National Renewable Energy Laboratory

Innovation for Our Energy Future

2007 Sustainability Report

A national laboratory of the U.S. Department of Energy
Office of Energy Efficiency & Renewable Energy

Introduction to NREL

PIX15681

The National Wind Technology Center at NREL develops advanced wind energy technology.

The National Renewable Energy Laboratory (NREL) is the only national laboratory dedicated to renewable energy and energy efficiency technology research and development (R&D). NREL's world-class scientists, researchers, and analysts are devoted to a full range of R&D activities that move these technologies from the laboratory to the marketplace, and ultimately, into our homes, businesses, and vehicles.

Our core competencies allow us to develop and advance renewable energy and energy efficiency technologies more effectively through the full R&D life-cycle—from basic scientific research through applied research and engineering; to testing, scale-up, and demonstration.

NREL's distinctive research and development areas of expertise are:

- Renewable electricity production and use—solar, wind, biomass, geothermal
- Renewable fuels formulation and use—biomass, hydrogen
- Integrated energy system engineering and testing—buildings, electric systems and transportation infrastructures
- Strategic energy analysis—economic, financial, and market analysis, planning and portfolio prioritization.

Laboratory Background

Established in 1974, NREL began operating in 1977 as the Solar Energy Research Institute. It was designated a U.S. Department of Energy (DOE) national laboratory in September 1991 as the National Renewable Energy Laboratory. NREL conducts research primarily for DOE's Office of Energy Efficiency and Renewable Energy. The Midwest Research Institute and Battelle operate NREL under the oversight of the DOE Golden Field Office.

Contents

Acknowledgments

The Sustainable NREL Master Plan implementation is managed by **Bob Westby**, Sustainable NREL Lead; and **Ellen Parker**, Sustainable NREL coordinator.

The following NREL management and staff members have primary roles in implementing the Sustainable NREL Master Plan: **NREL Executive Management** (laboratory stewardship and direction); **Drew Detamore** (site planning and new buildings); **Chandra Shah** (water); **Otto VanGeet** and **Anna Hoenmans** (electricity and natural gas use); **Bob Westby** (greenhouse gas reductions); **Chandra Shah** (green power purchasing); **Tim Peele** (transportation); **Karri Bottom** and the **Recycling Advisory Committee** (materials); **Maureen Jordan** (environmental management systems - including sustainability); **Grace Griego** (editing); **Laura Michael** (policies and procedures); **Kerry Masson** (public responsibility) and **Barb Stokes** (financial stewardship).

Message from the Director

PIX15584

Dan Arvizu, NREL Director

The past twelve months have seen nothing less than historic progress at the laboratory—with each new success serving to strengthen our standing as the nation's preeminent institution for renewable energy and energy efficiency R&D.

In FY 2007, Congress demonstrated its resolve to keep renewable energy research moving forward and provided major funding increases to the U.S. Department of Energy's (DOE) energy efficiency and renewable energy programs. Included in this new funding was $107 million for new facilities at NREL. As a result, we are well on our way toward realizing our long-held vision for transforming the NREL campus into not only the leading energy efficiency and renewable energy research center in the world, but also a magnificent showcase for what the future will look like for clean and sustainable energy.

We have broken ground on the new Research Support Facility (RSF) and are committed to making this new building a showcase of energy efficiency and "green" building practices. The RSF will be NREL's second Leadership in Energy and Environment Design (LEED) Platinum building. The Science & Technology Facility was the first federal building to achieve a LEED Platinum designation.

Under the auspices of DOE's Transformational Energy Action Management (TEAM) Initiative, NREL launched two major new on-site renewable energy projects, both using innovative private-sector financing. The Renewable Fuel Heating Plant will be a biomass combustion boiler that will reduce our natural gas consumption on the main campus by 75%. The Mesa Top Photovoltaic (PV) Project is planned as a 750 kW single-axis tracking PV system that will produce enough electricity to more than offset the entire electricity load of the new RSF.

While we grow and expand our work, we are still able to publicly commit to reducing our greenhouse emissions by 75% from 2005 to 2009. We achieved carbon neutrality in all of our operations for the second consecutive year.

I am fully convinced that our mission is both enabled and enhanced by our leadership in sustainability. NREL is committed to incorporating sustainable principles in our work, and we encourage application of these same principles by our stakeholders. Through our actions we can establish a new benchmark for what is possible to achieve a sustainable energy future for our nation and the world.

Dan E. Arvizu
NREL Director

Executive Order and DOE TEAM Initiative

PIX14519

President George Bush's visit to NREL

In fiscal year 2007 (FY 2007), President George Bush issued Executive Order (E.O.) 13423—strengthening federal environmental, energy, and transportation management. This E.O. established comprehensive, aggressive federal agency goals for increased energy efficiency, renewable energy generation and use, petroleum reduction/alternative fuel use, sustainable building standards, water conservation, etc. In follow-up, Secretary Samuel Bodman implemented the DOE Transformational Energy Action Management (TEAM) Initiative. TEAM requires that DOE will lead the federal agencies in the implementation of the E.O. goals at an unprecedented scale and rate.

As DOE's preeminent institution for renewable energy and energy efficiency R&D, NREL was designated to provide leadership in the DOE complex in achieving TEAM compliance. This report shows NREL's progress in meeting the TEAM goals.

About Sustainable NREL

Sustainability, in the sense of an organization and its operations, is the simultaneous and balanced pursuit of economic viability, environmental health, and public responsibility over the long term through appropriate investment decisions and operating practices. NREL implemented its Sustainable NREL initiative in 2000 to formalize and proactively pursue sustainability in all its operations and practices. Sustainable NREL activities are integrated with the laboratory's Environmental Management System to meet NREL's environmental stewardship goals. See the Sustainable NREL Web site at www.nrel.gov/sustainable_nrel/.

At NREL, we actively work to maintain a sustainable environment in our own workplace. We believe that our institution should use minimal resources (energy, materials, water, etc.) while receiving the maximum value from those resources used—along with balancing environmental, economic, and human impacts.

The goal of Sustainable NREL is to institutionalize sustainability at the laboratory. Significant progress has been made in achieving this goal of fully integrating sustainability into all laboratory operations and practices.

Sustainability Management Framework

Economic Viability

Environmental Stewardship

- Campus
- Water
- Electricity/Natural Gas
- Transportation
- Reduce, Recycle, Reuse, Re-buy
- Environmental Management
- Education/Communications

Public Responsibility

PIX15667

NREL works to maintain a sustainable environment at its permanent facilities.

NREL Sustainability Vision

The vision of Sustainable NREL is to establish a formal change in laboratory culture, ensuring that every decision we make fully considers all resource implications. When sustainability is a part of everything that we do at the lab, we will know that we have achieved our objective.

Energy Use

PIX15682

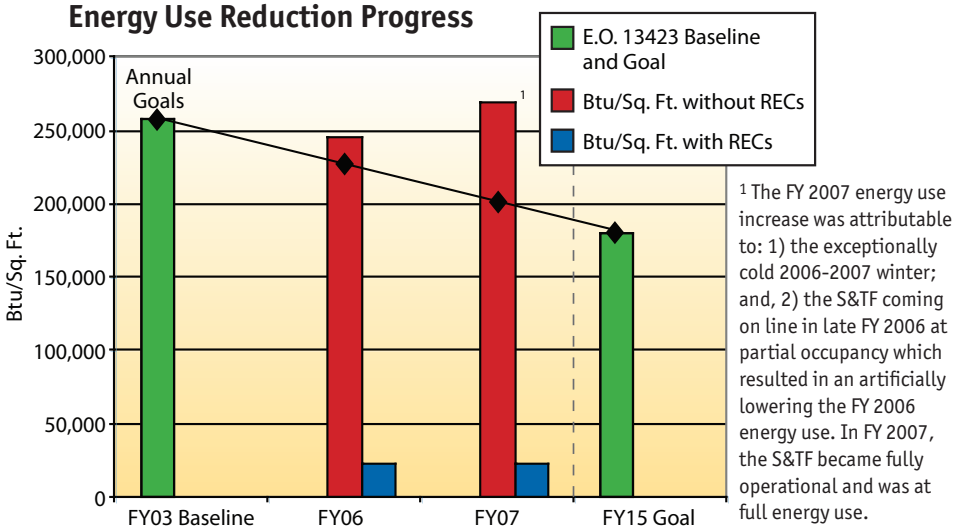
A renewable fuel combustion boiler using wood waste will be operational in FY08.

Energy Use Reduction Goal

Executive Order Team. *Beginning in FY 2006 improve energy efficiency through reduction of energy use intensity by 3% annually through the end of FY 2015 or 30% by the end of FY 2015 as compared to the baseline energy use in FY 2003. The team goal is to exceed the E.O. goal.*

Progress. *FY 2007 energy use was 90% lower than the FY 2003 baseline due primarily to the interim utilization of renewable energy certificates (RECs). This significantly exceeds the FY 2007 and FY 2015 reduction goals. NREL will exceed the FY 2015 goal in FY 2008 through the use of on-site renewable energy projects (exclusive of the use of RECs).*

NREL facilities are relatively new having been constructed since 1990. Further, they have been designed to be highly energy efficient. As a result, the laboratory's primary energy use reduction opportunities are focused on designing and constructing highly energy efficient new buildings and maximizing the use of on-site renewable energy projects. The new 71,000 sq. ft. Science & Technology Facility (S&TF), which went into initial operation in late FY 2006, is a certified Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ Platinum laboratory building featuring an aggressive energy efficiency design. Two new on-site renewable energy projects were approved in FY 2007 for FY 2008 operation. A renewable fuel (wood wastes) combustion boiler will displace approximately 75% of the laboratory's natural gas use. A 750 kW PV system will displace approximately 7% of the laboratory's electrical use.



NREL's energy use reduction opportunities are focused on new energy-efficient buildings.

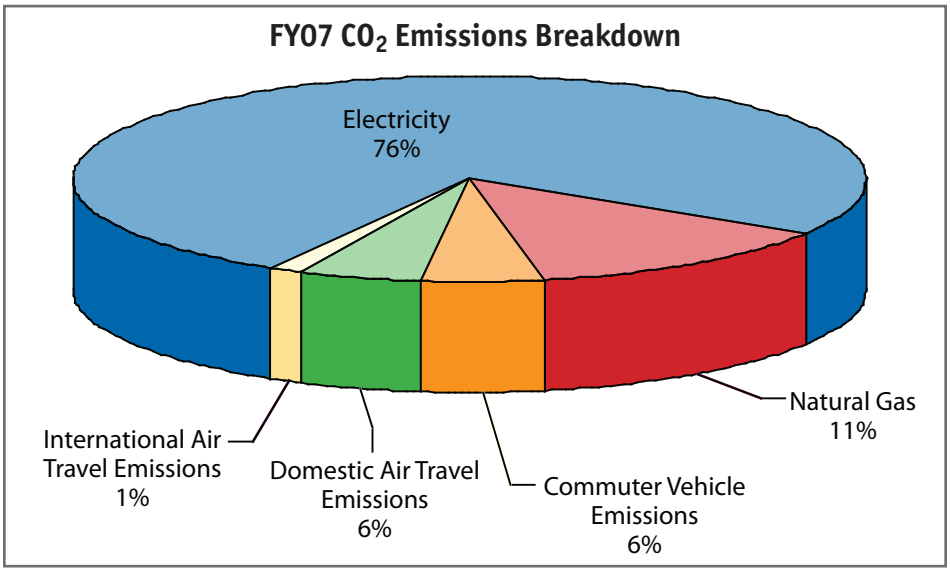
Environmental Footprint

Source	kg CO_2 Eq.
Electricity	25,376,679
Natural Gas	4,387,694
Commuter Vehicle Emissions	1,677,026
Domestic Air Travel Emissions	1,670,191
International Air Travel Emissions	448,001
Fleet Vehicle Emissions	90,838
Solid Waste Disposal	42,044
Water (Electricity Consumed)	16,923
Water (Natural Gas Consumed)	14,517
	33,723,912

NREL developed its "carbon footprint" to include sources beyond the laboratory's boundary, such as laboratory leased space, air travel, and those associated with staff travel to and from work. Sources with negligible emissions such as fleet vehicle emissions, solid waste disposal, and water (associated electricity or natural gas consumed) are not included in the table.

Beginning in FY 2003, the laboratory conducted a life-cycle assessment of its energy use and other activities that generate CO_2 and developed its CO_2 footprint.[2]

This CO_2 footprint helps quantify the environmental consequences of the laboratory's total operation in terms of a functional CO_2 common denominator. The use of such a universal metric allows the laboratory to make investment decisions; measure progress towards achieving carbon neutrality; benchmark performance against goals and other similar institutions; and in general, take responsibility for its actions.



Quantifying the CO_2 footprint helps NREL measure it's progress toward achieving carbon neutrality.

[2] Huffnagle, S.; Westby, R. Sustainable NREL: Laboratory Life Cycle Assessment of Environmental Footprint. NREL/CP-710-36529. Golden, CO: National Renewable Energy Laboratory, 2004. Available at www.nrel.gov/docs/fy04osti/36529.pdf.

Renewable Energy Solutions

PIX01153

The roof of the Solar Energy Research Facility is a platform for PV panels that evaluate the performance of integrated PV systems on commercial buildings.

Renewable Energy Use Goals

EPAct 2005. *Consumption of renewable energy shall be 3% for each year from FY 2007 through FY 2009; 5% from FY 2010 through FY 2012; and 7.5% from FY 2013 forward of annual electric consumption.*

Executive Order Team. *At least half of the statutorily required renewable energy consumed each fiscal year shall come from "new" (post January 1, 1999) renewable sources. The team goal is to exceed the E.O. goal.*

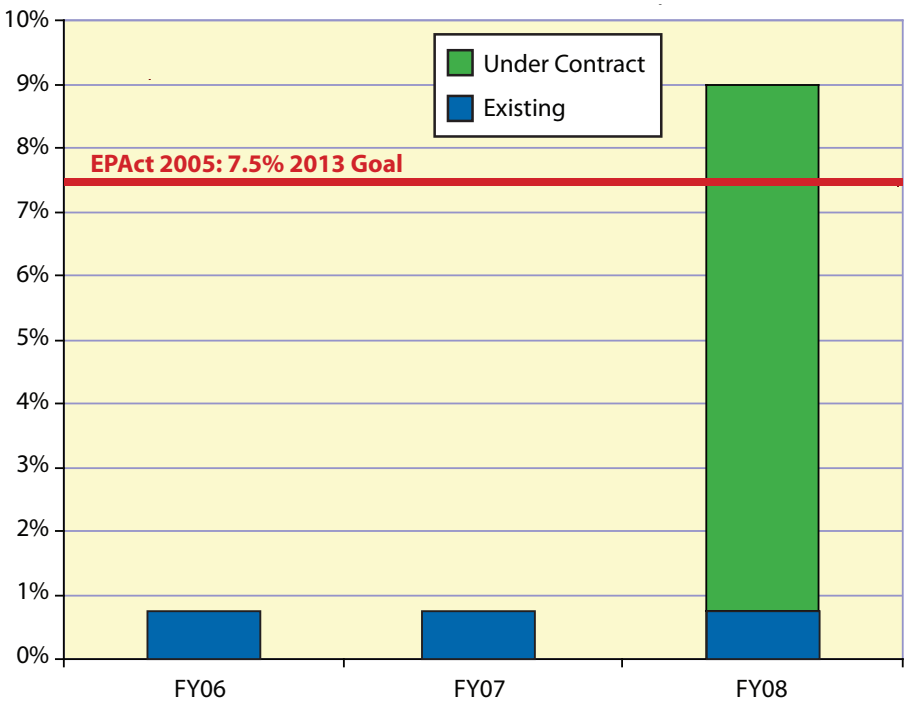
Progress. *FY 2007 renewable energy use was 100% of annual electric consumption due primarily to the utilization of on-site renewable energy projects and the purchase of RECs. One hundred percent of the renewable energy consumed was from "new" renewable resources. These results significantly exceed the renewable energy generation and use goals.*

NREL's ongoing policy is to maximize the use of on-site renewable energy and secondarily to purchase the RECs necessary to achieve laboratory "carbon neutrality."

Existing wind and PV (multiple on/off-grid systems) sources generated approximately 130 MWh. Renewable energy thermal sources including solar hot water systems, ventilation air preheat systems, Trombe walls, etc. produced some 10 MMBtu.

On-site Renewable Energy Project Generation

(Persent of Annual Electric Consumption)



Beginning in FY06, NREL also purchases the RECs necessary to off-set 100% of its annual electric use.

PV projects totaling an additional 1-1.5 MW have been proposed for implementation through PPAs in FY08/09. Conceptual rendering of NREL's planned Mesa Top PV Project.

Two new on-site renewable energy projects were approved in FY 2007 for operation in FY 2008. Both of these projects are being installed using innovative private sector financing arrangements.

Renewable Fuel Heating Plant

The Renewable Fuel Heating Plant (RFHP) will utilize a wood-fired (biomass) combustion boiler that will combust regional urban wood wastes and forest thinnings generated as a result of The Healthy Forests Initiative[1]. This plant represents a significant on-site renewables project, as it is projected to offset nearly 75% of NREL's current South Table Mountain campus natural gas use. The RFHP will be installed through an Energy Savings Performance Contract (ESPC) with initial operation scheduled for late spring 2008.

Mesa Top PV Project

This project is a 750 kW one-axis tracking PV system to be located on the laboratory's South Table Mountain campus. The project will be owned and operated by a third party developer with NREL purchasing the electric output of the system through a Power Purchase Agreement (PPA) with initial operation scheduled for fall 2008. The price of the electricity over the 20-year term of the PPA will be equal to or less cost of electricity purchased from the utility. The system will provide approximately 7% of NREL's annual electrical needs.

Artist's rendering of the Renewable Fuel Heating Plant

[1] For more information, see www.whitehouse.gov/infocus/healthyforests/.

Greenhouse Gas Emission Reductions

PIX07305

Denver's brown cloud, caused by pollution caught in a temperature inversion, is visible from NREL's campus.

Greenhouse Gas (GHG) Reduction Goals

Executive Order. *Reduce GHG emissions by 3% annually, or 30% by the end of FY 2015, relative to GHG emissions in FY 2003.*

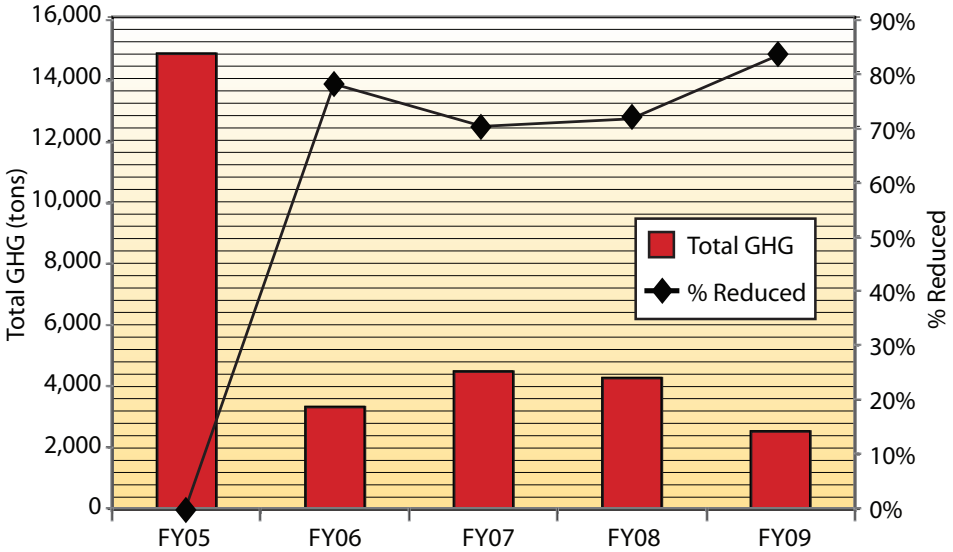
NREL Goals. *NREL will annually achieve "carbon neutrality". NREL has pledged through the EPA Climate Leaders Program to reduce its total U.S. GHG emissions by 75% from 2005 to 2009*

Progress. *In conjunction with energy use reduction performance, NREL is meeting and exceeding the E.O. GHG reduction goals. Beginning with FY 2006, NREL has annually achieved "carbon neutrality". NREL is on track to meet its EPA Climate Leaders GHG reduction goal.*

NREL GHG reductions are a focal point of NREL sustainability activities. To this end, the laboratory has made a commitment to implement cost-effective energy retrofits; substantially increase its on-site renewable energy projects; require all new construction to achieve at least a LEED Gold rating; and continue its purchase of RECs to totally offset the laboratory's CO_2 footprint.

When the RFHP and Mesa Top PV Project come on line during 2008, laboratory GHG emissions will be decreased commensurate with the significant decrease in natural gas electric use.

Projected Reductions to Meet EPA Climate Leaders Program (CLP) Goal



The NREL goal through the EPA Climate Leaders Program is to reduce its total U.S. GHG emissions by 75% from 2005 to 2009.

Sustainable Green Buildings

PIX14841

The interior of the Science and Technology Facility shows daylighting features.

Sustainable Design and High Performance Buildings Goals

Executive Order. *New construction and major renovations shall comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings.*

Fifteen percent of the existing building inventory as of the end of FY 2015 will incorporate the sustainable practices in the Guiding Principles.

TEAM. *DOE sites will achieve a LEED "Gold" rating on all new buildings.*

Progress. *All laboratory new construction complies with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings. As of FY 2007, 13% of the NREL existing building inventory incorporates the sustainable practices in the Guiding Principles. NREL has achieved a LEED Platinum rating on its most recent new building, the Science and Technology Facility.*

NREL's Science and Technology Facility (S&TF) was certified as LEED Platinum in FY 2007. The S&TF is the first federal LEED Platinum building and as a laboratory building was designed in accordance with the Laboratories for the 21st Century design principles. Labs21® is sponsored by the U.S. Environmental Protection Agency and DOE. It's a voluntary partnership program dedicated to improving the environmental performance of U.S. laboratories.

NREL's next new major building, the Research Support Facility (RSF), is a 225,000 sq.ft. office building. The RSF will be a design-build project with an aggressive energy budget of 25,000 Btu/sq.ft. The RSF is also being designed at the LEED Platinum level and as a Net Zero Energy building.

PIX15683

The S&TF displays its energy efficiency awards including:

- **Jefferson County Design Excellence 2006 Commissioners Award**
- **U.S. Green Building LEED Platinum**
- **DOE EERE Federal Energy Management Program, Federal Energy Saver Showcase**
- **Colorado Construction, Gold Hardhat 2006 Awards, Silver Hardhat Award, Outstanding Sustainable Design**
- **AIA Arizona Salt River Project, 2007 Sustainable Award**

Transportation

PIX15132

NREL employee ownership of hybrid electric vehicles per capita is more than 22 times that of the overall U.S. population. It's estimated that there are 55-60 employee-owned HEVs.

Petroleum and Alternative Fuel Use Goals

Executive Order. *Reduce fleet total consumption of petroleum products by 2% annually through the end of FY 2015 as compared to the FY 2005 baseline.*

Increase the total fleet fuel consumption that is non-petroleum-based by 10% annually.

Progress. *In FY 2007, NREL exceeded the E.O. FY 2015 fleet petroleum use reduction goal of 20% by achieving a 28.1% reduction. In addition, NREL exceeded the goal of increasing the FY 2007 use of non-petroleum-based fuel by 10% by increasing its alternative fuels use by 26%.*

NREL's transportation strategy focuses on the laboratory fleet and supporting employee alternative transportation opportunities.

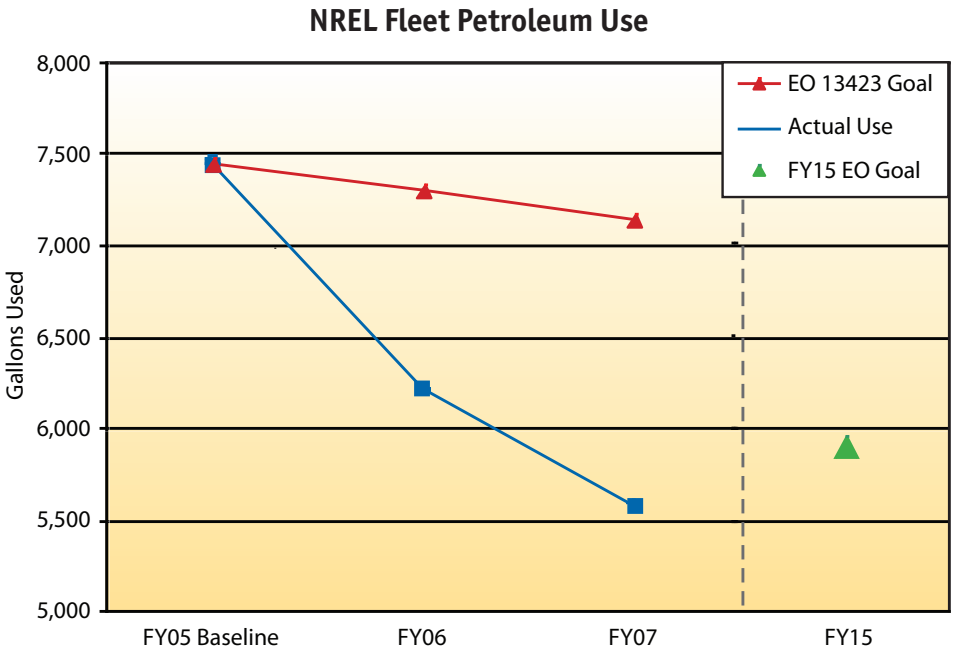
Of NREL's 47 fleet vehicles, 35 use alternative fuels, representing about 75% of NREL's total fleet. This use of alternative fuel vehicles decreased our petroleum use to 5,581 gallons in FY 2007, which significantly exceeds the E.O. FY 2015 goal.

In addition, since 1997, NREL has made a major commitment to the use of bio-based fuels in its fleet. Fifty-five percent, or 26 vehicles of the 47 fleet vehicles, are fueled by E85 (85% ethanol). The fleet used 12,494 gallons of E85 in FY 2007 which is more than 88% of the total fleet usage of 14,187 gas gallon equivalents of fuel. This increase in alternative fuel use represents an increase of 26% over the previous year. NREL is also actively exploring the use of biodiesel. NREL is piloting B20 (20% biodiesel) fuel use in several of its large, diesel-powered vehicles.

Alternative Modes of Commuting

Identifying and supporting employee alternative transportation opportunities are key to achieving sustainability in transportation. The NREL-sponsored programs that support the use of alternative transportation include:

- A free EcoPass for NREL employees in Colorado as part of their benefits package. This allows employees to use the Regional Transportation District bus system free of charge.
- A shuttle service, which uses alternative fuel vehicles to reduce vehicle miles traveled between buildings in Golden, Colorado, on the South Table Mountain and Denver West sites.
- An alternative work schedule policy, which allows employees to work varying schedules (with management approval), including four-day workweeks.



NREL's use of alternative fuel vehicles decreased the lab's petroleum use to 5,581 gallons exceeding the FY15 E.O. goal.

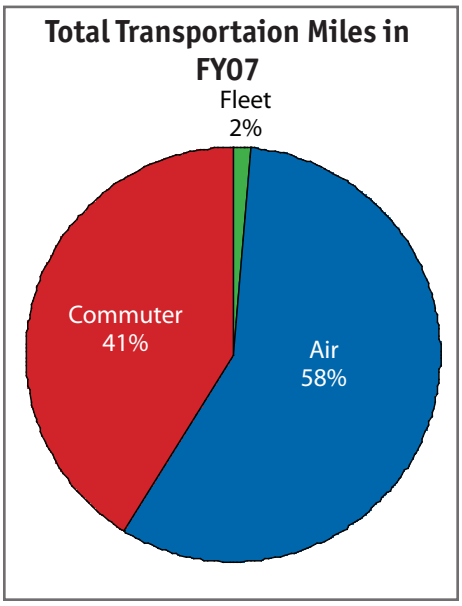
PIX15670

FY07 Bike to Work Day participant

Denver Regional Council of Governments (DRCOG) hosts Bike to Work Day each year during Bike to Work Month as a viable alternative to commuting. This year, 84 NREL participants registered. This was up by 29 participants from last year and the total miles the NREL participants traveled was 1092.35. NREL was also the proud recipient of the Business Challenge Winner—Class D for Jefferson County.

Video Conferencing

Domestic Air travel represents 58% of the total miles traveled. The laboratory has two offices: one in Golden, Colorado, and the other in Washington, D.C. During FY 2007, the use of video conferencing mitigated the need for 121 domestic air fights totaling 336,300 air miles.



NREL's current transportation miles. NREL continues to find ways to reduce fuel consumption.

Water Use

Water Use Reduction Goal

Executive Order. *Beginning in FY 2008, NREL will reduce water consumption intensity by 2% annually through the end of FY 2015 or 16% by the end of FY 2015, relative to the baseline water consumption in FY 2007.*

Progress. *Based on a FY 2007 water audit, NREL plans to implement measures to achieve 45% of the overall 16% reduction in FY 2008. Measures to achieve an additional reduction of 45% of the overall goal reduction are planned to be implemented in FY 2009. Reductions to achieve the balance of the overall goal are expected to be achieved through low-water use intensity features to be incorporated in new construction projects.*

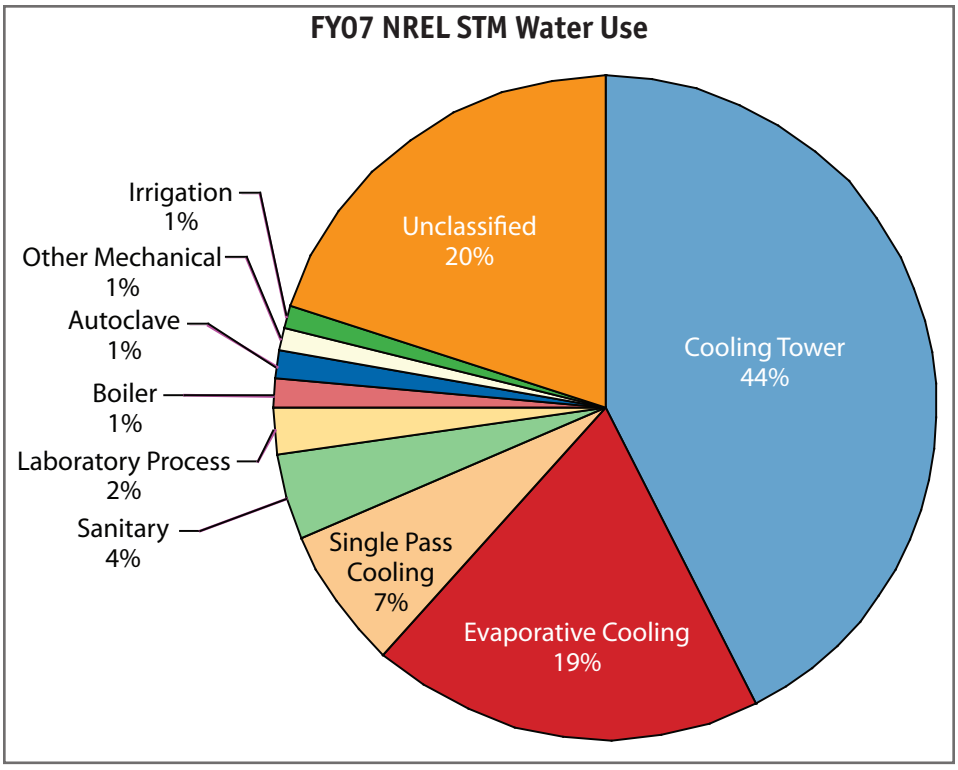
PIX12641

Sustainable landscaping outside of NREL's Thermal Test Facility reduces water use while remaining attractive.

The FY 2007 water-use baseline is 13.2 M gallons or 28.7 gallons/sq. ft. Given this baseline, the 2015 16% reduction goal is 2.1 M gallons. To identify water use reduction opportunities, NREL completed a site-wide water audit in FY 2007. The audit identified reduction opportunities of 1.8 M gallons. Measures resulting in 0.9 M gallon reductions are being implemented in FY 2008. Measures resulting in an additional 0.9 M gallon reduction are planned for implementation in FY 2009. The low-water use intensity design of planned new construction is expected to provide the balance of the reductions needed to achieve the FY 2015 goal.

PIX15442

The roof of the Science and Technology Facility is designed to collect and direct rain water to irrigate the surrounding landscape.



NREL's current water usage. NREL's goal is to reduce water usage by 2.1 M gallons by 2015.

Materials

PIX15669

Voluntary electronics recycling. A local electronic recycling company collected over 4,100 pounds of electronic waste from NREL employees.

Material Use Goals

Executive Order. *Ensure that the laboratory reduces the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of by the laboratory; increase diversion of solid waste as appropriate; and maintain cost effective waste prevention and recycling programs.*

NREL Goal. *Near Zero Waste (working to eliminate the laboratory's waste stream).*

Progress . *A Chemical Management System has been implemented to reduce the quantity of toxic and hazardous chemicals and materials acquired, including facilitation of sharing chemicals and redistribution of extra chemicals. Since FY 2003, NREL's non-recycled solid waste has decreased and recycled waste increased. NREL has implemented comprehensive reuse, re-buy, reduce and recycling activities.*

NREL's internal goal is Near-Zero Waste, which involves working to eliminate the laboratory's waste stream. It is also the next step in holistically coordinating and managing our recycling, re-buy, reuse, and reduce programs to systematically reduce waste. This goal is also a way for the laboratory to manage operating costs.

Recycling

Recycling is an established priority at NREL. NREL has a recycling station in each building for common office materials. Materials recycled include: mixed office paper, commingled glass, plastic, aluminum cans, corrugated cardboard, batteries, and printer toner cartridges. Scrap metal, computer monitors, and fluorescent light bulbs are also recycled.

Re-buy

NREL has implemented multiple green purchasing activities. NREL purchases office supplies through an online catalog featuring environmentally preferable (recycled content) products. Green purchasing was integral to NREL's decision to create an electronic purchase card system in FY 2005. The system tracks metrics on green purchases made at the laboratory and encourages staff to purchase green products whenever possible.

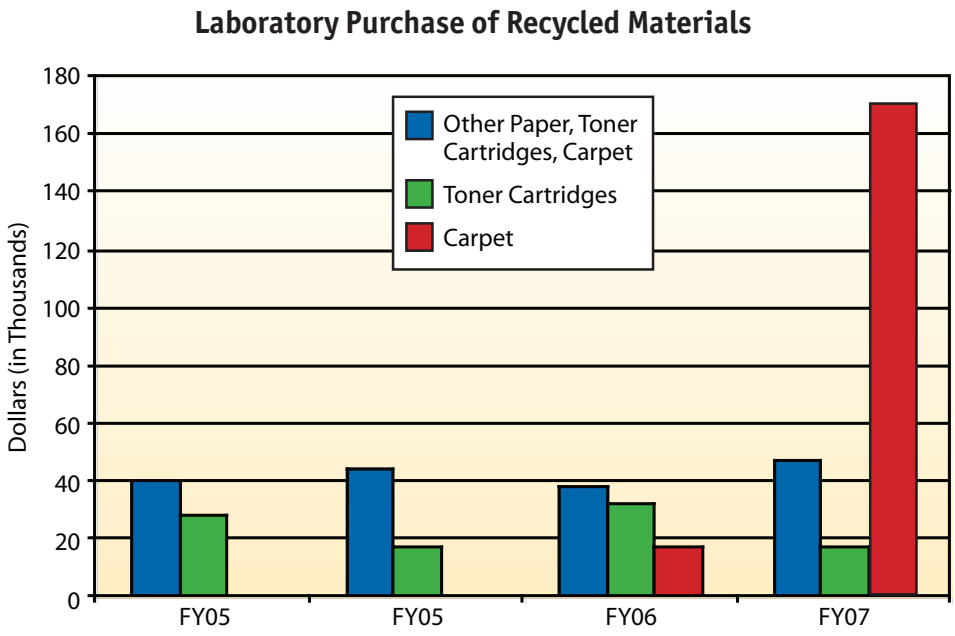
Reuse

NREL has established a Reusable Office Supply Center. Staff is free to take any office supplies needed and encouraged to drop off any new or good-as-new items.

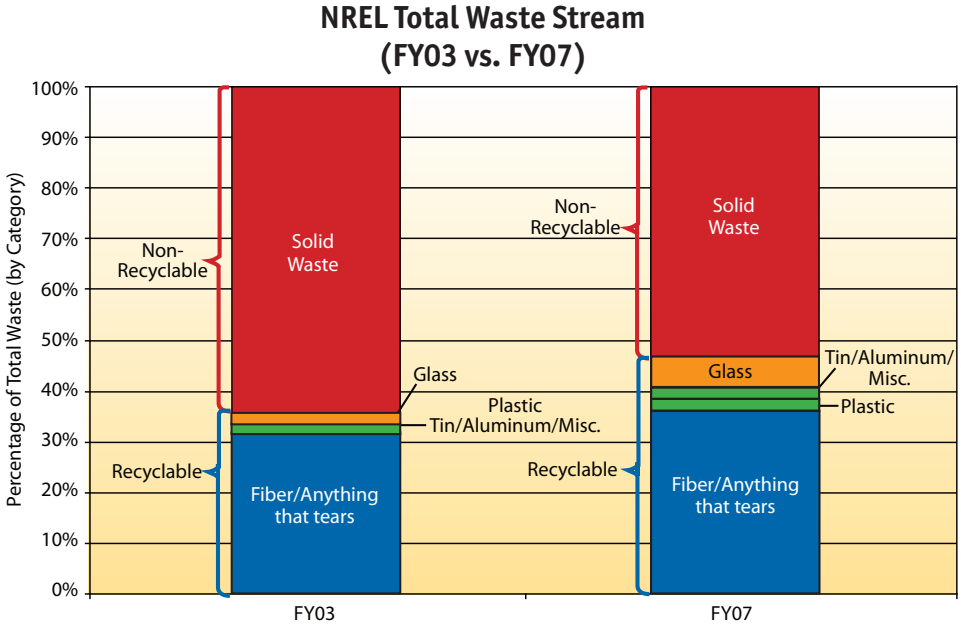
Reduce

NREL has multiple ongoing activities designed to reduce material use including:

- Electronic communications and publications replace paper drafts.
- Duplex modules were installed on all network printers, which default to the double-sided printing option.
- Staff reuses cardboard boxes, packing peanuts, plastic containers, and drums.
- NREL's Chemical Management System facilitates sharing chemicals and redistribution of extra chemicals.



Since 1999, 100% of all carpet, toner cartridges, and office paper purchased by NREL have contained recycled content.



Since FY03 NREL's non-recycled solid waste has decreased and our recycled waste increased.

New Construction Activity

New construction offers several materials-related, sustainability opportunities including green purchasing and recycling. NREL received LEED points for materials management at its new S&TF. At least 5% of the total value of materials used in the project contained recycled content. A least 20% of the total value of the materials and products used were manufactured regionally within a 500-mile radius of NREL. The contractor recycled about 75% of the total waste from the project.

Environmental Management

PIX14967

The Science and Technology Facility is the first federal laboratory to receive a platinum rating by the U.S. Green Buildings Council under its Leadership in Energy and Environmental Design (LEED) Program.

NREL has been recognized as a Gold Leader in the Colorado Department of Public Health and Environment Environmental Leadership Program since 2003.

NREL has an Environmental Management System in place to provide effective environmental stewardship of its federally-owned sites and to minimize the environmental impacts of our activities wherever we are working, whether on our own sites or the sites of partners or subcontractors. It is a system of processes and documents that guide NREL's activities: for implementing practices to protect and enhance the vegetation, wildlife, and natural resources of our sites; to comply with environmental requirements; and to encourage continuous improvement in environmental protection.

NREL prepares an annual environmental management report, summarizing NREL's environmental protection programs and activities. It includes a brief summary of how the program is managed in each area, including any permitting or notification efforts that have been completed during the reporting period. These reports are available on the Department of Energy Golden Field Office Web site: www.eere.energy.gov/golden/Reading_Room.aspx

Public Responsibility/ Community Outreach

PIX15380

A visiting group of Cub Scouts learn about the many aspects of renewable energy.

PIX15667

Interactive exhibits at NREL's Visitors Center explain renewable energy and energy-efficiency concepts to the visiting public.

During FY 2007, investments in the local community elevated NREL's reputation as a good corporate citizen. Public programs and access to information about renewable energy technologies at NREL's Visitors Center have made it a recognized community asset. The center served more than 14,000 visitors this fiscal year, including the general public, students and teachers, and special program attendees.

A key goal this year was to integrate NREL into the fabric of Colorado's business and government economic development activities. NREL was actively involved with local economic development organizations such as the Metro Denver Economic Development Corporation, the Jefferson Economic Council, and a number of other economic development groups across the state. We provided technical counseling, conducted special workshops and forums, gave speeches, and hosted visits for these agencies and their relocation prospects.

NREL helped the Jefferson Economic Council with its initiative to attract new energy companies to the region. Staff secured an advisory role with the Metro Mayors caucus and the Boulder advisory council on climate change. In these capacities, NREL is seen as a credible resource for valid information on energy efficiency and energy cost savings.

The laboratory inaugurated an Executive Energy Leadership Program for a small group of selected regional business and government leaders. The six-month program offered in-depth, day-long sessions on renewable energy technologies, policies and markets to help participants develop their own organization's new energy initiatives. The program received extraordinarily positive feedback from the first graduating class, which included four mayors, three city officials, five business people and one Congressional staff member. The participants have already opened doors for NREL in unexpected and positive ways that could result in future partnerships and favorable policies for renewable energy integration into everyday life.

The Path Forward

PIX15672

Bob Westby,
Sustainable NREL Lead

We are pleased to be reporting for the fourth year on the state of sustainability activities at NREL. In this sixth full year of formal activities, we have seen an evolution of the laboratory's sustainability activities and significant progress towards our goal of institutionalization of sustainability at the laboratory.

In FY 2007, Presidential Executive Order 13423 and the Secretary of Energy's TEAM Initiative helped energy, environmental, transportation, and sustainability activities. Going forward, here are highlights of some specific activities the laboratory will be pursuing to meet and exceed these mandates and to improve and enhance our sustainability activities.

- **New Construction**. The 225,000 sq. ft. Research Support Facility office building scheduled for completion in FY 2010–FY 1011 is being designed at the LEED Platinum level and as a Net Zero energy building.
- **On-site Renewable Energy Projects**. Two renewable energy projects are scheduled for initial operation in FY 2008. The Renewable Fuel Heating Plant will off-set some 75% of the South Table Mountain campus natural gas use. The Mesa Top PV Project will offset approximately 7% of the laboratory's overall electric use.
- **GHG Reduction Goal**. In addition to having achieved carbon neutrality since FY 2006, the laboratory has committed to a 75% reduction in total GHG emissions from FY 2005 to FY 2009.
- **Water Use Reduction**. In FY 2008 and FY 2009, the laboratory will be implementing water use reduction measures equivalent to 1.8M gallons or 90% of the overall 16% reduction goal for FY 2015.

Overall the laboratory has made significant progress in achieving compliance with the E.O. and TEAM goals. We anticipate meeting the TEAM directive of putting in place executable plans to meet all of the mandated goals by FY 2008.

We are focused on continuous improvement of our sustainability activities. Accordingly, we will be working to continue to ingrain sustainability in the practices and operations across the laboratory working actively with the leadership of all laboratory organizational functions.

As an important part of our continuous improvement focus, we also want to invite your input and comments to our sustainability activities. It is our public responsibility as a national laboratory to share the knowledge and experience we have gained in our sustainability activities.

Please feel free to contact me with your comments or if we can be of assistance.

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Memberships and Awards

2007	Science & Technology Facility (S&TF) in Golden, Colorado, is the first LEED Platinum federal building—April 4, 2007. The S&TF received the platinum rating under the U.S. Green Buildings Council's Leadership in Energy and Environmental Design (LEED) Green Building program. Only 28 other buildings in the world have achieved the LEED platinum designation.
	NREL personnel were recognized recently with a Chairman's Award for their outstanding contributions as key members of the Labs21 team, which has recently been awarded a Presidential Award for Federal Energy Management.
2006	White House Closing the Circle Pollution Prevention Honorable Mention—July 2006
	Federal Energy Saver Showcase Award for S&TF
	Jefferson County Commissioners' Award for Design Excellence—S&TF
	U.S. Environmental Protection Agency Climate Protection Award
2005	U.S. Department of Energy Pollution Prevention Star Award for Green Fleet Team: Petroleum Reduction through Alternative Fuels
	U.S. Department of Energy Federal Energy and Water Management Award
2004	U.S. Department of Energy Pollution Prevention Best-In-Class Awards: Office of Energy Efficiency and Renewable Energy Sustainable NREL: New Building Program Sustainable NREL: Recycling Program Sustainable NREL: Education, Outreach and Information sharing
	U.S. Environmental Protection Agency National Environmental Performance Track
	Colorado Department of Health and Environment Environmental Leadership Program
2003	University of Colorado Wirth Chair Award in Environmental and Community Development Policy
	U.S. Department of Energy Departmental Energy Management Achievement Award: Effective Program Implementation –Sustainable NREL
2002	U.S. Environmental Protection Agency Climate Leaders Partnership: First federal laboratory member and one of seven members to establish a target reduction
	Labs for the 21st Century: One of the first federal-sector labs to join the program as a pilot partner in 2002
	Labs for the 21st Century: One of the first federal-sector labs to join the program as a pilot partner in 2002
	Federal Energy Management Program Energy Saver Showcase Award for the Thermal Test Facility
2000	U.S. Environmental Protection Agency Green Power Partnership: Made commitment to purchase 10% of annual electric use in wind energy and first federal laboratory member

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