National Renewable Energy Laboratory Business and Operating Results FY 2000

Vision: Defining the aspirations for NREL forms the foundation of its five-year strategic plan

The NREL Vision

NREL will be the world's preeminent institution for advancing innovative renewable energy and energy efficiency technologies from concept to adoption. By partnering with our stakeholders, we will support a sustainable energy future for the nation and the world. In achieving this next level of excellence, NREL will set the standard for others.

Mission: The alignment of NREL's mission with that of DOE and EERE is solid

U.S. Department of Energy

To foster a secure and reliable energy system that is environmentally and economically sustainable…and to support continued U.S. leadership in science and technology.

Office of Energy Efficiency and Renewable Energy

To lead the nation in the research, development, and deployment of advanced energy efficiency and clean power technologies and practices, providing Americans with a stronger economy, healthier environment, and more secure future.

National Renewable Energy Laboratory

To develop renewable energy and energy efficiency technologies and practices, advance related science and engineering, and transfer knowledge and innovations to address the nation's energy and environmental goals.

Forward

The National Renewable Energy Laboratory (NREL) is a leader in the U.S. Department of Energy's (DOE) efforts to address the nation's energy and environmental requirements and goals. To enable the execution of this mission, support products and services must be provided to the Laboratory in an effective and efficient manner. This report profiles the Laboratory with emphasis on the management, improvement, and delivery of business and operating support.

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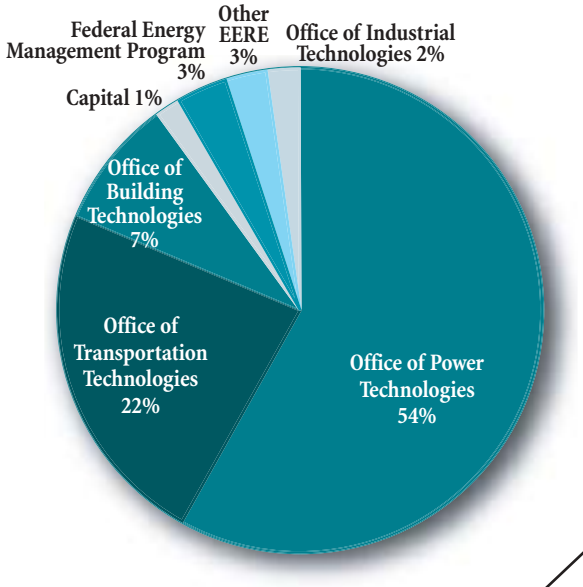
NREL Funding Profile

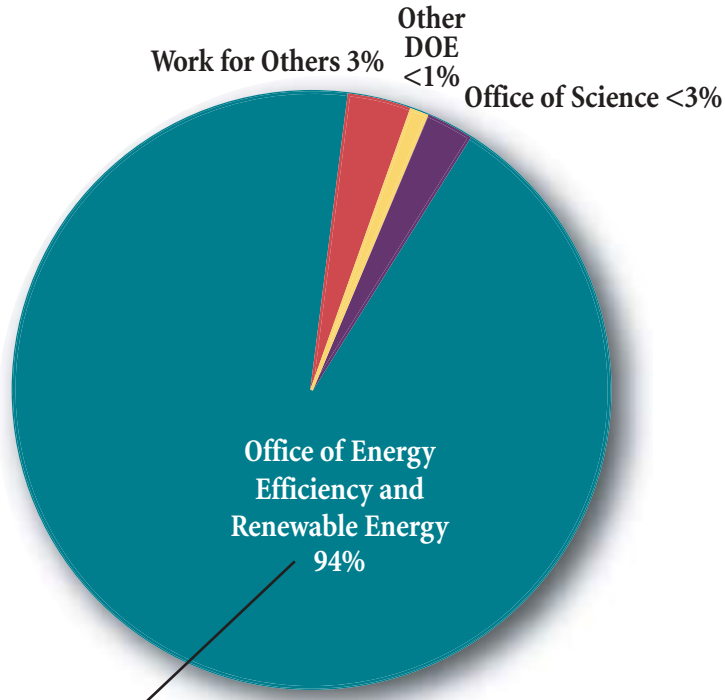
NREL manages programs and projects, and performs research and development primarily in support of the goals and objectives of two DOE organizations: the Office of Energy Efficiency and Renewable Energy (EERE) and the Office of Science (SC). EERE has organized its technology programs around the four energy-use sectors of society: power (Office of Power Technologies), transportation (Office of Transportation Technologies), buildings (Office of Building Technology, State and Community Programs), and industry (Office of Industrial Technologies). NREL performs R&D and manages programs and projects that support each of these EERE offices. NREL also manages programs and projects for EERE's Federal Energy Management Program (FEMP) and EERE's Office of Planning, Budget, and Management (OPBM), as shown in Figure 2, below left. For the Office of Science, NREL primarily supports the Office of Basic Energy Sciences (BES) by performing research in the materials, chemical, and biological sciences that pertain to the exploitation of solar and other renewable energy sources.

As a DOE national laboratory, NREL's mission and activities are intimately linked to those of DOE. Historically, in fact, more than 94 percent of NREL's funded activities have been in support of two DOE offices — the Office of Energy Efficiency and Renewable Energy (EERE) and the Office of Science (SC). This trend continued in FY 2000 (Figure 1, right).



NREL's FY 2000 Funding from EERE

Figure 2. While most of NREL's FY 2000 funding from the Office of Energy Efficiency and Renewable Energy supported the power, transportation, and building sectors, they also assisted in important areas that address the energy issues of all economic sectors.

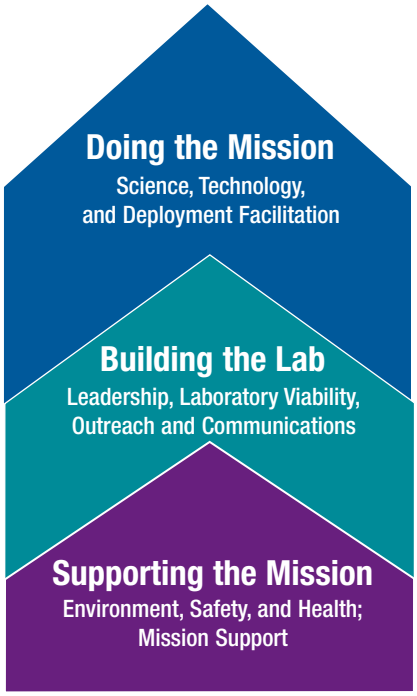


NREL's Total FY 2000 Funded Activities

Figure 1. Keeping relatively consistent with historical trends in FY 2000, about 94 percent of NREL's work was performed in support of DOE, with most of that work done for the Office of Energy Efficiency and Renewable Energy.

Performance-Based Management

NREL's performance is measured in terms of progress toward achieving its six "critical outcomes" — a long-term, strategic goal stated in terms of the results that are of significant importance in achieving NREL's vision and the mission of DOE. NREL's critical outcomes are the highest-level expectations DOE has of NREL. The Laboratory's critical outcomes can be grouped into these categories: "Doing the Mission" (excellence in science and technology); "Building the Lab" (defining and creating the future); and "Supporting the Mission" (effective and efficient delivery of support products and services). NREL's leadership strives to balance priorities, make investments, and create a work environment that promotes success in each of these areas.



For FY00, the Laboratory's six critical outcomes are:

Science, Technology, and Deployment Facilitation

Conduct energy research, development, field verification and testing, and technical analysis and assistance efforts that advance viable energy technology options, that span energy pathways from supply through conversion and delivery to end-use applications, from concept to application.

Leadership

Provide the leadership to promote NREL's national and international standing, ensure intellectual excellence, and foster responsible stewardship of the DOE resource.

Laboratory Viability

Ensure the long-term viability of NREL through enhancement of institutional visibility and ensuring retention and development of core scientific and business competencies and facility capabilities.

Mission Support

Design, enhance, and implement NREL business and management systems and work processes to provide an effective and efficient work environment that enables execution of the mission.

Environment, Safety, and Health

Ensure that NREL protects the safety and health of the workforce and the community, and the environment.

Outreach and Communications

Provide leadership in building strong relationships and new alliances with local, regional, national, and international stakeholders to advance awareness and support of the DOE renewable energy and energy efficiency mission and technologies; foster open communications; and advance math, science, and technology education.

FY 2000 Laboratory Performance Evaluation

Effective management and continuous improvement in support-function productivity and efficiency enables NREL to excel in each of its critical outcomes. DOE's evaluation of NREL's performance for the second performance period of FY00 (February 1, 2000-September 30, 2000) resulted in an overall Laboratory Performance Rating of Low Outstanding and the Laboratory's highest rating to date under its new operating contract.

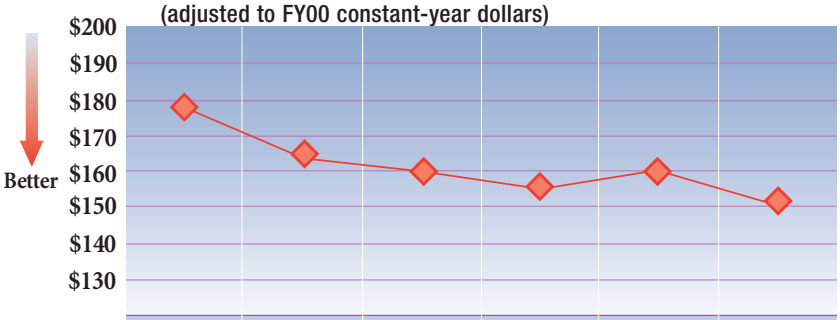
Laboratory-Level Management Outcomes

Measures of Efficiency

NREL management ensures that operations at the Laboratory level remain productive and efficient. The following charts demonstrate the results of effective management, emphasizing results and improvements.

Operating Costs per Research FTE

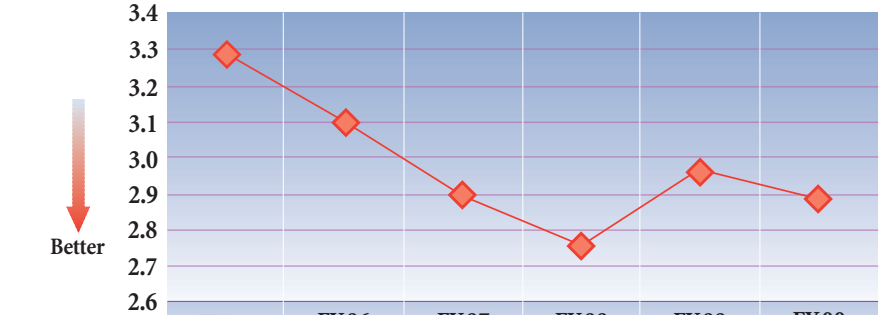
(adjusted to FY00 constant-year dollars)



in thousands	FY95	FY96	FY97	FY98	FY99	FY00
Operating Cost in Dollars/FTE	$178	$165	$160	$156	$160	$151

NREL operating costs per research FTE have been reduced in real terms since FY95. The slight increase in FY99 is attributed to management transitions resulting from contract recompetition. Operating costs include labor, facilities overheads, recharge costs, and other indirect costs.

Direct Labor Multiplier



	FY95	FY96	FY97	FY98	FY99	FY00
Direct Labor Multiplier	3.29	3.1	2.9	2.76	2.96	2.89

NREL has reduced its direct labor multiplier since FY95. Through proactive and effective management of costs, NREL in FY00 achieved its target of 2.89. NREL's FY00 overhead cost as a percentage of total costs was 21.5%.

Uncosted Obligations (GSO)

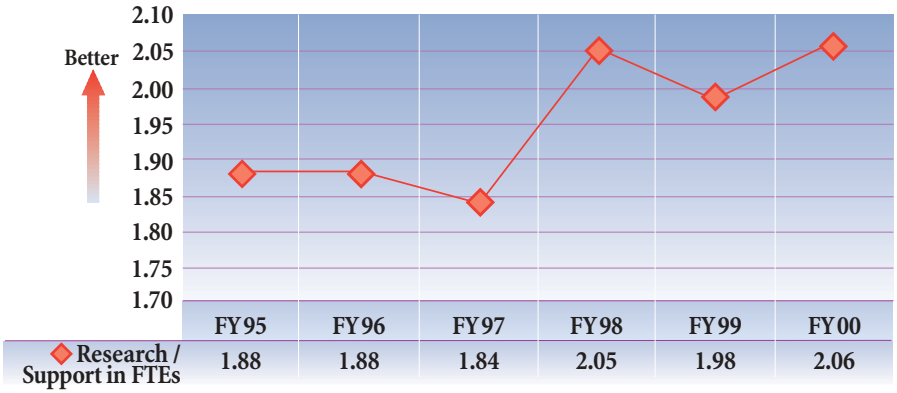
NREL has reduced its GSO balance consistently since FY95. Effective program management has resulted in a decrease in Goods and Services on Order (GSO) balances of more than 58% since FY95.

in millions	FY95	FY96	FY97	FY98	FY99	FY00
Uncosted Obligations	$157	$129	$99	$72	$65	$66

Laboratory-Level Management Outcomes

(continued)

Research/Support Ratio in FTEs

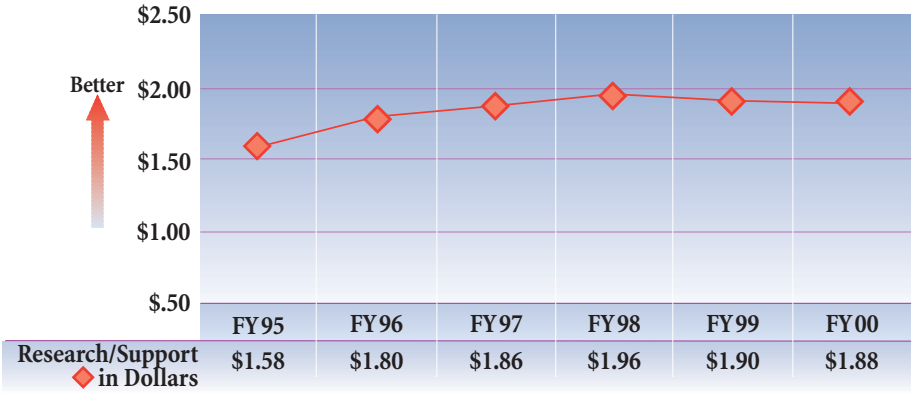


Measures of Productivity

The ratio of research (direct) to support (indirect) full-time equivalents (FTEs) is increasing. This indicates that more of NREL staff are working directly on the science and technology needs of the Lab's clients, relative to the support functions required to conduct the work.

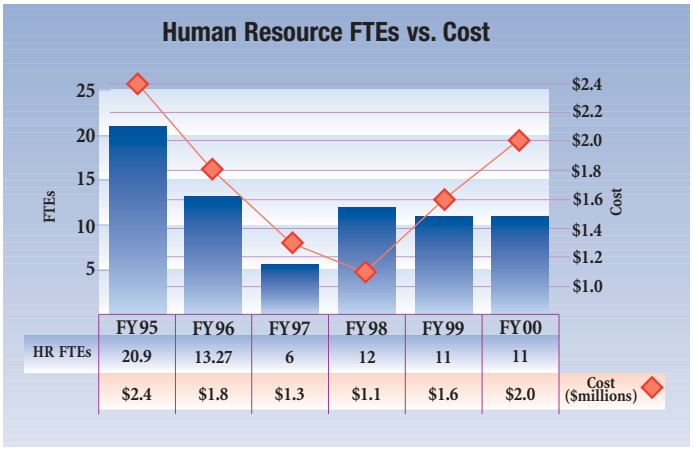
Research/Support Ratio in Dollars

Nearly two of every three dollars invested at NREL are spent directly on producing technical research, project outcomes, and results. Contract transitions and new requirements have been managed to produce this outcome consistently over the past several years.



Human Resources Management

Significant Contributions



- **A Sabbatical Leave Program** was implemented, providing eligible employees an opportunity for professional revitalization and development.
- **A new Performance Feedback and Development Appraisal System** was implemented, which aligns individual objectives to the Laboratory objectives.
- **An improved Vision Plan** was implemented, providing a wider selection of frames, increased selection of doctors, and an improved turnaround time for frames and lenses.
- **A Benefit Value Study** was performed, which benchmarks NREL with DOE contractors and 20 organizations having R&D activities. Study results were used to formulate recommendations for enhancing NREL's Benefits Package.
- **The employment process and tools** were redesigned, decreasing cycle time by 26%, increasing the use of applicant

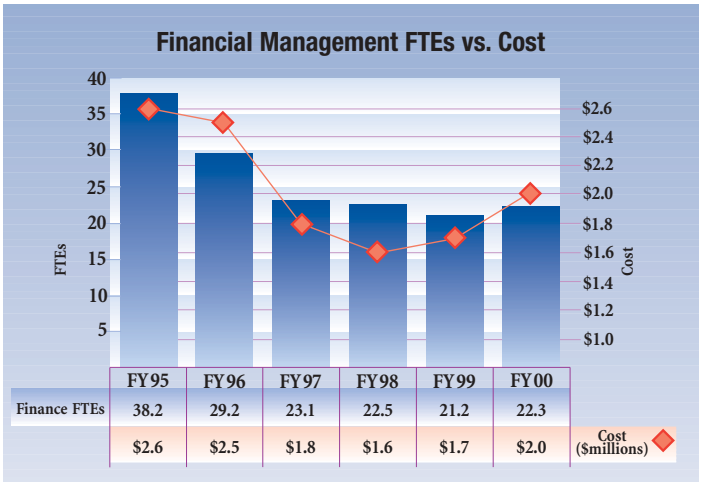
Internet sources by 63%, utilizing electronic forms and procedures (fax server), and enabling HR to screen candidates by phone to help save travel costs and book airline tickets in advance.

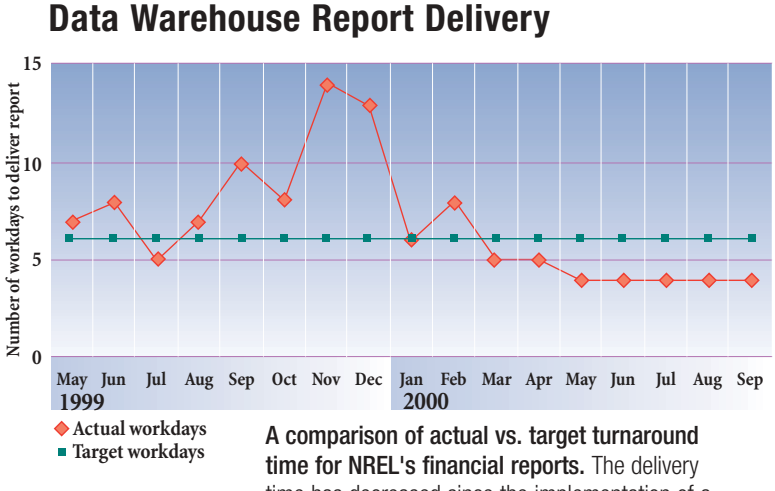
- **A Post-Retiree Medical Benefit Package** was developed, evaluated, and proposed to enhance the overall benefit plan and support efforts to more effectively attract and retain employees.
- **The EEO/Diversity Award** was received from DOE in recognition of innovative concepts and approaches in this area, which were incorporated into the plan and have potential to be implemented at other federal or contractor sites.
- **A Research Fellow Program** was expanded and enhanced to provide career growth opportunities for the Laboratory's most senior technical staff. This improvement will provide more value to NREL's strategic scientific and technical direction.
- **A competitive salary structure** for the research associate and the postdoctoral research positions was implemented. NREL benchmarked with other DOE laboratories to design and implement an improved salary structure for these positions, enabling NREL to better attract talent to the Lab.

Financial Systems Management

Significant Contributions

- **NREL's custom accrual system** was recognized as "Best in Class" at the FY00 Financial Management Systems Improvement Council (FMSIC) Conference. This system integrates data from multiple ORACLE modules and makes online information available to financial analysts working with project managers.
- **NREL's online project reporting system** was enhanced, improving report timeliness, accessibility, and accuracy; and providing a quality-assurance process for the future.
- **Training for users of financial reports** was provided Laboratory-wide, including training on automated report generation options. This resulted in efficiency gains and cost savings in report processing for project and line managers.
- **A new travel planning and management system** was implemented with features that include a revised NREL travel policy, formalized accountability for travel planning and timely expense reporting, and the ability to obtain airfares at the lowest available rate. NREL's average domestic airfare was reduced by nearly 23%.
- **NREL's financial reporting** was improved by implementing a new, expanded quality-assurance process to improve the accuracy, timeliness, and availability of financial information. To meet the needs of the Lab, new reports for project managers were developed, including detail and summary information about funding, costs, and FTEs.



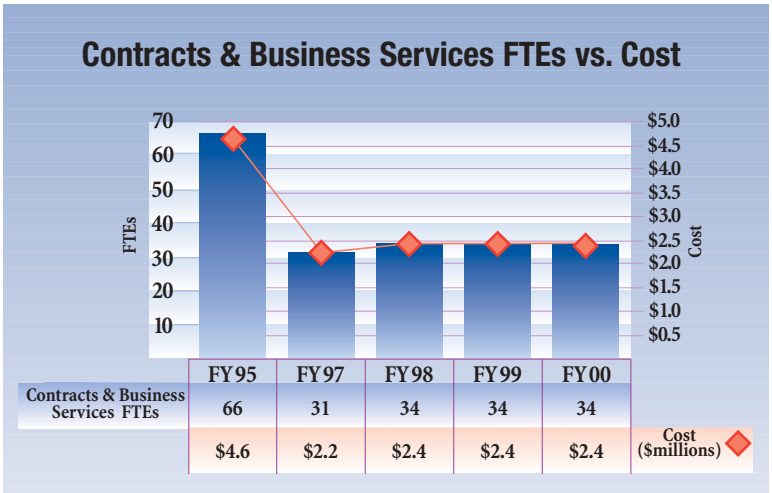


A comparison of actual vs. target turnaround time for NREL's financial reports. The delivery time has decreased since the implementation of a new system in FY00.

Contracts and Procurement

Significant Contributions

- **NREL's university collaboration program** was approved by DOE and formally implemented. This program enhanced NREL's research capability through collaborations between Lab researchers and university faculty and students. By using this program for recruitment, NREL has decreased hiring time and associated costs.
- **Web-based solicitations** were implemented to streamline the procurement process, save time and money, and facilitate dissemination of information. This included posting solicitations, Letters of Interest (LOIs), and associated documents.
- **"Terms and Conditions"** are now posted on the Internet, enhancing the accessibility of information to bidders as well as reducing NREL's costs in responding to queries.
- **Construction task-ordering agreements** were competitively awarded to provide services to NREL on an as-needed basis, making access to these capabilities faster and much cheaper.
- **NREL partnered with minority businesses** for subcontract awards, which contributed to the nomination for the 2000 DOE EEO/Diversity Award and Colorado Women's and Minority Chamber Coalition Diversity Leaders Award.

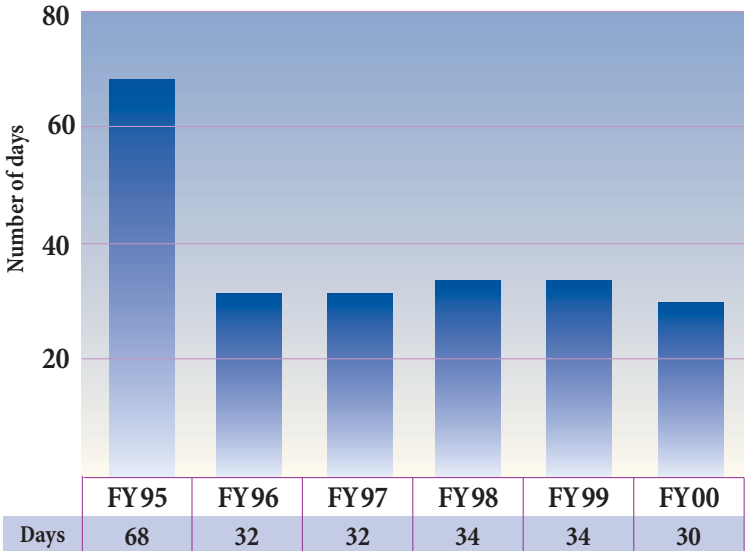


- **NREL collaborated with DOE and other outreach organizations** to improve efficiencies and best practices for procurement. These groups included the Rocky Mountain Minority Supplier Development Council, the DOE Procurement Management Council, and the DOE National Laboratory Technology Partnership Working Group Executive Committee.

Measures of Success

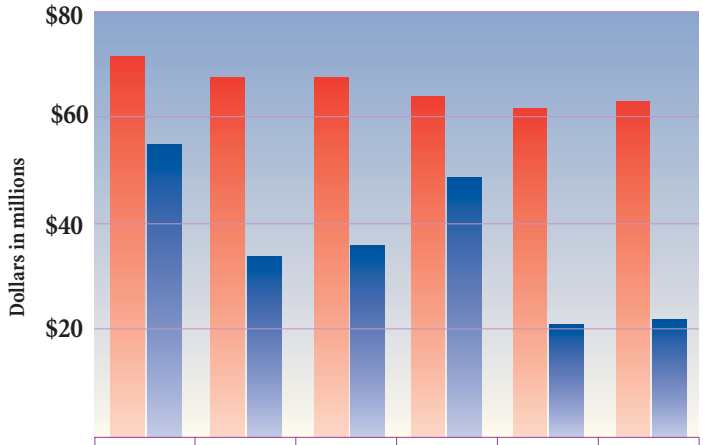
Subcontract Cycle Time

A six-year comparison of the cycle time for executing subcontracts. This cycle-time reduction of 56% since FY95 is a result of process improvements and reengineering efforts at NREL over the past several years. The cycle time has decreased while the budget supporting these functions also has decreased significantly (52%) since FY95.



Competitive vs. Noncompetitive Subcontract Awards ($M)

A six-year comparison of competitive vs. noncompetitive subcontract awards. Competitive awards are based on "best value" (evaluated qualitative merit and evaluated cost or price); noncompetitive awards are actions negotiated with a single source. The trend regarding subcontract awards reflects an increasing emphasis on competitive awards rather than non-competitive. The FY00 percentage of 75% is a very favorable metric for a research and development Laboratory doing complex scientific and engineering tasks. FY00 goals were 70% for competitive awards (dollars) and 60% for competitive awards (actions).



	FY95	FY96	FY97	FY98	FY99	FY00
Competitive	$71 (56%)	$68 (67%)	$68 (65%)	$64 (57%)	$62 (75%)	$63 (75%)
Noncompetitive	$56 (44%)	$34 (33%)	$36(35%)	$49 (43%)	$21 (25%)	$22 (25%)

Performance and Results

	FY95	FY97	FY98	FY99	FY00
Number of Subcontract Actions *(funded)*	1,100	860	1,198	1,291	1,961
Productivity *(Dollar Value of Subcontracts/FTE Utilized)*	$2.9M	$3.9M	$4.2M	$3.8M	$3.5M
Cost/Spend *(Subcontracts and Purchase Orders)*	2.9%	1.9%	1.8%	2.0%	2.5%
Number of Closeout Actions/Staffing	346/4	417/2	537/2	669/2	613/2
Socioeconomic Awards	72%	80%	80%	66%	71%

An illustration of five separate metric trends during the past several years. These numbers demonstrate that even though the number of subcontract awards has increased nearly 78%, the productivity has increased on average by 34%, and the NREL cost-to-spend ratio has decreased on average by 31%. Also, the number of closeout actions has increased 77% with a 50% decrease in closeout staffing since FY95. Additionally, socioeconomic awards to small, small-disadvantaged, and women-owned businesses remain at a significantly high percentage (71%) of total subcontract awards made at NREL.

Performance Trends: Purchasing Cards

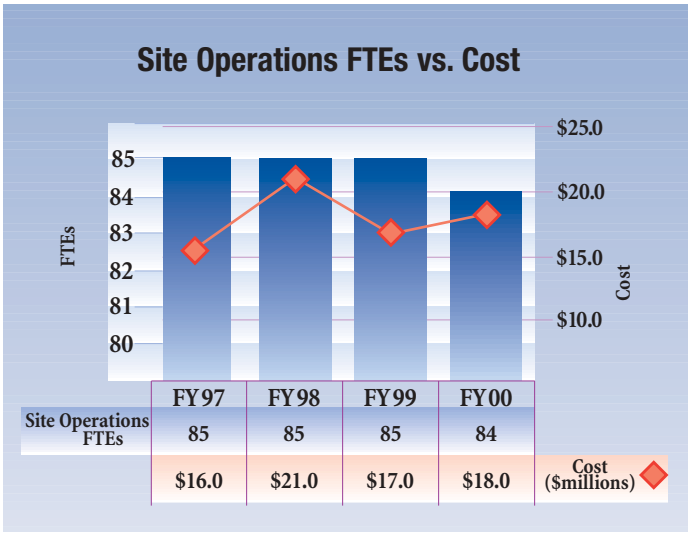
	FY95		FY97		FY98		FY99		FY00	
	P-cards	POs	P-cards	POs	P-cards	POs	P-cards	POs	P-cards	POs
Number of Transactions	0	9,000	10,800	1,875	14,395	1,940	13,868	1,567	16,000	1,345
Average Dollars/Transaction	0	$3,300	$435	$5,200	$460	$9,300	$473	$8,500	$473	$6,378
Total Dollar/Transaction	0	$30.0M	$4.7M	$9.7M	$6.6M	$18M	$6.6M	$13.3M	$6.9M	$8.5M
FTEs	0	22	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5

A review of the five-year trend regarding use of purchasing cards since their establishment in FY97. These trends show a 48% increase in number of transactions and a 47% increase in total dollars spent. The number of Full-Time-Equivalents involved in the Purchase-Card System has remained the same during these significant increases in use and dollars spent. Also, the use of Purchase Orders has decreased by 72% since the P-Card System was established.

Site and Facilities Management

Significant Contributions

- **A Property Management Balanced Scorecard** was implemented, which subsequently led to the validation of the Lab's property-management system.
- **The Field Test Laboratory Building** renovation/expansion and move of personnel was completed on schedule and within budget. Laboratory benefits of this initiative include 9,000 square feet of superb laboratory and office space, and more effective use of existing and expanded capabilities.
- **The Solar Radiation Research Laboratory** personnel move and consolidation was completed, allowing the group to work more closely together rather than from three separate locations. Capabilities of the new facility include consolidating work areas for metrology, optics, data acquisition, and electronics.
- **The Washington, D.C., office move** enabled DOE to respond to congressional direction by consolidating the labs in the fewest and least-cost Washington, D.C., locations. NREL was instrumental in preparing documentation for functionality and cost alternatives that led to conducting the move on schedule and within budget.
- **All NREL construction projects** for FY00 were conducted on schedule and within budget.



Measures of Success

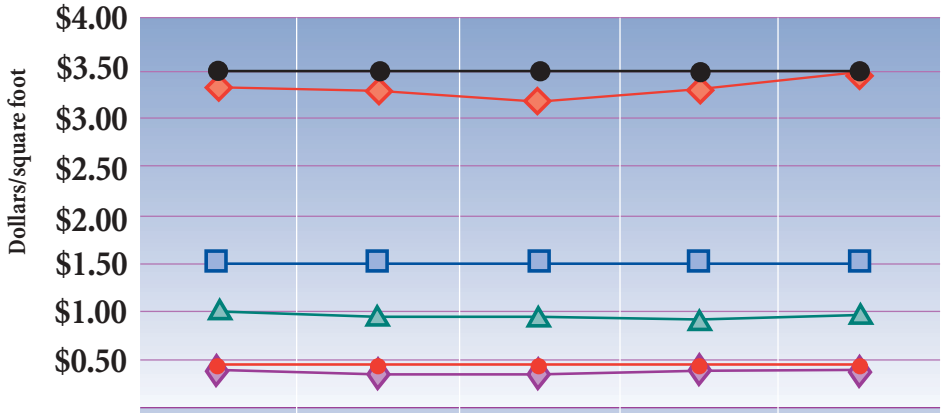
Performance and Results

	FY96	FY97	FY98	FY99	FY00	Target/Source
Preventative Maintenance backlog *(% late vs. total activities)*	4.2%	4.1%	4.1%	4.1%	4.1%	<$5.0% /Industry Benchmark
Construction safety *(Lost-time accidents/100,000 hours)*	0	0	0	0	0	<10.0 /Industry Benchmark
Construction Project Budget Management *(% on budget vs. total)*	100%	100%	100%	100%	100%	>95% /NREL Benchmark
Staff Move Rate *(% staff moved vs. total staff)*	33%	19%	29%	23%	21%	<50% /Industry Benchmark
Property Management *(% of unlocated property of total inventory)*	0.14%	N/A	0.21%	N/A	0.34%	<2.00% /Required by DOE Regulations

A comparison of NREL's five-year costs for general facilities operations, which are also compared to the industry standard. NREL has consistently achieved results that are better than the industry standards.

Facilities Costs

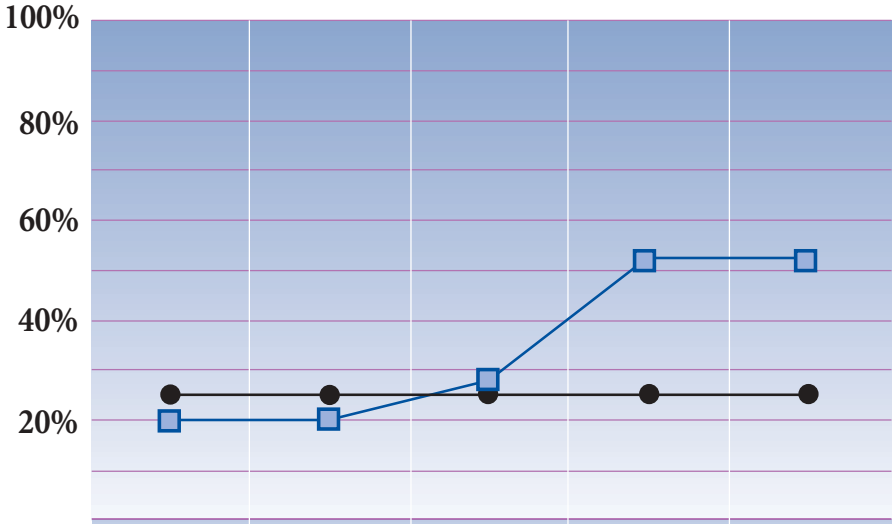
A comparison of NREL's five-year costs for general facilities operations, which are also compared to the industry standard. NREL has consistently achieved results that are better than the industry standards.



	FY96	FY97	FY98	FY99	FY00
Industry Maintenance Costs	$3.50	$3.50	$3.50	$3.50	$3.50
Maintenance Costs	$3.33	$3.24	$3.18	$3.28	$3.45
Industry Sec. & EM Costs	$1.50	$1.50	$1.50	$1.50	$1.50
Security and Emergency	$1.00	$0.95	$0.95	$0.94	$0.96
Industry Janitorial Costs	$0.40	$0.40	$0.40	$0.40	$0.40
Janitorial Costs	$0.37	$0.35	$0.35	$0.36	$0.37

NREL Vehicle Fleet

A comparison of the Lab's use of alternative-fuel vehicles vs. Environmental Monitoring for Public Access and Community Tracking minimum requirement. Through proactive efforts, NREL has achieved a use rate for alternative-fueled vehicles that is more than double the minimum required by EPACT and Executive Order 13031.

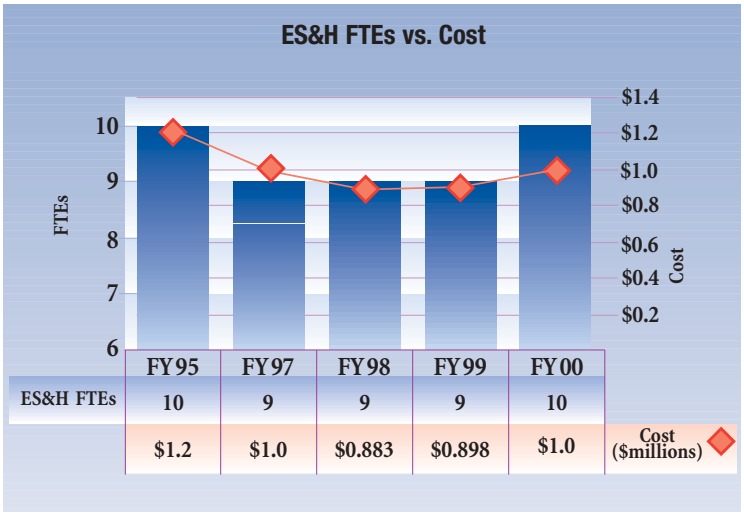


	FY96	FY97	FY98	FY99	FY00
% of NREL Vehicles using Alternative Fuels	20%	20%	28%	52%	52%
EPACT & E.O. 13031 Min Req.	25%	25%	25%	25%	25%

Environment, Safety, and Health

Significant Contributions

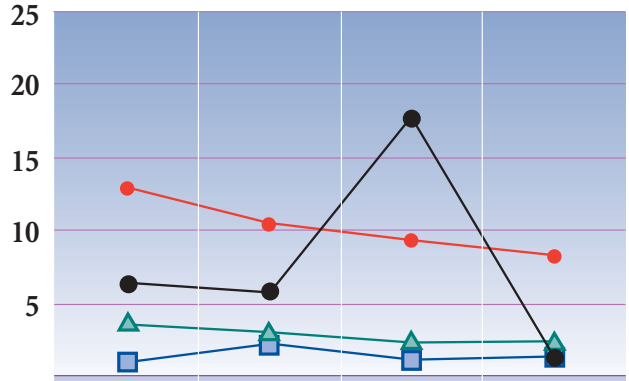
- **NREL's Integrated Safety Management (ISM) system** was implemented, further improving the effectiveness of its worker-based, hazard-driven ES&H processes.
- **An Ergonomics Safety Panel** was established within the existing Ergonomics Program to help reduce the risk of worker injuries. The panel, which includes worker representatives, reports to the NREL Safety Council, and has already improved the processes for identifying and installing required ergonomic equipment.
- **A specialized ES&H risk-assessment criteria** was developed, which was applied to NREL-leased facilities. These guidelines allowed research activities critical to the NREL and DOE mission to be placed in available Laboratory space while maintaining the required level of ES&H risk.
- **A team approach (NREL and the DOE Golden Field Office)** was implemented to conduct surveillance of NREL ES&H programs. This process simultaneously allows DOE to provide oversight reviews, while enabling NREL to perform self-assessments, resulting in numerous program improvements, increased efficiencies, and heightened communication between the two organizations.



Measures of Success

A four-year comparison of NREL's injury/illness rate. NREL is below the target rate of 2.4 or less for recordable cases in this area in FY00. Below, Laboratory ES&H performance is measured against applicable industry and DOE baselines.

Injury/Illness Rates



	FY97	FY98	FY99	FY00
*NREL injury/illness rate	1.1	2.2	1.26	1.3
**DOE R&D injury/illness rate	3.6	3.0	2.6	2.3
***NREL injury/illness performance index	6.4	5.9	17.8‡	1.3
***DOE R&D performance index	13	10.55	9.56	8.19

‡FY99 Performance Index impacted by a single injury occurring at an off-site retail establishment

***Bureau of Labor Statistics (BLS) formula** – number of recordable injuries and illnesses per 100 workers per year. Includes all workers on NREL sites (employees, agency temporaries, subcontractors, and volunteers)

****BLS formula** – average rate for all DOE R&D operations. Typically doesn't include all workers on site

*****DOE formula** – calculated on calendar-year basis. No direct comparison to private industry.

ES&H Performance Measures

	FY97	FY98	FY99	FY00
NREL workers' compensation costs *	$0.07	$0.03	$0.02	$0.04
Fire and property loss	$0	$0	$0	$0
Environmental loss	$0	$100K**	$0	$0
Training completion rate	50%	82%	88%	91%

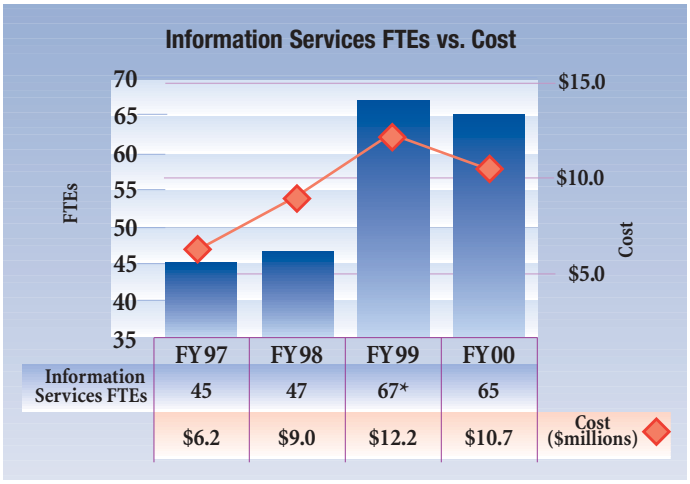
* **Private industry formula** – workers' compensation costs in dollars per hour worked. Private industry performance of 0.25 or less is considered good. Comparison data not available for DOE R&D operations.

** FY98 cost is for remediation of process development unit emergency-generator diesel fuel spill. No remediation was required per state regulations.

Information Services Management

Significant Contributions

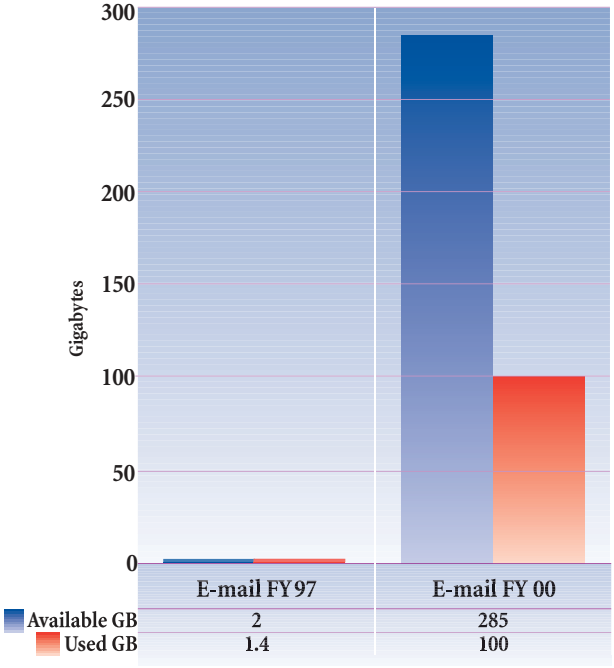
- **The Data Systems Infrastructure (DSI) project** was completed, providing major capital improvements to voice and data networks, network file and print servers, real-time collaboration applications, and backup power capability.
- **An Information Technology Architecture Initiative (ITAI)** was completed, delivering major improvements to business systems, messaging and office productivity applications, asset management capability, and desktop support. Positive impacts include more accurate and timely information, elimination of legacy applications, improved data and information flow, and more efficient management of desktops.
- **A Cyber Security Program Plan (CSPP)** was developed and submitted to DOE and subsequently approved with an "outstanding" rating.
- **An INSPEC Licensing Agreement** was negotiated, providing site-wide access to a database that features physics, electronics, computing, and other resources.
- **The Y2K Rollover** was transitioned, successfully preserving the Lab's critical information systems.



*New functions added as part of IS reorganization

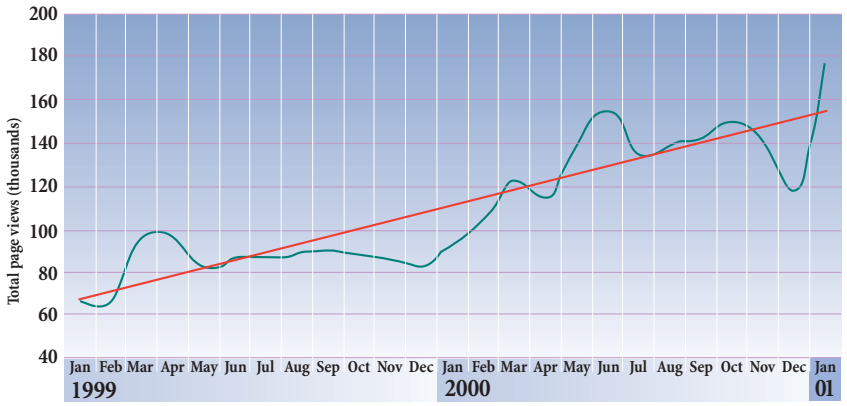
- **A Virus Management Plan** was implemented, providing a process for centrally managing protection of the Lab's information resources from software viruses. Benefits include proactive protection, faster response to threats, and improved protection.

Measures of Success



E-mail Use

A comparison of NREL's e-mail capabilities in FY97 and FY00. The gigabyte capacity provided by the Lab has increased nearly 300%, while actual staff use of e-mail has increased 100%. While the capability to deliver e-mail has increased, the use of interoffice paper mail has decreased by 30.4% since FY99.



Intranet Use

A trend chart showing the use of NREL's Intranet, which has become an increasingly vital resource for internal communications. Monthly page views, which represent a request made to the server for any content on the site, climbed from 66,776 in January 1999 to 119,014 in December 2000. NREL has increased its use of electronic communications, supporting the Lab's move toward more sustainable business practices and reducing paper documents.

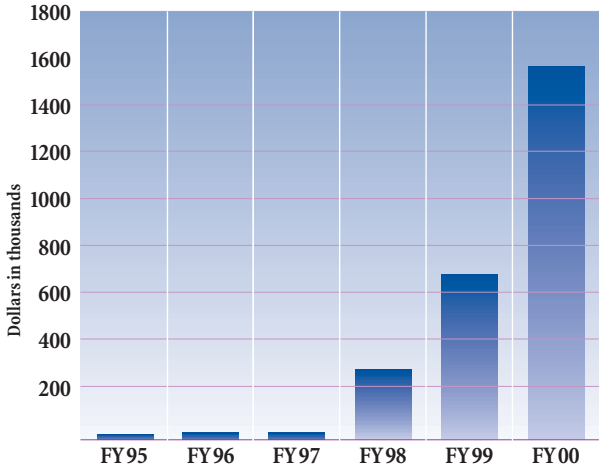
Technology Transfer

Significant Contributions

- **The tandem cell PV was licensed** to TECSTAR, Spectrolab, and Emcore. The tandem concept is the foundation for what has become the power system of choice for Earth-orbiting satellites. In the next decade, the telecommunications industry plans to send into orbit more than 2,000 communication satellites. In FY 2000, Spectrolab licensed tandem cells for terrestrial applications.
- **License agreements were signed** with seven wind turbine manufacturers to incorporate the NREL advanced airfoil designs into their turbine blades. The largest, Enron (Zond Energy Systems, Inc.), has incorporated one of NREL's designs into its 750kW turbines, over a thousand of which are now in use throughout the United States. Two new licensees, Airlite Corporation and Atlantic Orient Corporation, were added in FY00.
- **Seven new licenses were completed**, covering technologies from the Photovoltaic, Wind, Bioenergy, and Transportation Technologies centers in FY00.
- **Thirty active licenses were recorded**, covering patents and copyrights in FY00.

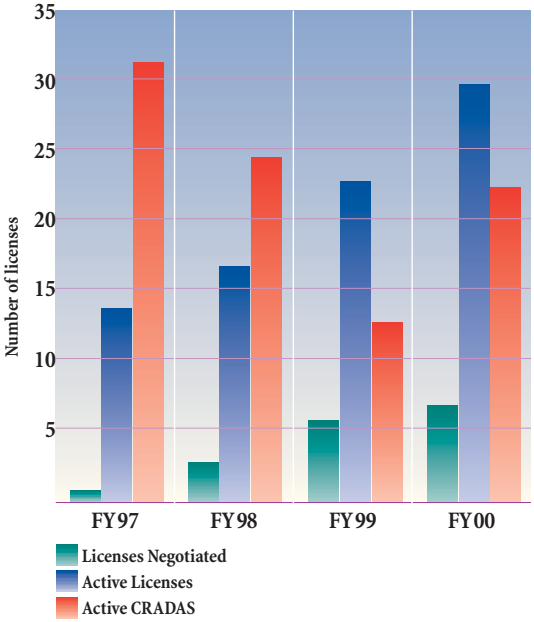
Measures of Success

Bayh-Dole Revenue



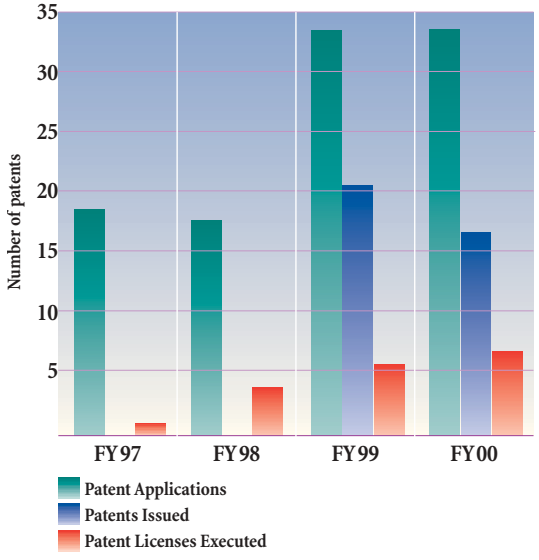
A six-year comparison of money received through the Bayh-Dole Act to help NREL retain title to materials and products invented under federal funding. Increasing Bayh – Dole revenue has provided additional funds for strategic investment at NREL.

License Metrics



A four-year comparison of new licenses negotiated, total active licenses, and partnerships formed through Cooperative Research and Development Agreements (CRADAS). Between FY97 and FY00, licensing activity has steadily increased resulting in the movement of technology and know-how from the Laboratory to the commercial sector.

Patent Metrics



A four-year comparison of new patent applications, the number issued in a particular year, and the total number that have been executed. NREL continues to leverage its intellectual property through patents, patent applications, and licenses to fulfill the Laboratory's and DOE's mandates.

Research Productivity and Recognition

Research Productivity Benchmarks

	NREL average per 100 technical staff* FY 92-98	DOE lab-system average per 100 technical staff** FY 92-98	NREL average per 100 technical staff FY 00
R&D 100	0.58	0.16	1.08
Peer-Reviewed Publications	57.10	53.24	83.45
Patents Awarded	4.88	1.64	2.88

* Technical staff = Number of scientists and engineers
** Labs used to create the benchmark: Ames, ANL, BNL, LANL, LBNL, LLNL, ORNL, and SNL.

NREL's average number of R&D 100 awards, peer-reviewed publications, and patents awarded per 100 technical staff exceeded the DOE laboratory-system performance on these measures from FY92-FY98; and FY00 results reflect a continuation of this performance. While performance in each individual category varies with program milestones and progress in any given year, these collective measures present a consistent picture of increasing research productivity and external recognition.

External Awards Received by NREL

Three R&D 100 Awards Won

Awards received in FY00 were:

- Electroexploded Metal Nanopowders - David Ginley
- Real-time Biomass Analysis - Bob Meglen, Steve Kelley, and Bonnie Hames
- North Wind 100/20 Wind Turbine - Gerry Nix and Brian Smith. This technology also received an Editor's Award, which recognizes the top three R&D 100 Award winners each year.

National Academy of Engineering

Director Richard Truly was elected to membership in the National Academy of Engineering for leadership and personal contributions in the advancement of national civil and military space programs. This is the first award of National Academy membership to an NREL staff member, and it is a very significant recognition.

John Bardeen Award

Alex Zunger received the award from the Minerals, Metals, and Materials Society "as an individual who has made an outstanding contribution and is a leader in the field of electronic materials."

Arthur W. Adamson Award

Al Czanderna (now retired) received the award from the American Chemical Society for "Distinguished Service in the Advancement of Surface Chemistry."

Electrochemical Society Fellow

David Ginley was elected to membership in the Electrochemical Society during this performance period.

Federal Laboratory Consortium Award

Desikan Bharathan, Vahab Hassani, Yves Parent, Federica Zangrando, and Ed Hoo received the award for "Excellence in Technology Transfer" for the advanced direct-contact condenser as applied in geothermal power plants.

Rebecca Vories Award

Nancy Carlisle received the award from the American Solar Energy Society as recognition for efforts in support of ASES's mission.

Silver Star Award

Stan Bull received the award from the University of Colorado-Denver for distinguished service in the field of engineering.

Energy User News 2000 Efficient Building Award

The Zion National Park Visitor Center was a collaborative project with the National Park Service. Operation of the NREL-designed building averages 80% less energy than an equivalent building constructed to code.

Laboratory-Level Improvement Initiatives

The following actions were identified through the FY00 NREL Staff Survey as priorities for improving the overall work enviroment at NREL.

Financial Reporting

Survey responses underscored the importance of timely and accurate financial information, raising this ongoing improvement effort to a Lab-level priority. Training modules have been implemented and software systems have been successfully converted. Performance metrics for tracking results also have been implemented, indicating dramatic improvements in the timeliness and accuracy of financial reports.

Training and Development Opportunities

Staff survey response around awareness and adequacy of training opportunities relative to employees' needs prompted the Lab to investigate this result further. Focus group interviews have been conducted, and the data gathered has been analyzed as the basis for action.

Use of Electronic Communications

This action was designed to build upon a Laboratory strength about the usefulness and value of electronic communications. To further enhance this capability, e-mail guidelines were developed, a director's Web page was created, and policies around electronic communications were updated. This action is intended to support NREL's move toward more "sustainable" business practices.

Leadership Accessibility, Visibility, and Communication

All line managers were asked to become more accessible and visible to staff, and to enhance communications activities. Managers reported their activities to form the Lab's baseline and continue to provide monthly updates on additional actions taken. The effectiveness of these actions will be measured by tracking staff survey responses over time.

Enough Time to Accomplish My Workload

A significant portion of staff survey respondents indicated not having enough time to accomplish their workload/assignments during normal work hours. Survey data was analyzed further and supplemented with focus group data. Issues/causes for this outcome were identified, and recommendations around manager awareness and productivity enhancements were accepted for implementation.

Compensation and Benefits Package

A thorough review of all elements of NREL's compensation and benefits package was conducted to assess the Lab's position relative to the marketplace. Focus group interviews have been conducted to clarify survey responses and will be considered in conjunction with the results of the Lab's normal "value/ benefits" market study.

Customer Satisfaction with Internal Support Products and Services.

All internal support organizations have developed and implemented customer satisfaction metrics to evaluate the improvement of support product/service quality and delivery to the Laboratory.

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