United Technologies

PEW CENTER ON Global CLIMATE CHANGE

ENERGY & GHG REDUCTION AT UTC

BELC Energy Efficiency Workshop

Paul J. Vitello, Director Environmental Sustainability

July 16, 2008

Environment, Health & Safety

United Technologies Corporation

UNITED TECHNOLOGIES

$55B Revenues; Seven Business Units

Carrier
A United Technologies Company

Heating, ventilating, cooling & refrigeration systems

UTC Power
A United Technologies Company

Clean power, cooling / heating solutions

Hamilton Sundstrand
A United Technologies Company

Industrial & aerospace systems

Pratt & Whitney
A United Technologies Company

Aircraft engines, gas turbines & space propulsion systems

Sikorsky
A United Technologies Company

Helicopters

Otis
A United Technologies Company

Elevators, escalators, moving walkways, people movers & horizontal transportation systems

UTC Fire & Security
A United Technologies Company

Security & fire protection services

SUSTAINABILITY

Social, environmental and economic performance

"Sustainability is doing things efficiently to preserve resources and minimize environmental impacts.
Not everyone broadens the definition to include human capital but I would…."

George David, Chairman
United Technologies Corp.

Sustainability themes are essential:

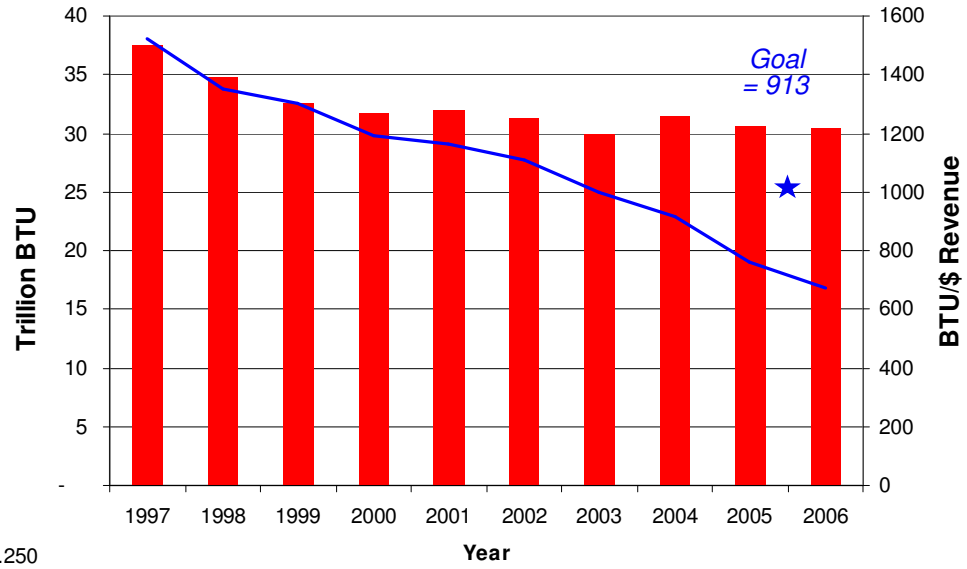
- energy efficiency of our products in service;
- environment, health and safety impacts in our own operations;
- productivity in its conventional sense (more broadly doing more with less) including in the supply chain;
- opportunities for employees to develop themselves;
- legal compliance and high ethical standards; and
- engagement in the communities where we work and live.

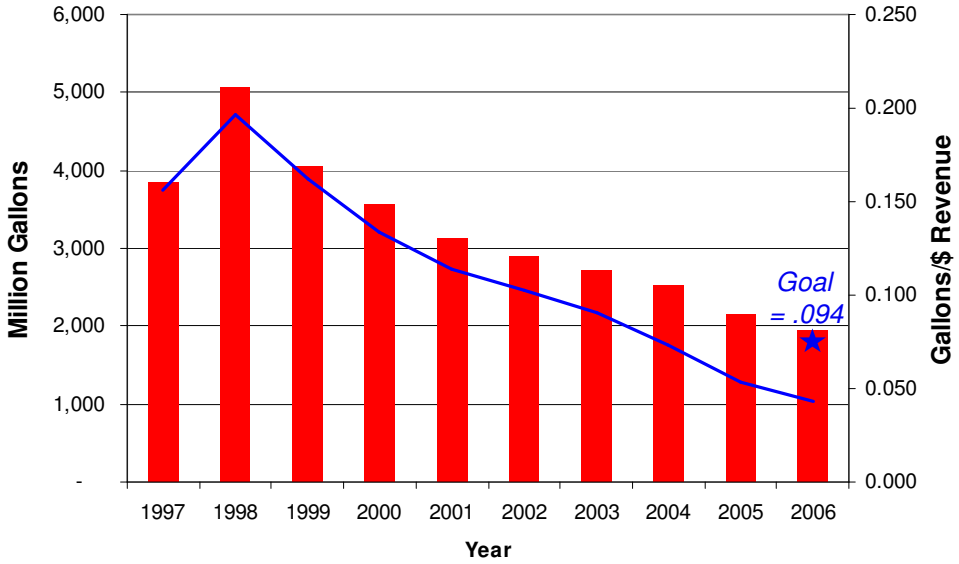
ENERGY & WATER PERFORMANCE

1997-2006 Goal: 40% Normalized reduction

Worldwide Energy Consumption

56% normalized and 19% absolute reductions 1997-2006 ⟶





Worldwide Water Consumption

72% normalized and 49% absolute reductions 1997-2006 ⟵

ENVIRONMENT, HEALTH & SAFETY

2010 EH&S Goals

Factory & Operations Metrics

Non Greenhouse Gas Emissions
20% ↓

Greenhouse Gases (CO2 equiv.)
12% ↓

Waste

Industrial Process
10% ↓

Non-Recycled
30% ↓

Water

Consumption
10% ↓

Chemicals Discharged
10% ↓

Regulatory

Notice of Violation
0

Permit Exceedances
0

Assurance Review Score
≥ 70%

Safety

Worldwide Lost Day Incidence Rate
Target = .17

Worldwide Total Recordable Incidence Rate
Target = .64

Supplier Metrics

Critical Suppliers
100%
meet UTC EH&S expectations

Product Metrics

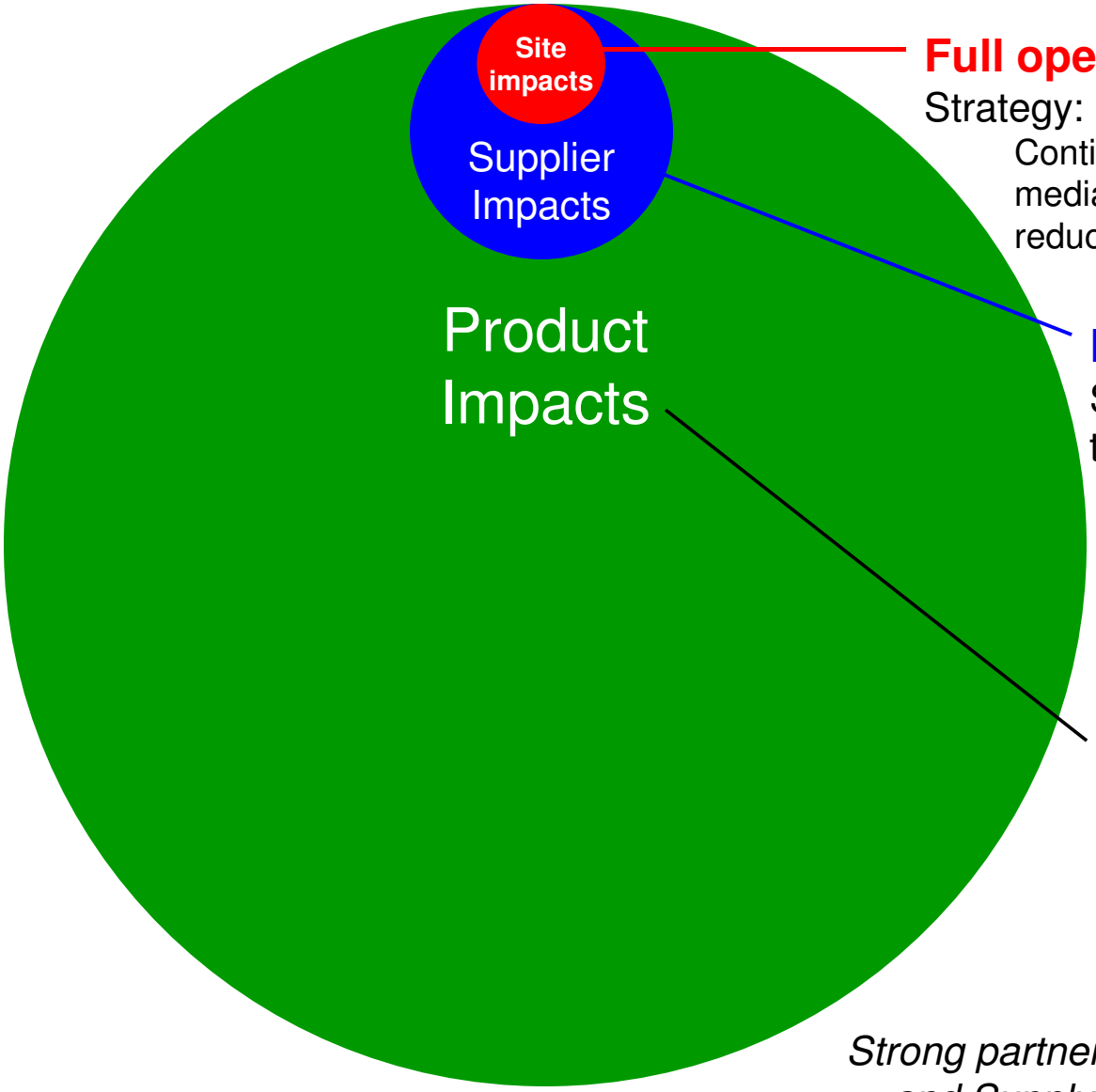
Minimum requirements for Passport and design review certification

Packaging
10% ↓
in product packaging

Energy Efficiency
10% ↑
from baseline product

Materials of Concern
100%
eliminated in new products

EH&S IMPACTS, CONTROL AND STRATEGY



Full operational control

Strategy: "All-In"

Continued progress toward all sites, all media reporting and included in goals for reduction. Estimate usage when required.

Limited control

Strategy: Roll out program and then expand breadth and depth

Standardize reporting across industries

Leverage supplier selection criteria, specifications, and T&Cs.

Design control; limited operational control

Strategy: Calculate impacts and influence new product design and development process(es)

Strong partnerships between EH&S, Engineering and Supply Management is critical to success.

TOOLS FOR UTC SITES WORLDWIDE

Developed and launched:

UTC EH&S Energy and Greenhouse Gas Standard Practice SP-017, UTC Energy Management Guidebook, and Project Module in EIS.

"What"

United Technologies

UTC EH&S STANDARD PRACTICE 017
ENERGY AND GREENHOUSE GAS REDUCTION

A. INTENT

This standard practice outlines the activities necessary to reduce direct and indirect greenhouse gas (GHG) emissions from UTC operations worldwide. A significant source of these emissions is directly related to the energy consumption at UTC sites. This standard practice outlines the elements necessary to manage and ultimately reduce energy intensity, energy consumption and the associated greenhouse gas emissions resulting from purchasing electricity and the burning of fossil fuels in production, operations, and transportation. This will be accomplished by applying generally accepted industry standards, guidelines and best energy management practices worldwide.

These energy efficiency and operating standards establish UTC's standard approach and methodology to reduce energy intensity, energy consumption and greenhouse gas emissions from operations. Effective implementation of this standard will control risk, lessen environmental impacts, establish best practices, minimize total operating costs and reduce the variability in monthly energy costs.

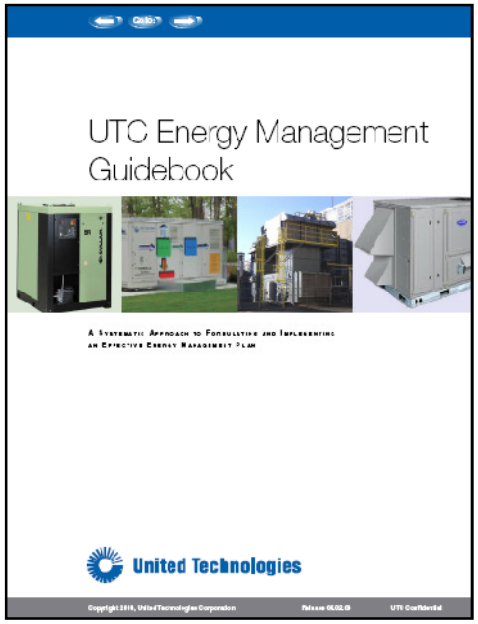
B. APPLICABILITY

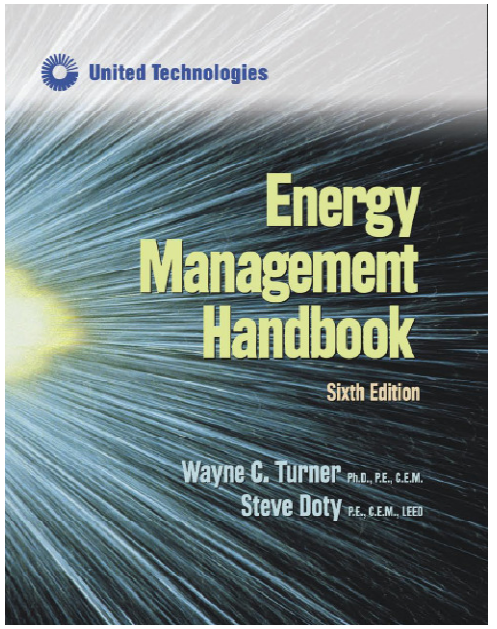
This standard applies to all UTC business units and operations worldwide.

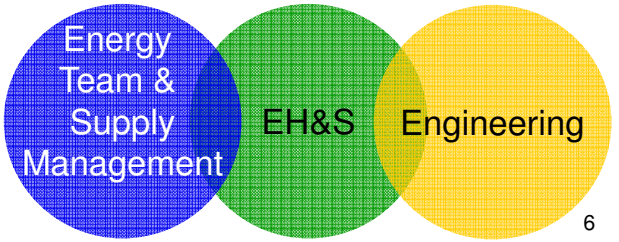
This standard will apply where no local legally applicable requirements exist or where less stringent requirements apply to energy conservation and greenhouse gas reductions.

Due to the varying size and scope of UTC's operations worldwide, the ca
applicability of each element of this standard must be assessed
operation basis. The minimum expectation is a documen

"How"

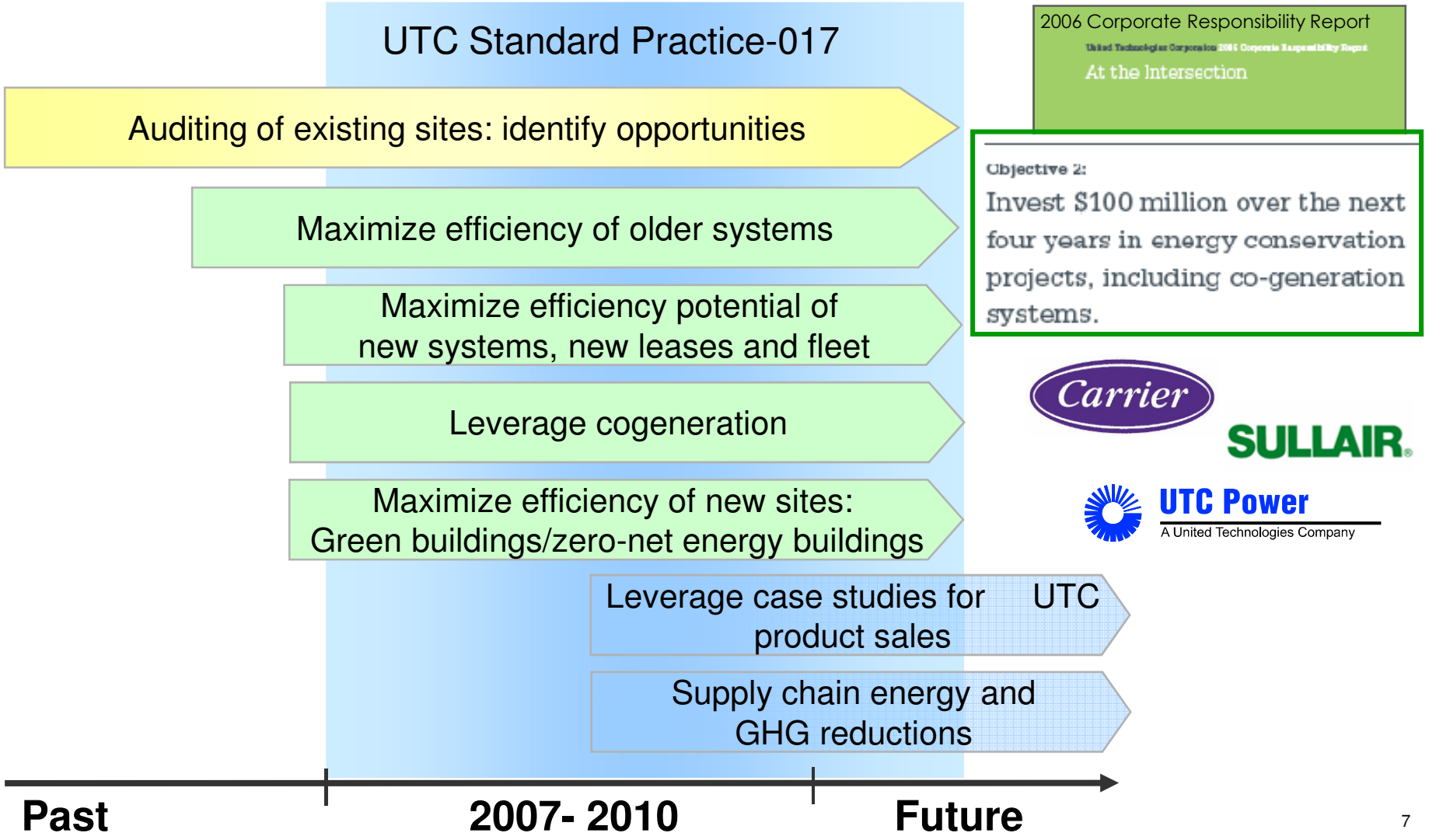






GHG REDUCTION STRATEGY

Energy & GHG reductions = lower operating costs



2006 Corporate Responsibility Report

United Technologies Corporation 2006 Corporate Responsibility Report

At the Intersection

Objective 2:

Invest $100 million over the next four years in energy conservation projects, including co-generation systems.

Carrier

SULLAIR

UTC Power

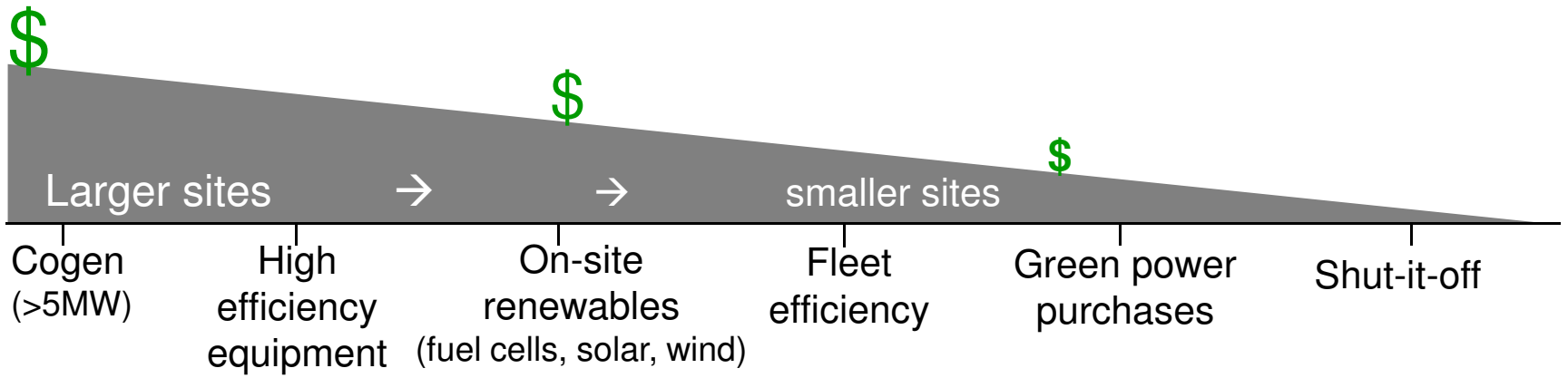
A United Technologies Company

GHG REDUCTION STRATEGY

Identify footprint segments and drivers

Tactics: Conservation projects and equipment upgrades

Energy and GHG reductions = lower operating costs



Enablers → **Actions**

Enablers	Actions
Cross-function engagement	Standard Practice #17 (SP-017)
Tools development	Energy Management Guidebook
Training and Education	Workshops; audits and standard work
Communications	Executive; CRR; briefing kits; EHS brochure

PROJECT DATABASE

All businesses/all sites

Since 2007 UTC identified over 800 projects valued at > $120 million
$57 million are funded; more than half are co-generation projects:

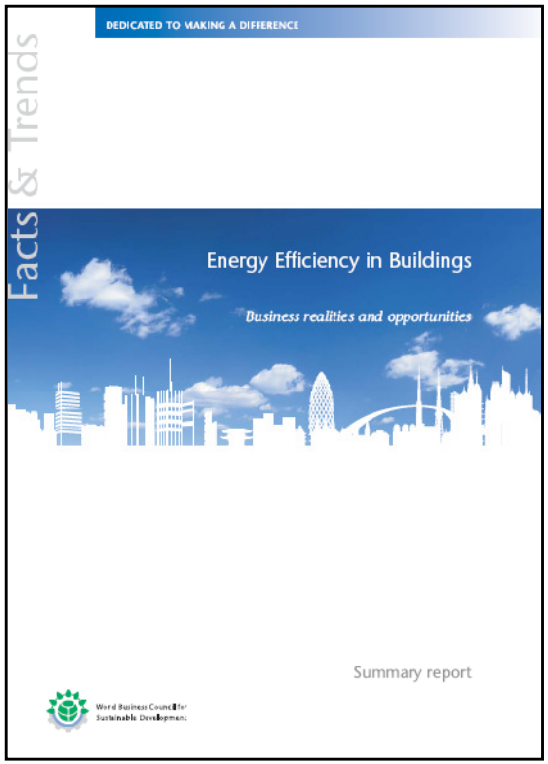
The co-generation system at Pratt & Whitney Middletown, Connecticut is running

Our Newington, Connecticut data center CHP system will be up and running in 2008

Co-generation systems at Sikorsky in Stratford, Connecticut and Hamilton Sundstrand in Windsor Locks, Connecticut will be on line in 2009.

WBCSD

Energy Efficiency in Buildings Project



Introduction

We are pleased to present the first year's report of the Energy Efficiency in Buildings project of the World Business Council for Sustainable Development. Ten companies headquartered in six countries have investigated and synthesized an exceptional data set reflecting more than 100 billion square meters of building floor space and two-thirds of world energy demand. The result is a significantly more detailed view of the current state of energy demand in the building sector than has previously been compiled. Importantly, it concludes that all participants can immediately drive down world energy demand and reduce carbon emissions using technologies and knowledge available today.

Work over the next year will focus on "zero net energy" building designs and applying these to the world buildings data set. The goal is the first quantitative look ever at what may be accomplished economically to reduce energy demand and CO_2 emissions in buildings over the next two decades. We expect a persuasive result.

In the third and final phase of the project we will commit to actions that will move the building industry towards zero net energy buildings and invite others worldwide to join in the effort. We hope our work inspires a global discussion and ultimately a profound change in the way buildings are designed and constructed.

George David
Chairman and CEO, UTC

Bruno Lafont
Chairman and CEO, LAFARGE

Björn Stigson
President, WBCSD

Jean François Cirelli
Chairman and CEO, Gaz de France

K.B. den Daas
Executive Vice-President, Philips Lighting

Pierre Gadonneix
Chairman and CEO, EDF

Chad Holliday
Chairman and CEO, DuPont

Tsunehisa Katsumata
President and CEO, TEPCO

Shosuke Mori
President and Director, Kansai

Álvaro Portela
CEO, Sonae Sierra

Lorenzo H. Zambrano
Chairman and CEO, CEMEX

The goal is the first quantitative look ever at what may be accomplished economically to reduce energy demand and CO_2 …

We expect a persuasive result.

ENERGY & ENVIRONMENT

Energy efficient buildings

LEED Certified buildings
- UTC standard for all new construction
- LEED Gold is target

Otis TEDA facility: LEED Gold target

United Technologies

Sustainable Facilities Policy Statement

UTC EH&S Policy

United Technologies Corporation will not be satisfied until its workplace is safe from hazards, its employees are injury free, its products and services are safe, and its commitment to and record in protecting the natural environment are unmatched. UTC will make environment, health and safety ("EH&S") integral components of all business processes that impact the products, services, and operations of UTC worldwide.

Sustainable Facilities: Intent

The principle of sustainability is to do things efficiently to preserve resources and minimize adverse environmental impacts. UTC is committed to sustainability through five "themes": efficiency of our products, EH&S impacts of our operations, overall productivity, development of our people, and legal compliance and high ethical standards.

Buildings contribute 40 percent[1] of total greenhouse gas emissions globally. With a worldwide real estate portfolio of over 100 million square feet of owned and leased facilities, United Technologies can design and build new facilities that support the EH&S policy to minimize impact on the environment, provide economic benefits and demonstrate our continued commitment to sustainability to our employees, customers, shareholders and the public.

A Sustainable Facilities Policy will:

- Conserve energy, reduce greenhouse gas emissions and minimize environmental impact.
- Utilize UTC products and expertise in establishing sustainable and cost effective buildings.
- Provide an indoor environment that enhances employee health, safety and productivity.
- Ensure operation, maintenance and efficiency savings over the life of the building.

Sustainable Facilities: Requirements

Effective January 1, 2008, United Technologies Corporation will utilize the Leadership in Energy and Environmental Design (LEED) building rating system to incorporate sustainable practices in all new facilities. Building that are owned or leased are to include sustainable features that enable a minimum of LEED-Certified and a target of a LEED-Gold rating.

Sustainable Facilities Applicability

All new facilities for which UTC has majority ownership and all new build-to-suit leaseback facilities with a lease term of greater than 10 years.

Facilities where the design is greater than 50 percent complete as of January 1, 2008 are exempt. Sustainable facility policies for existing buildings and major renovations and/or additions will be addressed in 2008.

[1] World Business Council for Sustainable Development "Energy Efficiency in Buildings Summary Report" August 21, 2007 http://www.wbcsd.org/web/eeb

SUMMARY OF LESSONS LEARNED

Senior leadership support

Coordinated effort versus new activities

Establish challenging goals

Speak the audiences language

Data and communication

What next?

2011-2015 Goals

Q&A


Environment, Health & Safety
United Technologies Corporation

ENERGY EFFICIENT PRODUCTS

Pratt & Whitney
Geared Turbofan Engine

Projected 12% fuel efficiency improvement and 20 dB noise reduction

Pratt & Whitney
EcoPower® Engine Wash System

HS Sullair AirMetrix

15-35% lower energy consumption through a systems approach

PureCell™ System
80% efficient
2.7x grid efficiency

UTC Power

PureComfort™ System
90% efficient
3x grid efficiency

Carrier Evergreen® Chiller
40% improvement over standard

Otis Gen2® Elevator
75% lower power consumption than traditional hydr. elevators