

NREL FY 2007 One-Year Plan

March 23, 2007

Management Report

NREL/MP-700-40469

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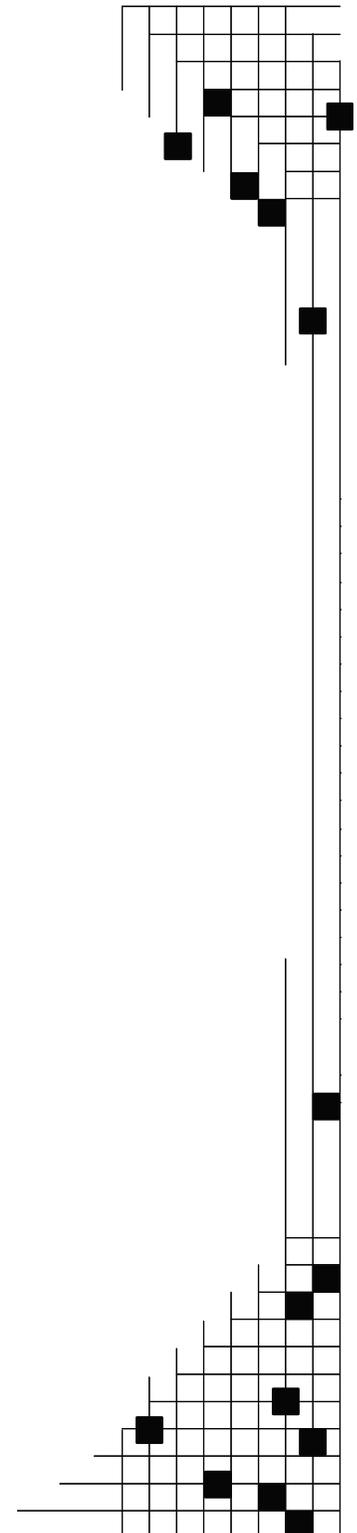
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National Renewable Energy Laboratory

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NREL FY 2007 One-Year Plan

Introduction

The leadership of the Midwest Research Institute (MRI) and Battelle has established a distinctive vision and roadmap for NREL that will enhance the Laboratory's unique competencies and the value that they bring through two flagship research directions: *renewable electricity production and use* and *renewable fuels formulation and use*. These two areas, which span from supply through distribution and efficient end use, provide significant opportunity for NREL to impact DOE's energy security goals (supply diversity, environmental stewardship, infrastructure reliability, and economic productivity). To implement the vision and roadmap, the MRI/Battelle leadership team reorganized the Laboratory in FY06 to align NREL's current assets with these two flagship programs.

In this revised FY07 NREL One-Year Plan, MRI and Battelle have translated DOE direction along with its vision and strategy for the Laboratory into actions that will be accomplished during the fiscal year. This revision adapts the planning and performance evaluation framework for management and operating contracts used by the Office of Science. The One-Year Plan identifies the institutional accomplishments and the management and operations performance the team expects to deliver for the fiscal year. Further details regarding implementation of individual program efforts and individual business and operating systems are provided in program annual operating plans (AOPs) and the annual performance agreement (APA), respectively. The performance measures used to evaluate the Contractor's performance are referenced in this plan, but the details of the indicators and the evaluation process are contained in the Performance Evaluation Management Plan.

The following plan first sets the context and then discusses plans in two broad areas:

- **Mission Accomplishment** – This section of the plan outlines the institutional priorities and activities that will be undertaken to accomplish the core mission of the Laboratory. More detailed plans are contained in individual program annual operating plans or the equivalent. The supporting processes that enable moving innovations from concept to commercial outcomes are also included in this area of the plan.
- **Management and Operations** – This section of the plan addresses institutional priorities and activities focused on providing foundational business and operating support that enable the mission while ensuring compliance with requirements. More detailed execution plans are included in the annual performance agreement.

Within these two areas, the plan for making progress toward each goal is discussed, followed by a brief summary of the performance objectives and indicators that will be used to evaluate performance against the goal. The details regarding performance evaluation are contained in the Performance Evaluation Management Plan (PEMP).

Strategic Context

The nation faces daunting energy challenges. Our dependence on unstable regions for liquid fuel supplies poses both an economic and a national security risk. The energy infrastructure is aging, and this represents additional risks in terms of reliability and security. Designed for conventional fossil fuels, the infrastructure itself is a barrier to the diversification of our energy sources. Continued dependence on fossil fuels, using current technology, impairs the quality of local environments and threatens the stability of the global climate.

The U.S. public is increasingly aware of the need to transform the nation's energy system and is calling on government to take action. In January 2006, President Bush announced the Advanced Energy Initiative (AEI) to reduce our dependence on foreign energy supplies through the accelerated development of energy alternatives that will *change the way we power our homes and businesses and the way we power our automobiles*. Additionally, the President announced the American Competitiveness Initiative that recognizes the importance of innovation and education to the nation's economic future. These initiatives, along with the Energy Policy Act of 2005 and Congressional appropriations, places added emphasis on many of the research areas of the National Renewable Energy Laboratory (NREL), including solar and wind energy, hydrogen, biomass-derived alternative vehicle fuels, vehicle efficiency technologies, and advanced batteries.

Transforming the nation's energy system is an enormously challenging task, and the trajectory of change must be steep. Meeting that challenge will require a range of technical solutions, mobilizing our talent in government, national laboratories, universities, and the private sector. NREL, with its uniquely focused mission and experience in renewable energy and energy efficiency, is poised to provide strong leadership, integrating and mobilizing talent that will yield the innovations required to change the nation's energy use trajectory.

Strategy Highlights

To accelerate progress against National goals, the MRI/Battelle strategy for NREL places significant emphasis on managing the interface between basic science and applied research and development (R&D) and the interface between applied R&D and the commercial marketplace. Stronger roles in the foundational science areas will be created that underpin NREL's mission and technical leadership will be brought to bear in informing the energy science agenda in areas that have the potential to significantly advance the applied R&D agenda.

In addition, innovative approaches and partnerships will be pursued that allow NREL's knowledge and technologies to make the transition from the laboratory to commercial products and practices. MRI/Battelle's five-year objective is to establish NREL as a leader within the U.S. Department of Energy (DOE) laboratory system for its impact on the national energy agenda.

As part of its plan for the Laboratory, over the next five years MRI and Battelle will:

- *Focus* and integrate the science and technology assets of the Laboratory to create new energy options for the future and advance market-viable renewable electricity and renewable fuels production and utilization technologies and systems.
- *Strengthen* the distinct science and technology competencies of the Laboratory through construction of critical facilities acquisition of equipment, and through hiring and development of talent. Additionally, management and business systems will be strengthened through adoption of best practices and investment in new systems.
- *Leverage* the assets that the Laboratory can bring to bear on its mission through strategic partnerships.
- Enhance the *relevance* of our work by strengthening our engagements with the commercial sector, increasing our focus on systems, and enhancing and integrating the Laboratory's analytical foundation.

Goals and Priorities

The NREL FY07 One-Year Plan is an ambitious step in advancing the institutional strategy through key priorities within each of seven goals: Science and Technology; Project and Program Management; Corporate Leadership and Stewardship; Environment, Safety and Health; Business Systems; and Security and Emergency Management.

Science and Technology. Over the next five years, MRI/Battelle management intends to accelerate innovation and market impact through foundational science, through efforts that bridge the interface between science and applied R&D, and by RD&D efforts that focus on systems. Additionally, new mechanisms to stimulate investment to bring new technologies into the marketplace will be piloted.

Project/Program and Intellectual Asset Management. MRI/Battelle are committed to effective and efficient management of the RD&D work that DOE assigns to NREL. NREL leadership will work closely with DOE in developing and executing robust plans that will accelerate progress toward technical and commercialization outcomes. NREL will use its broad-based energy analysis capabilities to provide new insights into how technologies can be developed and implemented in the marketplace, through such efforts as the analysis to support developing the plan for supplying 30% of 2004 motor gasoline demand with biofuels by 2030. With clear expectations, adequate resources, and a close partnership with DOE, NREL will integrate technical assets to execute work to deliver on time and within budget against the key milestones reflected in program annual operating plans.

Corporate Leadership and Stewardship. MRI/Battelle will implement a competency-focused strategy at NREL that focuses investments in facilities, equipment, and new technical talent to enhance the Laboratory's unique technical signatures. In FY07, significant emphasis will be placed on creating leverage and impact for the mission through new institutional-level partnerships which will raise the Laboratory's profile, both nationally and internationally. A comprehensive review of all NREL business systems will be completed to guide investments in system upgrades and improvements.

Environment Safety and Health. MRI/Battelle will continue to advance ES&H as a core value at NREL through a focus on prevention, timely reporting, and meeting or exceeding key ES&H indicators. In FY07, specific emphasis will be placed on embedding ES&H requirements in plans, work processes, and business systems across the Laboratory.

Business Systems. MRI/Battelle place a priority on identifying and implementing improvements to business processes that will advance the Laboratory's strategy while at the same time delivering effective business and operational support that addresses current and key new requirements. FY07 priorities include meeting requirements under OMB Circular A-123, transitioning selected contracts to the Project Management Center, and launching a management training curriculum..

Facilities and Infrastructure. The Ten-Year Site Plan will be revised to guide facility construction and management priorities. Priorities for capital investment are the equipment needed to fully establish the functionality of the Science and Technology Facility, the modification of the Alternative Fuels User Facility to establish the Integrated Biorefinery (IBRF), and the development of the Research Support Facilities.

Security and Emergency Management. MRI/Battelle leadership at NREL is committed to a strong security and emergency management culture where awareness of responsibilities in the areas of physical and cyber security and emergency management is infused throughout the institution. Significant enhancements in cyber security combined with ongoing vigilance in physical security will ensure the integrity of DOE assets at NREL.

Aligning Plans and Budgets

The FY07 NREL Cost Proposal reflects the resource allocation required to implement an aggressive One-Year Plan. A key assumption embedded in the cost proposal is that our program budget will grow to be supported at FY05 levels. Further, our intent is to extend that through work that brings added value to the DOE Office of Energy Efficiency and Renewable Energy (EERE) in implementing key elements of the AEI, through expanded roles with the Office of Science, and with other customers whose resources can leverage those of DOE in implementing the mission.

In FY07, investments will be made in order to position the Laboratory for expanded opportunities through focused strategic initiatives, through investments to strengthen capabilities, and by making investments to enhance business systems. This will result in an increase in the labor multiplier. These investments have been delayed in past years in order to keep the labor multiplier at a minimum.

FY07 Mission Accomplishment Plan

Science and Technology

Goal 1.0: Deliver high-quality scientific and technological outcomes that advance National and DOE Program goals and that result in utilization of NREL-originated technology and knowledge.

The MRI/Battelle strategy to accelerate NREL innovation in mission relevant areas is to strengthen the Laboratory's science foundation, continue efforts to bridge the interface between science and applied R&D, focus R&D efforts using knowledge of systems, and pilot new mechanisms to stimulate the investment needed to bring new technologies to the marketplace.

Research and Development

NREL will conduct research and development tasks identified in program AOPs to deliver high-quality devices, components, integrated systems, and manufacturing and process improvements that can have an impact on DOE and national energy goals. NREL will make progress in advancing technologies that are the focus of the Advanced Energy Initiative. To change the way we power our homes and businesses, FY07 R&D efforts conducted under the Solar, Wind, and Buildings programs aim to increase the efficiency of building designs and reduce the cost of power produced from renewable resources.

For example, through the Solar Program, NREL research results aim to enable U.S. industry to make photovoltaic crystalline silicon modules that are 14.5% efficient and thin-film modules that are 11.8% efficient. Through the Wind Program, R&D activities will be conducted to reduce the cost of energy from low-wind-speed technology to 4.1¢ per kilowatt-hour in onshore class 4 winds. Through the Buildings Program, NREL will develop a new design technology package for a small- to medium-sized commercial building type to save 30% more energy than required by ASHRAE standard 90.1-2004.

Critically important to changing the way the nation produces and uses power is the ability to connect renewable resources to the grid and to facilities and to control these integrated systems. Therefore, in FY07, NREL will continue to conduct research for the Office of Electricity Delivery and Energy Reliability and for related other customers to advance interconnection and control technologies.

To change the way the nation powers its automobiles, NREL's work in renewable fuels science and technology will focus on accelerating efforts to make cellulosic bioethanol a commercially viable alternative to gasoline in the mid-term and on advancing hydrogen and fuel cell vehicle technologies for the longer term. In FY07, NREL will complete an integrated study of the stability of biodiesel and biodiesel blends, providing a technical database to set stability standards.

The Laboratory will conduct research on biochemical and thermochemical conversion technologies of lignocellulosic biomass to ethanol, with a goal of making costs equal to that of corn based ethanol thus enabling bioethanol to be an economical alternative to gasoline. NREL anticipates providing technical support to an industry-led team that will build one of the first generation integrated biorefineries. In the Hydrogen Program, NREL will evaluate and compare early second-generation hydrogen fuel cell vehicles with first-generation vehicles to analyze trends and help develop strategies for achieving key program metrics.

High quality, innovative science is essential to change the nation's energy use trajectory. Revolutionary, breakthrough technologies will emerge from a new understanding of foundational science. In turn, these will provide new tools, materials, and techniques that can be applied to meet national energy challenges. In FY07, NREL will implement science programs that were won competitively in prior years, yielding outcomes that will enable advances in solar, biomass, hydrogen, and solid state lighting technology.

NREL will conduct research through its Laboratory Directed Research and Development program to yield innovations that have the potential to create new technology pathways. The FY07 portfolio includes efforts in 3rd generation photovoltaics, electric energy storage, fundamental biology experiments related to biofuels and hydrogen production, computational science efforts, and self-learning controls for buildings, among others.

NREL will make the results of its science and technology efforts broadly available to the research community through workshops, focused participation in conferences, and peer-reviewed publications.

Technology Utilization

NREL transfers knowledge and technology with the intent of accelerating adoption and ultimately transforming markets. The transfer of new technology from the Laboratory must first address the knowledge and technology transfer to the suppliers that will develop products to bring to market and then provide technical assistance to reduce barriers that impede their widespread use. NREL will conduct efforts in support of EERE technology programs and the 'deployment' programs. Work will be conducted through CRADAs and through NREL-managed subcontracts that brings NREL knowledge to bear in maturing technologies. NREL will provide objective information and tools to inform policy decisions that enable an environment conducive for investment and to inform technology choice decisions that result in the best solution for a given application. The ultimate goal of this type of technical assistance is to reduce the risk to the end user in a manner that results ultimately in "in the ground" energy projects.

A key priority in FY07 will be to execute cooperative research and development agreements (CRADAs) with the winning industry-led teams under the Solar America Initiative and the Integrated Biorefinery solicitation that seek support from NREL to accomplish their commercialization goals. In FY07, NREL technology assistance will support efforts in the Federal sector that will feed the energy project pipeline—a priority for the Federal Energy Management Program. A key focus will be on the Department of Defense, the largest consumer of energy in the Federal sector. NREL will support the Weatherization and Intergovernmental Program through state level market transformation initiatives, working through the Program Management Center, the Asia Pacific Partnership efforts in China and India; and the Tribal programs. In FY07, NREL will continue to bring considerable leverage to advance the goals of these programs through related work for others projects.

Performance Objectives	Indicators
1.1 Progress toward DOE and National Goals: Advance science and technologies that demonstrate progress toward DOE program and national objectives.	<ul style="list-style-type: none"> • NREL research results <ul style="list-style-type: none"> – Demonstrate progress toward Advanced Energy Initiative goals. – Demonstrate progress toward other program technical targets.

Performance Objectives	Indicators
	<ul style="list-style-type: none"> – Demonstrate the potential for foundational science efforts to impact applied research efforts. • NREL technical support and testing <ul style="list-style-type: none"> – Validates the performance of technologies developed that have the potential to impact national goals. – NREL-developed tools and techniques provide value.
<p>1.2 Technology Utilization: NREL Knowledge and Technology are transferred and barriers to market adoption are reduced.</p>	<ul style="list-style-type: none"> • Technologies transferred and technology maturation enabled as evidenced by the number of and impact of technology partnerships including, but not limited to, CRADAs, work for others and licensing agreements. • Outcomes of industry partnerships demonstrate technology utilization. • Technical assistance outcomes and impacts. <ul style="list-style-type: none"> – Number and quality of energy projects enabled by assistance. – Market barriers lowered through technical assistance. – Utilization and adoption of NREL data, tools and techniques.
<p>1.3 Research Quality: Science and technology efforts are recognized as innovative and research approaches and practices are sound.</p>	<ul style="list-style-type: none"> • Significance of external awards and recognition (e.g., R&D 100, FLC, society fellows, peer reviewed journal publications, patents, invited talks, leadership in DOE workshops and academy panels, staff nominations to leadership of research associations) • Results of external peer reviews • Accreditations and validations of research and/or testing methods.

Project/Program and Intellectual Asset Management

Goal 2.0: Demonstrates technical leadership and provides effective program execution and intellectual asset stewardship.

MRI and Battelle are committed to effective and efficient management of the RD&D work and resources assigned to NREL and of the intellectual assets created as a result of the work.

Program Planning and Execution

NREL will continue to work closely with DOE in the development and execution of annual operating plans, as well as long range strategic plans. NREL will convene forums to gather technical and programmatic information and synthesize and interpret this information for DOE consideration in its planning. In FY07, an important focus will be supporting accelerated planning and execution of AEI priorities in biomass, solar, wind, hydrogen, and vehicles. NREL will continue to provide credible and objective technical advice to support program and portfolio

planning, serving as the systems integrator for the Hydrogen and Biomass programs, and lead analytic coordinator for crosscutting analysis that supports portfolio planning and policy formulation.

As requested and supported by DOE, NREL will provide technical expertise to the PMC to place and manage contracts, particularly those made under the Solar America Initiative and the Biofuels Initiative. NREL will work with the PMC to transfer selected contracts. The Laboratory will bring its technical expertise and analysis tools and information to bear to inform program R&D directions and to support EERE planning and portfolio decisions.

NREL will maintain close communications with the DOE programs to ensure that NREL is responsive, that important information is communicated, and that issues are identified and resolved in a timely manner.

Intellectual Asset Management

The Laboratory will steward the creation, identification and protection, and ultimately utilization of intellectual assets through effective business systems that support moving from concept through commercialization. NREL will develop effective print and electronic communications products to reach specific target audiences. These products will convey technical and outreach information in support of EERE and NREL mission needs. To accomplish these goals NREL will stay abreast of the latest communications technologies and techniques; provide sound communications planning; develop strategies to help the Laboratory's clients achieve their priorities, and meet all approval and process requirements.

In FY07, the Laboratory will implement the first year of the Laboratory Research and Development (LDRD) program, meeting the requirements of new DOE order 413.2B, and executing efficient processes that align projects with strategic areas. The FY07 LDRD Annual Plan is attached as Appendix B.

NREL will continue to identify inventions, apply for patents when appropriate, and steward intellectual property toward commercialization. In FY07, emphasis will be placed on implementing an innovation management system that will strengthen the invention disclosures and patent applications, leading to strong IP positions. The FY07 Planned Use of License Revenues is attached as Appendix A.

A significant focus will be on creating new mechanisms that focus on technology maturation to reduce the commercial risk of investing in new product development. The Laboratory will make progress in forming an external, "virtual" incubator, referred to as the Clean Energy Innovation Center, that will act as a catalyst to stimulate investment in technology maturation and business startups that will contribute to regional economic development. The focus will be on stimulating collaboration among Front Range public sector institutions to identify and nurture clean energy private sector clusters and to provide timely technical assistance to small businesses in the region. Through these regional interactions, NREL is laying the groundwork to play a significant role in implementation of Title X, Sections 1002 and 1003 of the Energy Policy Act of 2005.

The level of partnering activity in FY07 is expected to increase relative to prior years. This strategic growth will be guided by business plans that are integrated and focused on Laboratory priorities in electricity and fuels and will bring additional leverage to the mission from other government organizations and industry. In FY07, a business process and capability will be

created to align proposal efforts with priorities, integrate activities across the Laboratory, and ensure ongoing, early-stage communications with the Golden Field Office. Opportunities for streamlining partnering processes will be identified, efforts will be made to increase the knowledge that principle investigators have of requirements, and progress will be made in establishing processes to reduce the burden on the PIs.

Performance Objectives	Indicators
2.1 Technical Vision and Value	Input provides value to DOE program plans, industry roadmaps or national level initiatives. Alignment of NREL annual operating plans to DOE multi-year program plans. NREL convened forums provide value to program plans. NREL analytic efforts provide foundation for program plans.
2.2 Program Planning and Management	Milestones are clearly documented in Annual Operating Plans. Effectiveness in addressing challenges and issues. Proactively inform the customer and effectively respond to customer requests for information.
2.3 Intellectual Asset Management	The effectiveness of intellectual asset management systems and processes in supporting NREL's mission and strategy. Commitment to continuous improvement. Essential compliance with laws, regulations, and contractual requirements.

FY07 Management and Operations Plan

Corporate Leadership and Stewardship

Goal 3.0: Provide leadership that enhances the long-term viability of NREL and its value as a recognized national and international asset.

The MRI and Battelle leadership team at NREL intends to selectively engage in efforts that have the potential to significantly impact national energy goals, and that will enhance the recognition of NREL as a valued asset. The leadership team will make progress in implementing a competency-based investment strategy to enhance the unique assets that NREL can bring to bear on critical energy challenges.

The following sections summarize efforts to strengthen institutional leadership, create leverage for DOE's energy mission, strengthen NREL's unique competencies to enhance the future value of assets that can be brought to bear on crucial energy issues, and the contractor's corporate support for furthering the vision and strategy of the Laboratory.

Strengthening Leadership, Vision and Strategy

In FY07, MRI/Battelle leadership will recalibrate its view of the external forces shaping the global energy enterprise and use that information to re-examine NREL roles and strategy. This

effort will culminate in the development of an institutional plan for the Laboratory for discussion with DOE. MRI and Battelle will continue to provide strong corporate support to the Laboratory, through the executive leadership team at NREL and through the Governing Board as the strategy is refined and implemented, including providing corporate support in establishing a revitalized NREL advisory council. Corporate support will be brought to bear to source candidates for key new leadership or strategic technical hires that will advance the NREL strategy.

Engagement in Key Forums to Impact Energy Strategy

As a Federally Funded Research and Development Center (FFRDC), NREL serves as an objective and independent advisor to DOE, to other government agencies, and to the private sector. NREL will continue to demonstrate leadership within DOE through participation in follow-on efforts stemming from the Laboratory working group created to inform FY08 planning. Key areas in which R&D roadmaps are needed to link science and applied research include energy storage, electricity grid integration and control, and alternative transportation fuels and vehicles. Critical to all of these is the need for a system, rather than a program-by-program, approach.

In FY07, NREL will develop an enhanced perspective on what the transition for the nation's electricity supply, delivery, and use infrastructure will take, as well as for its fuel supply, delivery, and vehicle infrastructure. This perspective will be used to advise DOE and other agencies on research, development, and deployment (RD&D) agendas and energy strategies.

NREL will continue to play a strong role in forums that seek to link basic science with applied research efforts. It is widely recognized that the effective translation of foundational science knowledge to applied R&D—*translational science*—has the potential to accelerate progress toward national energy goals. In FY07, NREL will prepare for and participate in the Office of Science workshop on energy storage.

NREL will provide leadership in several DoD forums, such as a Secretary of Defense Integrated Product Team developing options for a long-term energy strategy and a Defense Science Board Panel on Energy Strategy. NREL will bring strategic advice, technology options, and partnering opportunities to these discussions to enhance DoD's energy strategy.

In FY07, NREL will also undertake longer term transformational efforts to explore the question of what it will take to move the deployment of renewable energy technologies from a kilowatt to terawatt scale. In one effort, NREL will work as an *active partner* with community developers, leading commercial businesses and other stakeholders to advance the concept of a renewable community. In another, NREL will work with leading analysts to explore how the nation's energy infrastructure might evolve over the 21st century to increase our understanding of the business models needed to increase the contribution that renewable energy can make to our energy supply portfolio.

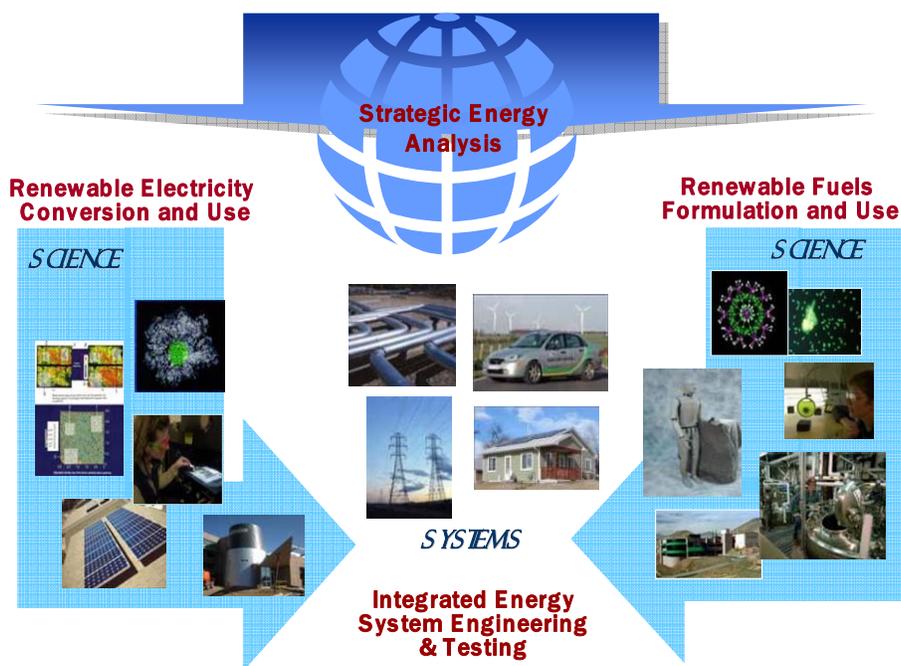
NREL will also expand its perceived value as a national asset for information and analysis to the new group of congressional leaders on renewable energy in the House and Senate. The Laboratory Director and senior managers will play a critical role by providing credible and timely information about technologies when information is requested.

Growth and Diversification to Leverage Mission Accomplishment

NREL intends to develop programs beyond EERE to leverage resources that can be brought to bear on the mission. NREL growth initiatives will focus on three priorities in FY07: the DOE

Office of Science (SC), the Department of Defense (DoD), and key commercial customers. NREL will partner with leading science organizations on a bid to win a leading role in an Office of Science Bioenergy Institute. This critical effort will be a major step forward in transitioning from a project-by-project relationship with SC to a more strategic, institutional role. In addition, NREL will form partnerships, such as the Colorado Collaboratory, to propose enhanced efforts in Solar Science and will participate in an upcoming storage workshop to define a science strategy for stimulating new innovations in this critical technology area. Knowledgeable MRI/Battelle corporate experts will advise on the proposal development for the SC Bioscience Institute and will participate in the review of the proposal.

Other institutional priorities include developing relationships with DoD, and facilitating the dialogue between DOE and DoD to create interest in joint RD&D efforts in key areas such as biofuels, distributed generation control technology, thermally activated technology, or sustainable facilities. Other key areas of focus include strengthening NREL's role with the U.S. Department of Agriculture and building a few high-priority commercial relationships that have the opportunity to significantly enhance our ability to accelerate progress in biofuels, solar, and building energy efficiency. MRI and Battelle knowledge of and networks in the commercial sector and in other agencies will be accessed to identify and open doors to opportunities for leveraging resources to advance and commercialize technologies.



Enhancing Technical Competencies

The wellspring for the innovations and contributions of a national laboratory is the strength of its competencies, foundational capabilities, and communities of practice.

Together, these create a unique technical signature for each laboratory. This signature provides the basis for delivering value to existing and new customers and for attracting partnerships and talent. Competencies are evident in the combination of a talented and experienced staff, showcase facilities, and state-of-the-art equipment.

NREL's capital planning activities for facilities and equipment will support DOE programs and NREL's strategic priorities and assist in moving the Laboratory to a sustainable campus. The conceptualization of the grand-build out of NREL's campus will continue to be refined in FY07 and the Ten-Year Site Plan will be enhanced and delivered on an accelerated schedule. To further define requirements, NREL will seek input from manufacturers, utilities, builders, government energy officials, and other stakeholders.

In FY07, NREL will take significant steps to further enhance and sustain NREL's four core competencies (renewable fuels, renewable electricity, integrated energy systems and strategic analysis) by investing in new talent, by forming partnerships, and by conducting Laboratory-directed research and development (LDRD) projects that explore new concepts.

- **Renewable Fuels Formulation and Use.** Strategic hires will be made and LDRD projects conducted to strengthen capabilities in biofuels science and technology, partnerships will be formed with other laboratories and universities to bring unique combinations of skills to DOE programs, and the existing biochemical pilot scale facility will be enhanced. NREL will develop the Integrated Biorefinery Research Facility concept, with input from industry and other stakeholders. If funding is provided, NREL will be ready to move this critical research facility forward as the expanded process research capability is critical to the goals of the AEI and the President's 'twenty by ten' goal. NREL will also develop the concept for a Biology and Chemical Sciences facility and a closely related computational science capability that will provide unique capabilities at the interface of science and applied research to enable the long-term sustainability of biofuels production.
- **Renewable Electricity Conversion and Use.** This competency will be enhanced by procuring capital equipment for the PDIL, conducting LDRD projects in energy storage, hiring energy storage talent, and by implementing the Colorado Collaboratory to integrate leading science and technology assets in the state to advance solar energy research.
- **Integrated Energy Systems Engineering and Testing.** This competency will be enhanced by hiring a director for the Electricity Systems Center, through key new hires in electric grid reliability, by enhancing the use of systems knowledge and models to guide R&D in areas that have the greatest opportunity to reduce cost, increase efficiency, and enhance reliability. A strategic initiative will lay the groundwork for addressing reliability in grid equipment. NREL will also continue to define the needs and requirements for expanded facility capabilities (the Energy Systems Integration Facility) in integrated systems engineering and testing, linking that to visualizations that draw on strategic energy analysis tools.
- **Strategic Energy Analysis.** This competency will be enhanced through key new hires in hydrogen analysis and policy analysis, by partnering with external financial analysis capabilities, through efforts to strengthen the internal network among NREL's cross-cutting and technology-specific analysts, and through key LDRD investments, including completing the prototype of the Renewable Planning Model and initiating development of a capability to evaluate storage. NREL will develop a multiyear strategy to strengthen and integrate its lab-

wide analysis competency; develop an institutional-level investment strategy for new tools, models, and other investments; and establish analysis standards.

Corporate Citizenship

MRI and Battelle will continue to demonstrate corporate stewardship inside the Laboratory and in the local community by providing the resources to reward and recognize noteworthy staff contributions, support the Laboratory’s ability to protect intellectual property, support regional science and math educational activities and Visitor Center outreach, and contribute to local charitable campaigns and enable staff-led community service projects. Resources will also be provided to enhance the stature of the Laboratory through key corporate memberships in organizations of importance to NREL’s mission and via focused national outreach efforts. Front Range partnerships will be developed to promote math and science education and energy technology awareness.

The Laboratory will also selectively target and proactively engage in local, state, national, and international efforts that align with its strategy, increase its visibility, and demonstrate its value to DOE, industry, and the public. NREL has begun an effort in FY 2007 to become part of the regional strategies that link energy and economic development issues. As Colorado communities try to reduce their energy bills, diversify their economic base, increase wages, and attract new industry, NREL will be a valuable resource to those efforts. An effective program that helps local governments and organizations utilize renewable energy, attract new business, and spur economic growth will – by its very nature – illustrate NREL’s value as a corporate citizen within the state. Success will be indicated by the measure of NREL’s contributions to real local economic growth (new businesses and jobs); establishment of key partnerships; and support for NREL by key elected officials and business leaders.

One key thrust will be to develop an executive energy leadership program for key individuals from local governments, economic development organizations or businesses to provide an opportunity to learn about renewable energy and energy efficiency technologies. NREL would offer regular day-long educational seminars on selected topics designed to help participants develop renewable energy and/or efficiency programs for their own organizations.

Corporate Assurance

A comprehensive, independent review of NREL’s business systems will be completed and a multi-year effort will be launched to improve key systems. Corporate oversight and subject matter resources will be provided to support this improvement in business and operating systems as well as to audit. Key areas for oversight and support will continue to be ES&H, cyber security, facilities planning and construction, and financial management. The managing partners will continue to include NREL in forums that they sponsor to share best practices and lessons learned across laboratories.

Performance Objectives	Indicators
3.1 Leadership and Impact	<ul style="list-style-type: none"> • Compelling Laboratory strategic roadmap and aligned annual plans. • Demonstrated commitment to ES&H. • Partnerships enhance the ability to execute the Laboratory mission. • Stature as a national resource on energy issues. • Contribution to developing the national workforce of the future.

Performance Objectives	Indicators
3.2 Competency Stewardship	<ul style="list-style-type: none"> • Discretionary investments are guided by institutional strategy. • NREL technical capabilities are enhanced. <ul style="list-style-type: none"> ○ Technical expertise ○ Facilities and Equipment • NREL competencies are extended through partnerships.
3.3 Corporate Support and Assurance	<ul style="list-style-type: none"> • Value of Corporate Office involvement in and support of strategy and operations. • Effective leadership in identifying and acting on performance issues and opportunities. • Essential compliance with contractor assurance requirements.

Environment, Safety, Health

Goal 4.0: Foster ES&H as a core value to protect the safety and health of the NREL workforce, the community, and the environment.

A strong ES&H culture is critical to NREL’s reputation as world class institution, and on-going emphasis will be placed on strengthening this culture across the Laboratory. This will be accomplished by continuously improving both ES&H processes and support activities to proactively identify and mitigate the potential for accidents or incidents before they occur, while also improving our response preparedness if they do occur.

In FY07, a number of steps will be taken to further enhance ES&H as a core value of the Institution. Executive management and senior management facility/laboratory walk-throughs will be institutionalized and a system to track results from these collective activities will be implemented.

In addition to maintaining a physical presence in NREL facilities, the Laboratory will continue to communicate the value and importance of ES&H to staff in many ways, including: 1) holding Safety Council meetings that engage leadership and staff across NREL to share progress against goals, lessons learned, best practices, and issues, 2) targeting communications from Executive and Senior management to reinforce expected ES&H performance, and 3) providing employee feedback mechanisms and evaluating the adequacy of those mechanisms.

ES&H practices including ongoing inspection and assessment, lessons learned, and hazard identification and control will be re-evaluated and improvements will be implemented where appropriate. The ESH&Q/Site Operations task force for ISMS will be used to assess continuous improvement in scope, hazard assessment and hazard control. Potential enhancements to ES&H training, to include such areas as Human Performance Improvement (HPI) and wellness program activities, will be evaluated for applicability. The Laboratory will continue to collaborate with external ESH&Q organizations to promote DOE complex-wide sharing of lessons learned and to identify best practices for potential incorporation into existing programs.

NREL will dedicate the time and resources required to take the actions necessary to achieve compliance with 10 CFR 851, *Worker Safety and Health Program* requirements by the end of May 26, 2007. This will be accomplished in part through assuring appropriate integration with NREL's existing ISMS Program and completing Phase II of a third-party ISMS assessment. Results from the 3rd party assessment will be analyzed for opportunities for improvement.

While the Lab has consistently used DOE and industry metrics as a measure of ES&H performance, many of these metrics are considered lagging indicators of performance. NREL will continue to track performance against these, however in FY07 emphasis will be placed on identifying a set of leading metrics that reflect potential predictors of ES&H performance.(e.g., SOP currency, RV results, training, employee concern tracking.)

NREL will develop a National Environmental Policy Act (NEPA) strategy designed to assure that sustainability/environmental sensitivity decision-making criteria are established for our long-term facility/site needs. The NEPA strategy can be used as a basis for a Site Wide environmental assessment (EA) and ongoing NEPA related activities. DOE revised Order 450.1 Change 2, CDR, *Environmental Management*, includes an update establishing five pollution prevention and sustainable environmental stewardship goals. This Order requires contractors to identify strategies for inclusion in existing Environmental Management Systems to assist DOE in achieving these new goals. In addition, a new Executive Order has been signed relating to strengthening federal environmental, energy, and transportation management. In FY07 NREL will identify appropriate strategies and develop objectives and targets in accordance with DOE Order 450.1 Change 2, CDR in FY07, and in consideration of the new Executive Order.

NREL's processes for responding to incidents/issues will be assessed to identify further means of improving effectiveness and timeliness as well as disseminating the outcomes and actions taken to those who need it.

The generation of a lessons learned is a reactive response whereas the sharing of lessons learned is proactive; both are equally important. In this vein, employee feedback mechanisms such as employee ES&H concern tracking and NREL's internal lessons learned reporting and dissemination processes will be further assessed and strengthened.

All of these efforts require resources, more than we have today. In FY07, NREL will hire critically needed resources in safety, environment, and quality.

Performance Objectives	Performance Indicators
4.1 Leadership and Prevention	<ul style="list-style-type: none"> • Essential compliance of NREL's ES&H processes and systems with requirements. • Effective ES&H operational awareness. • Recurrence and impact of incidents/accidents • Demonstrated commitment to continuous improvement.
4.2 Response	<ul style="list-style-type: none"> • Self-identification of incidents and issues. • Effectiveness and timeliness of incident response, reporting and case management. • Demonstrated commitment to continuous improvement. • Essential compliance of NREL's ES&H incident response and case management with requirements.

Business Processes and Systems

Goal 5.0 Deliver sound, responsive business systems and supporting processes that enable the mission.

With core competencies as the wellspring for the innovations that accomplish the Laboratory's mission, effective and efficient business processes and systems enable this accomplishment to occur. MRI/Battelle intend that NREL deliver effective business and operational support, address important new or emerging requirements, and place a priority on identifying and implementing improvements to business processes that will assist in advancing the Laboratory's strategy. In addition to assessing critical needs for NREL's business systems, priority will be placed on rolling out new workforce and leadership training and continuing to implement NREL's Quality Assurance Program.

Following the independent review of NREL business systems, the Laboratory will develop a business systems strategy, governance model, and initiatives roadmap to continuously improve the efficiency and effectiveness of NREL business systems.

Financial Management Plan

MRI/Battelle will continue to place emphasis on financial systems that facilitate mission accomplishment, have high integrity and low transaction costs, and that comply with requirements.

In FY07, NREL expects to have fiscal responsibility for \$ 322 million¹ of DOE and Work for Others Resources. The continuing resolution will require agility and flexibility in managing finances at the front end of the year to ensure no over commitment of resources at the B&R level while maintaining momentum on key elements of the DOE agenda. Contractor requirements under OMB Circular A-123 will be met in a timely manner. This will be achieved through a careful internal control structure and oversight, appropriate planning, and timely and accurate financial reporting to internal and external customers. One key area targeted for continuous improvement is increased use of electronic payments. Other areas will be targeted based on the results of the business system reviews and internal audits.

Procurement Plan

NREL will demonstrate efficient and effective procurement support through performance against balanced scorecard goals and through continued improvements made to the Laboratory's procurement processes. In FY07, NREL anticipates a range of \$66 to \$75M in subcontract awards. The plan includes goals of for competitively awarding 55% of subcontract awards and 70% of subcontract dollars. Additionally, the Laboratory expects to transition some contracts to the Project Management Center as its capacity expands to take on this work. Also, through closeout activities and competition, NREL will demonstrate effective stewardship of DOE funds.

Human Resource Plan

To support NREL's current and future workforce and to assist in strengthening technical and support competencies across the institution, NREL will enhance human resource practices in recruiting and training. New management training modules will be developed to train all levels of supervision across the Laboratory. Activities in FY07 will include launching a Coaching

¹ Estimate based on Negotiated Cost Proposal FY 2007 prepared 10/23/07

Performance Series for new supervisors and their managers, and developing an enhanced and comprehensive diversity strategy.

Information and other Management System Plans

NREL Information Technology (IT) is critical to effective operations. In FY07 the Laboratory will continue to provide a healthy IT infrastructure and quality technical support. NREL's Library will continue to provide user-friendly desktop access to resources needed by research and technical staff. The NREL publication review and approval process will be streamlined while supporting the life-cycle tracking and distribution of NREL publications. Plans for other management systems are summarized below:

Requirements Management. In an effort to continuously improve the deployment of requirements, a team-based approach to developing high-impact lab-level procedures will be implemented for "select high-profile" lab-level procedures. At the same time the Lab will track the timely update of high-risk policies and procedures.

Quality Assurance. The Laboratory revised its quality assurance (QA) program and associated implementation plan in FY06 and intends to build on this effort in FY07. One of several areas for emphasis in FY07 will be strengthening the synergies that can be leveraged across quality, ES&H, and facility inspection activities. Another is formalizing the establishment of quality coordinators across each directorate with the goal of understanding what is unique as well as consistent across NREL organizations and responding to those needs in a manner that maximizes value.

Performance Objectives	Indicators
5.1 Sound, Responsive and Effective Financial Management Systems	<ul style="list-style-type: none"> • Effective program and Laboratory financial planning, oversight and reporting. • Essential compliance with laws, regulations and contractual requirements. • Financial systems demonstrate effective internal controls. • Demonstrated commitment to continuous improvement
5.2 Sound, comprehensive procurement systems	<ul style="list-style-type: none"> • Effective acquisition planning and procurement processes that support the mission and DOE goals. • Effective subcontract oversight and closeout management. • Essential compliance with laws, regulations, and contractual requirements. • Demonstrated commitment to ES&H and continuous improvement.
5.3 Sound and responsive human resource management systems and diversity program	<ul style="list-style-type: none"> • Effective, responsive human resource management systems and processes support NREL's strategy and diversity goals. • Commitment to ES&H and continuous improvement • Essential compliance with laws, regulations, and contractual requirements.

Performance Objectives	Indicators
5.4 Sound information and other management systems	<ul style="list-style-type: none"> • Effective, responsive management systems and processes support NREL’s strategy goals, including <ul style="list-style-type: none"> – Information Systems – Quality Assurance – Requirements Management – Technology Partnering Processes • Commitment to continuous improvement. • Essential compliance with laws, regulations and contractual requirements.

Facilities and Infrastructure

Goal 6.0 Effectively manage NREL’s existing assets and the development of new assets.

Strengthening and maintaining core competencies demands a commitment to effectively and efficiently maintain existing assets in a reliable operating condition, and to effectively manage new construction projects. To ensure that expanding capabilities are strongly supported, NREL will also facilitate growth and progress in its mission through diligent oversight of the construction of new facilities and infrastructure. NREL will foster environment, health and safety as a core value in existing and proposed property, facilities, equipment and infrastructure management activities. For example, safety criteria will be integrated into Construction Line items and major project Statements of Work.

During FY07 NREL will complete critical decision four (CD-4) of the Science and Technology Facility, and implement the conceptual design of the first phase of the Research Support Facilities that will demonstrate new energy efficiency technologies. In conjunction, the STM Infrastructure Study project, including the conceptual development of a new road and extension of basic utilities to and through the 25-acre south campus on South Table Mountain, will be further developed. Other projects include the conceptual design of the Integrated Biorefinery Research Facility.

NREL will continue to serve as an example of how to develop a sustainable operation that can be replicated by others, by installing renewable energy generation and increased energy efficiency measures. In FY07, NREL will add the proposed Renewable Fuel Heating Plant to its portfolio of on-site renewable energy generation technologies. NREL will also explore the conditions under which the site or facility rooftops might be made available for utility energy project RFPs.

The investment in new facilities and equipment will be balanced with investments needed to maintain or upgrade existing facilities and equipment. This will include ongoing upgrades to the Solar Energy Research Facility, the Field Test Laboratory Building, and other facilities.

Performance Objectives	Indicators
6.1 Effective and efficient management of property, facilities, equipment, and infrastructure	<ul style="list-style-type: none"> • Essential compliance with requirements. • Demonstrated commitment to ES&H. • Effective use of available resources to maintain real property asset value. • Effective and efficient lab-wide space allocation and utilization. • Effective management of facility projects. • Demonstrated commitment to continuous improvement.
6.2 Effective management of infrastructure development	<ul style="list-style-type: none"> • Essential compliance with requirements. • Construction plans and activities demonstrate commitment to ES&H. • Effective acquisition and management of facility construction projects. • Demonstrated commitment to continuous improvement.

Security and Emergency Management

Goal 7.0 Enhance the effectiveness of security and emergency management through strong and well deployed systems.

Leadership at NREL is committed to a strong security and emergency management culture where awareness of responsibilities in the areas of physical and cyber security and emergency management is infused throughout the institution. NREL manages an average of over 10,000 access control requests per year.

In FY07, security measures, including our protective force support, cyber and information management, and foreign national management systems will be strengthened. Emphasis will be placed on putting approved Site Security and Emergency Response Action plans in place and attaining renewal of NREL's Authority to Operate for the Cyber Security Program. Foreign National Subject Matter Expert (SME) reviews will be expanded, emergency notification/communication systems will be improved, and cyber security incidents will be effectively mitigated and managed.

Security awareness among NREL staff will be maintained through periodic, focused reminders and through annual site wide training. Emergency preparedness will be maintained through training and drills that keep the protective force proficient, but also engage NREL management and staff as appropriate.

Performance Objectives	Indicators
7.1 Site security	<ul style="list-style-type: none"> • Effective NREL Site Security plans and processes. • Essential compliance with security practices and requirements. • Recurrence and impact of incidents. • Timeliness and appropriateness of response. • Corrective actions are identified and

Performance Objectives	Indicators
	implemented. <ul style="list-style-type: none"> • Demonstrated commitment to ES&H and continuous improvement.
7.2 Emergency management	<ul style="list-style-type: none"> • Effective Emergency Response Action Plan (ERAP) and processes. • Essential compliance of emergency management practices with requirements. • Timeliness and effectiveness of response to incidents/accidents. • Demonstrated commitment to ES&H and continuous improvement.
7.3 Provide effective System for Cyber Security	<ul style="list-style-type: none"> • Effective cyber security plan and processes. • Essential compliance of cyber security practices with requirements. • Recurrence and impact of incidents. • Corrective actions are identified and implemented.

Appendix A: Planned Use of License Revenues

In compliance with NREL's prime contract (I.106(h)(2)) this report provides a summary of *estimated* license revenue to be received by MRI in FY07, and the plan for how accumulated license revenues from FY 2006 and prior years will be invested at NREL during FY 2007. This is the first year that the forecast and plan has been included in the One-Year Plan and it is the intent to continue this as a standard practice. Similarly, a complete reporting of actual FY 2006 license revenues and expenditures will be submitted to GO during the fall of 2006. That report will be integrated within an appropriate reporting vehicle, such as the Yearend Self Assessment or the Performance Story.

When the One-Year Plan is updated to address comments and to align with any changes resulting from differences between forecasts and actual appropriations, the forecast of revenues and uses will also be refined. At that point information on yearend FY06 actual revenues and costs will be available to fine tune these estimates.

Revenue Forecast

The forecast of license revenues for FY07 represents an expected value based on available information and consideration of uncertainties associated with:

- The general state of the U.S. and world economies,
- Demand for products and services that utilize NREL-originated intellectual property that has been licensed by MRI,
- Success of licensees in capturing sales against competing products,
- Ability of licensees to remain "going concerns" and make royalty payments specified in license terms, and
- The pipeline of current licensing leads, and realized success in licensing new technologies.

The forecast is for approximately \$300K in license revenue receipts of which about \$20K is revenue owed to third party owners of intellectual property. Table 1 provides a summary of the forecast.

Table 1- Estimated License Revenue in FY2007

License Revenue Receipts – FY2007 Earnings	\$300,000
Interest income	\$30,000
Payments to Third Parties	(\$20,000)
Net FY 2007 Revenues	\$310,000

Planned Uses of License Revenues

At the beginning of FY07, the current forecast is that about \$1,271K will be available from FY06 and prior years. At the beginning of October, we expect that about \$655K of this will be committed to loans made to fund the 90-day prepayment required on work for other projects, leaving a total of approximately \$617K available for allocation to uses defined as appropriate by Bayh-Dole legislation:

- Employee recognition and rewards
- Technical exchanges with peers
- Education and training of employees
- Intellectual property expenses
- Scientific research and development.

Currently planned uses of the funds include payments to innovators, intellectual property protection, and technology maturation efforts, as well as the continued use of these resources to selectively provide loans to meet the 90-day prepayment requirement for work for other projects. Preliminary estimates for each of these uses are summarized in Table 2. Additionally, the plan includes a provision for up to \$74K in projects that may be proposed by a center within any of the five categories. Details on these plans are not currently available as they could be initiated throughout the course of the year.

Table 2: Planned Use of License Revenues

Estimated Beginning FY2007 License Fund Balance	
Beginning Available Funds and Receivables: 10/01/06	\$1,271,313
Total of 90 Day Advance Payment Loans: 10/01/06	(\$654,581)
Estimate of Available Funds: 9/30/06	\$616,732
Planned Uses of FY06 and Prior Year Receipts	
Payments to MRI Innovators	(\$60,000)
Material handling burden on inventor's payments	(\$3,000)
Payments for IP Protection Costs	(\$100,000)
Technology Maturation and Awards Costs	(\$100,000)
New Projects to be Proposed by Centers	(\$74,000)
Subtotal Planned Uses of License Revenues	(\$337,000)
Net Cash Balance, Receipts and Expenditures: 9/30/07	\$589,732
Net Change in 90 Day Adv. Fund Account: 09/30/06	\$76,000
Estimated Available Funds: 09/30/07	\$665,732
Total of 90 Day Advance Loans Outstanding: 09/30/07	\$578,581
Beginning Available Funds and Receivables: 10/01/07	\$1,244,313

Appendix B: The National Renewable Energy Laboratory's FY 07 Laboratory Directed Research and Development Program Plan

The recently released House Report 109-275 (11/07/05) made all DOE laboratories eligible for Laboratory directed research and development funding. NREL will close out the prior DDRD program at the end of FY06 and start an LDRD program in FY 2007. As required by DOE Order 413.2B, this FY 07 LDRD Program plan documents the process for selecting and managing LDRD projects at NREL, as well as the expected budget plans for FY07.

Program Description and Value

Technical innovation is central to the success of a national laboratory. Innovative discretionary research maintains the scientific and technical vitality of the Laboratory, enhances the its ability to address future DOE missions, and serves as a proving ground for new and potentially high-value mission enhancing activities. Discretionary research can provide new technology pathways to attain DOE's energy goals, and can accelerate progress on existing technology pathways.

The LDRD program enables researchers to explore novel opportunities within the Laboratory's assigned mission that are too speculative to propose to a DOE technology development program. Thus, through LDRD, new concepts are tested and those with promise become the basis for new, value added efforts to propose to DOE programs. Additionally, research supported by the LDRD Program enhances NREL's technical capabilities through the experience gained by staff conducting the work and by enabling hiring new staff.

By providing a strong link between NREL's institutional strategy and the focus of the LDRD program, NREL will strengthen the Laboratory's four core competencies and its ability to bring value to DOE's energy mission. All of the work conducted under NREL's LDRD program is within the scope of the mission and has the potential to contribute to changing how we power our automobiles or how we power our homes and businesses, consistent with the President's Advanced Energy Initiative.

Project Proposal and Selection Process

NREL's proposal and selection process involves a call that links to the lab mission and priorities, a pre-proposal and full proposal process, and both a strategic and peer review of proposed work.

In May 2006, proposers were invited to submit concepts for exploratory R&D in areas relevant to DOE's and NREL's missions and consistent with the objectives of the LDRD program. LDRD projects are intended to establish the basis for proposing new projects/programs by developing and demonstrating a new capability or establishing proof-of-principle at the forefront of science and technology. Projects are selected based on adherence to the LDRD policy, funding availability, technical and strategic alignment and merit.

In the call, NREL encouraged collaborative proposals that integrate activities across disciplines within a center, across centers within the Laboratory, and between national laboratories.

Researchers were asked to submit a pre-proposal in the form of a one page abstract detailing their concept and how it contributes to one or more of the Laboratory core competencies (renewable electricity conversion and use, renewable fuels formulation and use, integrated energy systems and testing, and strategic energy analysis). In addition, the following strategic areas were identified for priority consideration:

- Innovative storage concepts
- Innovative electric system interface and integration concepts
- Advanced material design and synthesis R&D
- Foundational analytic tools for strategic analysis
- Innovative hydrogen and fuel cells manufacturing R&D
- Innovative cellulosic biomass conversion technologies
- Advanced renewable fuels and engine evaluation technologies

Over 70 pre-proposals were reviewed by Executive Management and NREL's Research Fellows for selection for submission of a full proposal. The initial review considers alignment with mission and priorities and potential value to DOE. Over 30 full proposals were then technically peer reviewed by the Research Fellows and a team of subject matter experts. The proposals that pass the technical review are recommended by the Research Fellows to Executive Management, who will make the final selections.

On-going LDRD projects which extend past the end of FY 06 will also be reviewed to assure that project schedule, budget, and technical merit are still aligned with the program goals. Executive management will make the final decision on whether or not these projects should proceed in FY07. The review process for both new projects as well as continuations will be complete by August 30, 2006. DOE will be notified of NREL's final selections by September 6, 2006, in order for new projects to start at the beginning of FY 2007.

Project Management Process

The LDRD program is managed within NREL's Laboratory Development Office (LDO).

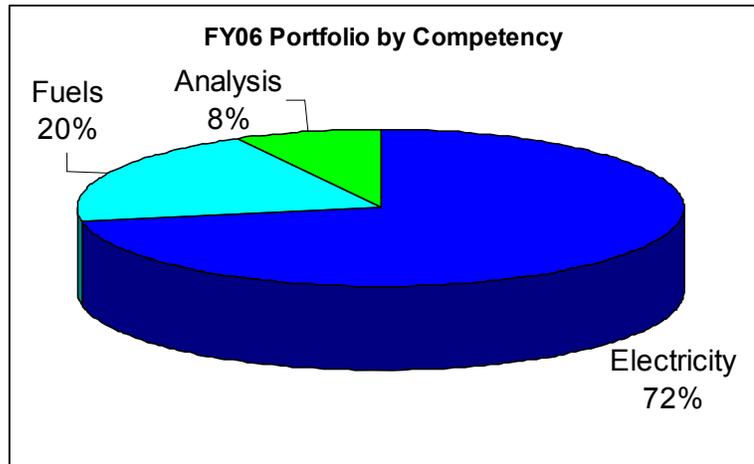
Each LDRD project follows a normal project cycle. That is, following selection, the principal investigator submits an annual plan, schedule, and spend plan. The LDO provides monthly oversight of project schedules and budgets, and collects quarterly progress reports from each project leader. Any issues are identified and raised to line management for resolution. Technical reviews are held at least annually, and additional reviews are held as necessary to assure that project goals are being met.

In August, the LDO schedules a review of each of the projects that proposed work in the following fiscal year. Executive management, along with the Fellows, reviews the progress of each of the projects to determine which to continue into the following year. NREL publishes an annual report at the end of each fiscal year summarizing the progress and results of each project.

Continuing Projects Summary

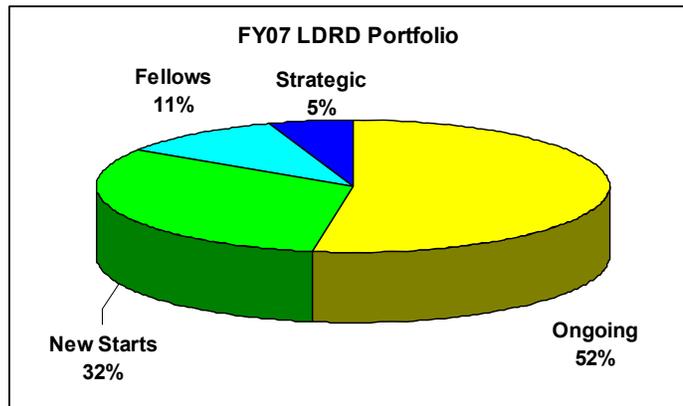
In FY 06, 16 research projects were supported under the DDRD program. Nine of these projects have the potential to continue in FY07, pending the upcoming review.

The portfolio of topics fall is aligned with three of the Laboratory's competencies and represents projects that draw on numerous technical disciplines, which crosscut the Laboratory, including: advanced analytic methodologies and systems, advances measurements and characterization techniques, advanced materials, biotechnology, chemistry, and computational sciences. These projects have the potential to provide new research pathways for many of the DOE programs.



FY 07 Budget Request

The budget request for FY 07 is \$3.83M. After providing support of \$2.0M for on-going projects, approximately \$1.2M will be available for new projects. We expect to recommend to DOE by Sept 6, 2006, which of the nine projects to continue and approximately 5 or 6 new competitively selected projects for LDRD funding in FY07. The remaining \$.63M will be required to support additional leading-edge research projects conducted by NREL's Research Fellows, as well as high priority strategic research in support of strategic hires as determined by NREL's executive management.



Summary of the FY 07 budget request of \$3.8M:

On-going projects from FY 06:	\$2.0M
New projects starting in FY07:	\$1.2M
Research Fellows directed projects:	\$.4M
Strategic Research	\$.2M