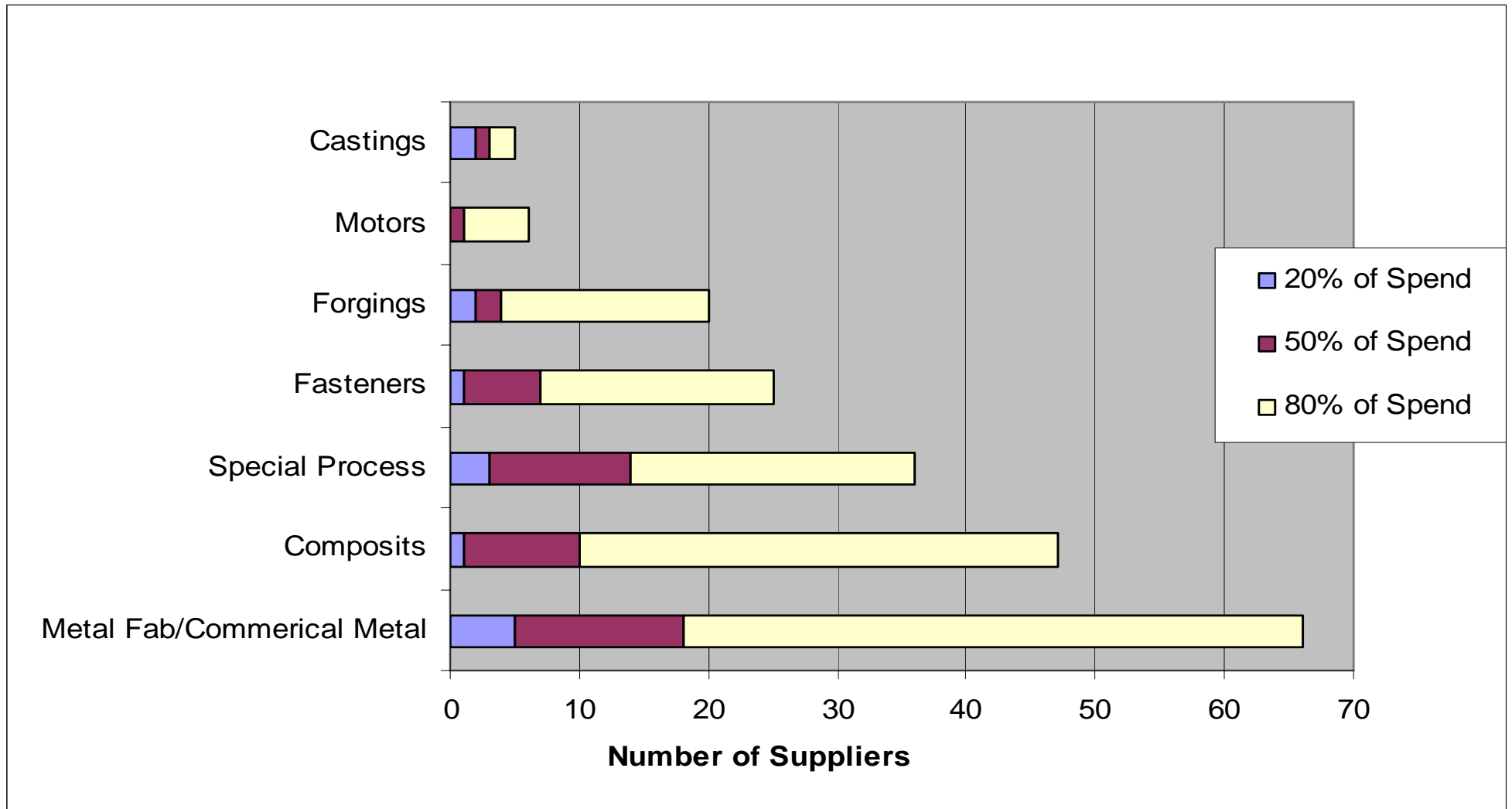


Managing UTC's EHS footprint

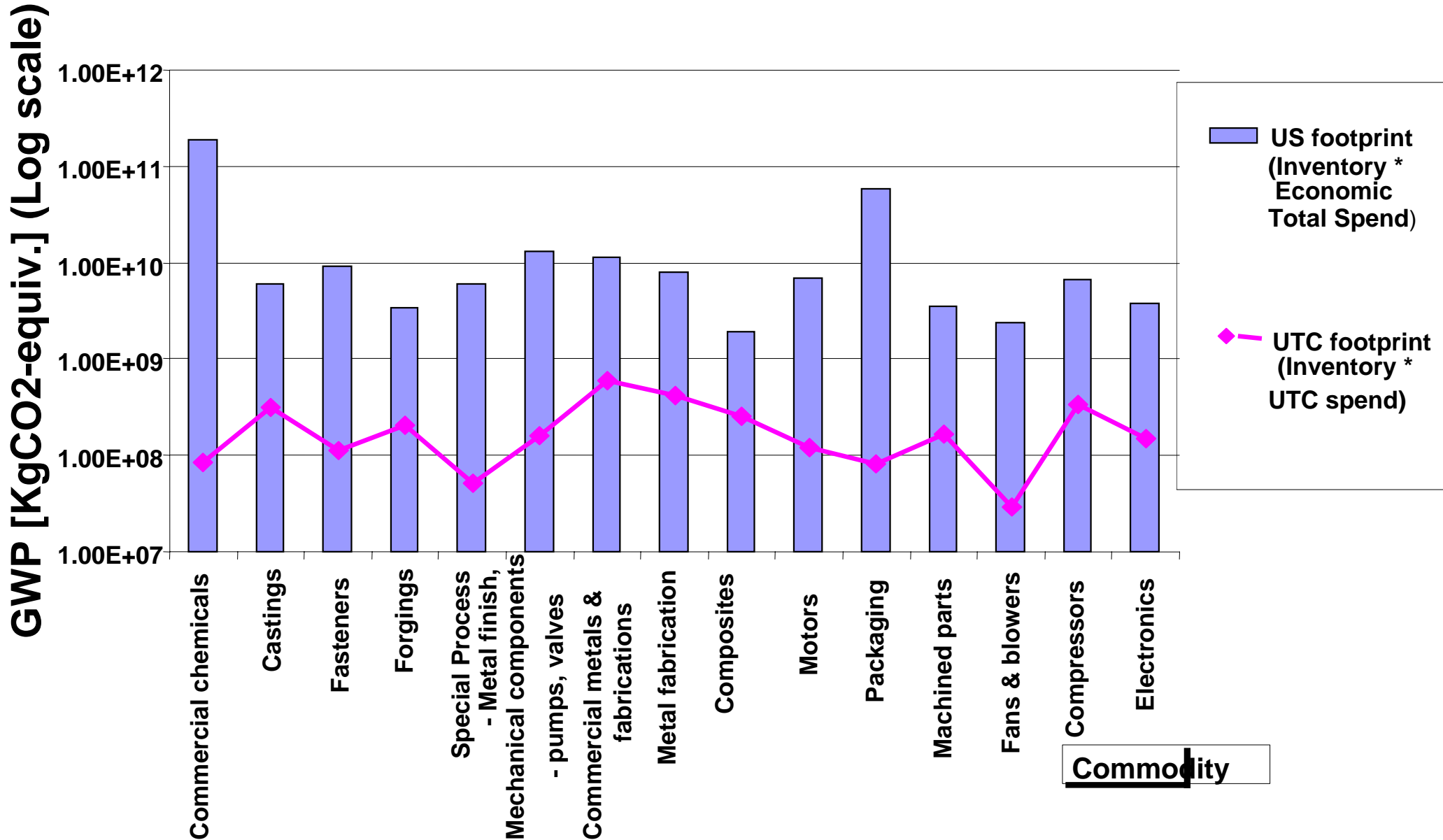


- **Focus on reducing the UTC's EH&S Footprint**
- **Touch the high risk & business critical commodities**
(100,000 suppliers not manageable)
- **Add business value**
- **Integrate EH&S efforts into Supply Management and Quality**

Targeted Suppliers in Identified Commodities



UTC FOOTPRINT FOR GLOBAL WARMING



Supplier Encouragement Letter

“...EH&S considerations remain central to UTC’s business and to our partner suppliers. Partnering with World Class suppliers that share our vision and can support our need to continuously improve is paramount to UTC. We encourage you to consider committing to the EPA Climate Leaders Program and enjoy the benefits that this unique opportunity affords.”

UTC's Greenhouse Gas and Energy Conservation Program

- Policy/Goals
- Quarterly Tracking of Greenhouse Gas
- Project Tracking
- Energy Assessments
- Awareness
- Training
 - Regional and Virtual
- Tools
- Recognition/Awards

Project Tracking

UT 500 Project	Project Description	Stop Light	Project Cost	Completion Date	Status
Energy Efficiency	Comput monit. Shut	Green	\$0	Dec-02	Working
Energy Efficiency	Compressor Upgrade	Yellow	\$2,000,000	Apr-02	Pending
Energy Efficiency	Secure windows/hatc	Green	\$0	Dec-00	Completed
Leak Management	Comp Air leak repair	Green	\$0	Dec-01	complete
Energy Efficiency	Test cell light upgrade	Red	\$150,000	Dec-01	On hold
Energy Efficiency	New Energy metering	Green	\$150,000	Dec-01	complete

Summary Of Energy Assessments

- Over 40 Manufacturing plants audited
- Savings averaged 20%
- Average payback of all conservation measures less than 3 years
- Over \$3 million in savings opportunities

THE EH&S SUPPORTED ASSESSMENT



Planning Stage
Preliminary Walk-through
Brain-Storming Session
Opportunity Development
Report Formulation



**What's a
little wasted
electricity?**

**A powerful
expense.**



United Technologies

Environment, Health and Safety Policy

Printed on recycled paper using soy based inks.

**浪费一点电算
得什么？**

**积累起来就是
很大的开支。**



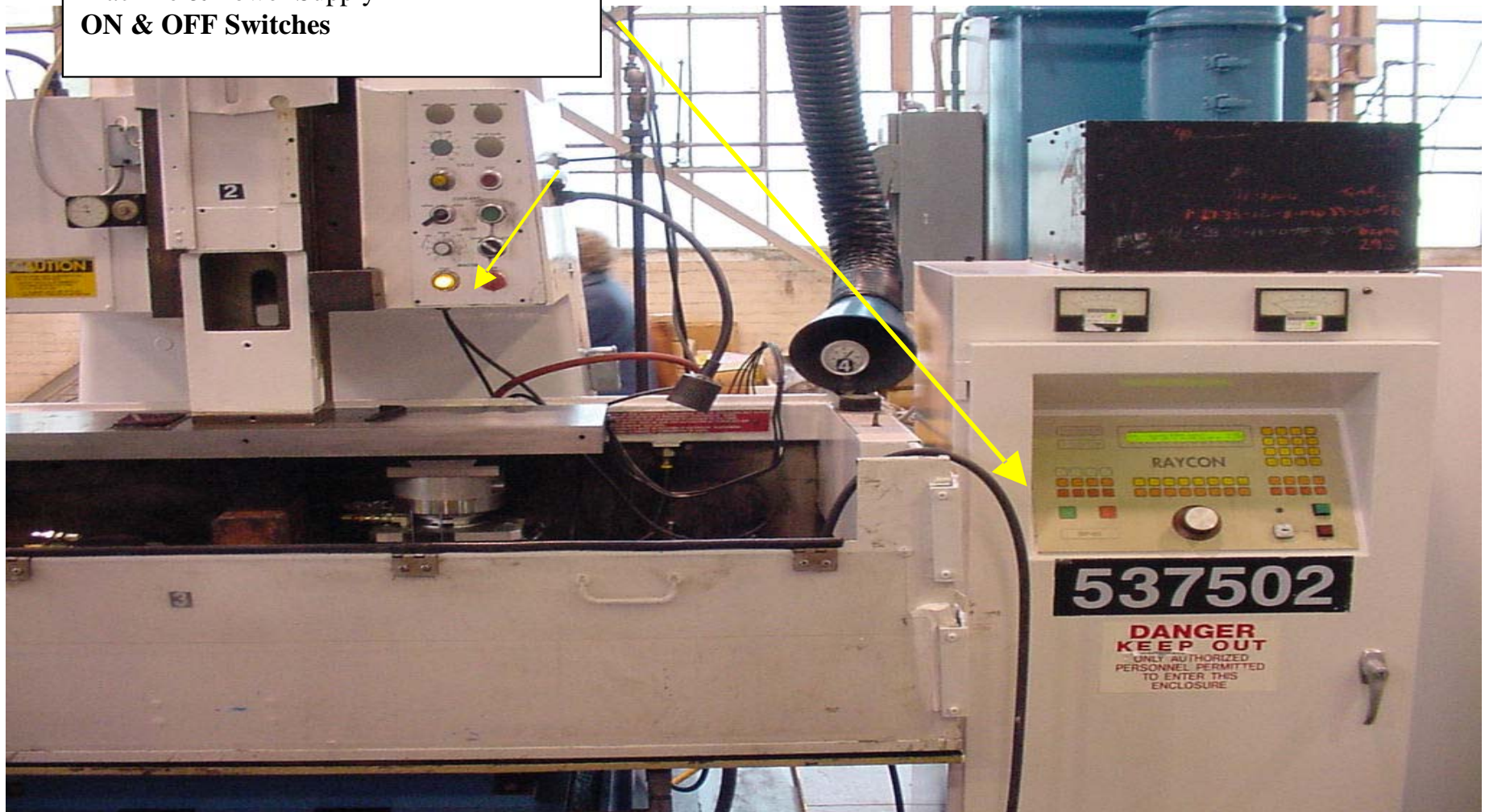
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环境、健康、安全方针

本文件为环境、健康与安全方针。

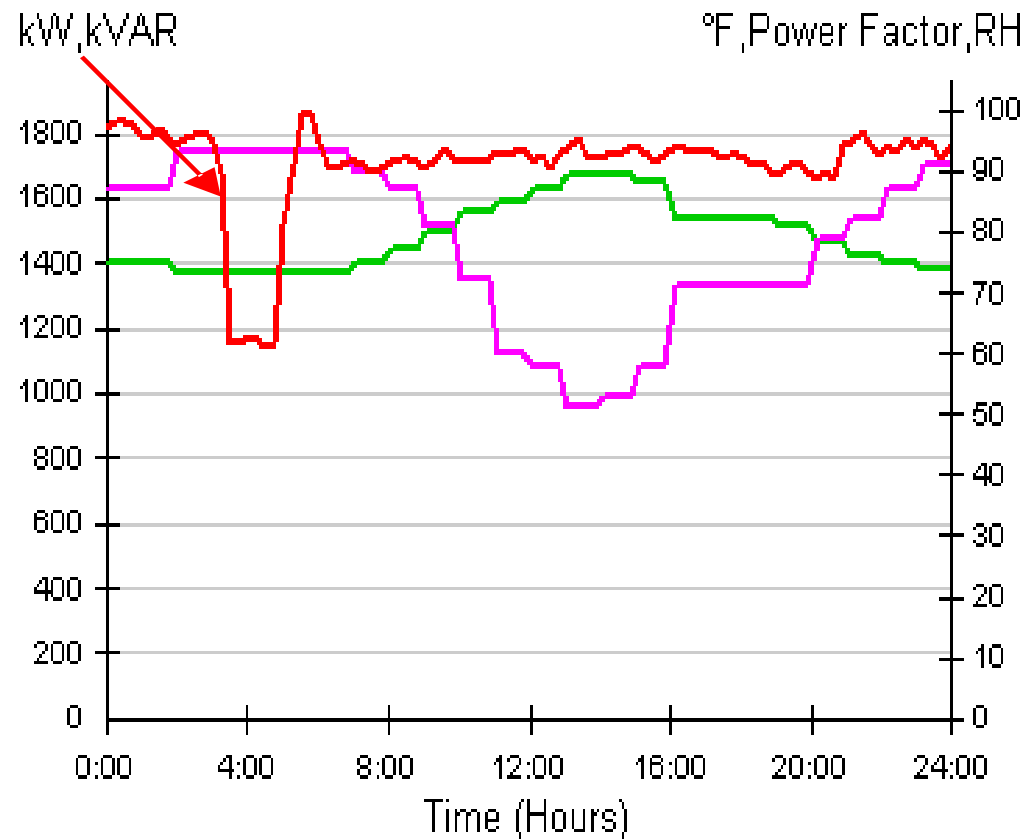
TOOLS: Establishing a “Shut-it-off” Program

Machine & Power Supply
ON & OFF Switches



Energy Consumption During Non-Production Hours

- Normal Production Load is 3,600 kW
 - Non-Production Load is 1,800 kW
 - 50% Non Production Energy is costing them \$400,000 per year
 - 10-15% Possible

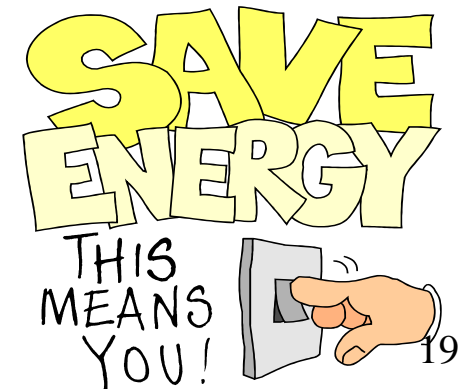


SHUT-IT-OFF OPPORTUNITIES

<u>Location</u>	<u>Non-Production Energy</u>
Site One	55%
Site Two	60%
Site Three	40%
Site Four	50%
Site Five	40%

Best Practice: 20% non-production energy

Typical Payback: <1 year



LEAK MITIGATION

	<u>Potential Savings</u>	<u>% Leak</u>
Site One	\$ 215,000	25
Site Two	\$ 60,000	30
Site Three	\$ 50,000	10

Best Practice: 5% Leakage Rate

Typical Payback: <1 year



**Guidelines
Developed by
UTC Energy
Council
Lighting
Subcommittee**



**UTC LIGHTING
GUIDELINES**

Absorption/Adsorption / Oil Flooded Rotary Screw Compressors / Artificial

**Guidelines
Developed by
UTC Energy
Council
Compressed Air
Subcommittee**

Cost / Supply Side/Demand Side / Demand Mana

Standards / SCFM/bhp / Pressure Dew Point / AutoDual

Modular / Multi-Stage Compressors / Inter

micron Particle Size / Compressor Stage / Preventative Main

Coalescing Filters / Primary Storage

Reciprocating Compressors / Air Drop

Vortex Cooling / Quick Coupl

Cleaning / Blo / s / Air Jet

Safety / Seco / nge / Pressu

DOP Efficiency / Regenerative Desiccant Dryer / Moisture S

Filter-Regulator-Lubricator / Receiver Tank / Installation / Air System

Leak Management / \$/10

Anaerobic Joint Compound / Centrifugal Compressors / Demand Condens



**UTC COMPRESSED AIR
GUIDELINES**

Awards & Recognition:

Pratt & Whitney, Middletown

- **Team with Carrier**
- **Multi project plant approach**
- **\$5M program**
- **Utility Incentive \$1.2M**
- **Annual savings \$555,000**
- **Reduced 90,000 MMBtu**
- **UTC energy conservation award winner 2000**



Presentation of \$758,000 Utility Check

Awards & Recognition

Springer Carrier, Canoas Brazil

- **1999 Robert Daniel
Winner for Excellence in
Safety and Environmental
Performance**
- **Plant wide electrical
improvements**
- **Plant electrical usage
reduced 31% since 1997**
- **Annual savings \$560,000**



Awards & Recognition

Otis – Breclav, Czech Republic

Energy Reduction Projects

Heating system

Lighting system

Compressed air system

Savings

1.15 mill. kWh

560,000 m³ natural gas

\$265,000 annual savings



Summary:

- Supplier Partnerships Can Create Opportunities for Greenhouse Gas Management and Mitigation by:
 - Leveraging UTC Experiences and Programs
 - Joining U.S. EPA Climate Leaders
- Win/Win:
 - Minimize Environmental Footprint
 - Reduce Operating Costs