

PART I

SECTION C

**DESCRIPTION/SPECIFICATION/
STATEMENT OF WORK**

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Description/Specification/Statement of Work

C.1 Introduction

The National Renewable Energy Laboratory (NREL) is the nation's primary Laboratory for renewable energy and energy efficiency research, development, demonstration and deployment/commercial application (RDD&D). The Laboratory is a Federally Funded Research and Development Center (FFRDC) established in accordance with the Federal Acquisition Regulation (FAR) Part 35 and operated under this Management and Operating (M&O) Contract, as defined in FAR 17.6 and DOE Acquisition Regulation (DEAR) 917.6. The Contract, first awarded in 2008, was non-competitively extended on January 18, 2017, until September 30, 2023, and again on November 4, 2022, until September 30, 2028. The Contractor is Alliance for Sustainable Energy, LLC (Alliance) which was jointly formed by MRIGlobal and Battelle Memorial Institute. Alliance is charged with the operation of NREL on behalf of DOE's Office of Energy Efficiency and Renewable Energy (EERE).

NREL's mission is to lead research, innovation, and strategic partnerships to deliver solutions for a clean energy economy. This mission statement reflects the Laboratory's evolving scope and impact.

From its vision of a clean energy future for the world to its community, NREL is unique, and has multiple differentiators that sets it apart from other institutions. The Laboratory has decades of focused leadership in clean energy RDD&D. No other institution has the long-standing expertise and breadth of knowledge that will form the foundation of the clean energy transition. NREL is focused on impact: from work in basic sciences to power generation, systems engineering, analysis, and deployment, NREL researchers are focused on solving market-relevant problems that result in deployable solutions. NREL's large number of meaningful partnerships ensure the Laboratory's work is relevant and applicable to the energy challenges that must be surmounted to facilitate the energy transition and hence to achieve NREL's vision. NREL is the trusted clean energy leader, and the Laboratory's work will guide the nation toward achieving ambitious goals of reducing greenhouse gas (GHG) emissions and a decarbonized clean energy future.

DOE employs a performance M&O Contract¹ to enable the Contractor to achieve highly effective and efficient management of the Laboratory resulting in a safe and secure environment, outstanding science and technology (S&T) results, cost-effective operations, and enhanced Contractor accountability.

The Contractor has the responsibility for total performance under the Contract, including determining the specific methods for accomplishing the work, performing quality control, and assuming accountability for accomplishing the work under the Contract. Accordingly, this Contract provides flexibility, within the terms and conditions of the Contract, to the Contractor in managing and operating the Laboratory.

Under this Contract, it is the Contractor's responsibility to develop and implement innovative approaches and adopt practices that foster continuous improvement in accomplishing the mission of the Laboratory. DOE expects the Contractor to employ effective and efficient management structures, systems, and operations that maintain high levels of quality, safety and security in accomplishing the work required under this Contract, and to rely on national, commercial, and industrial standards that can be verified and certified to the extent practicable and appropriate by nationally recognized experts and other independent reviewers.

C.2 Purpose

The purpose of this Contract is to manage and operate NREL to maintain and advance the Laboratory's intellectual and physical capabilities that enable NREL to perform, manage, and integrate long-term, high-risk RDD&D and to conduct complementary technology, policy, and market analyses. In so doing, the Contractor must accomplish the following:

- (1) Develop and sustain NREL's scientific, technological, management, and support capabilities and strategic relationships necessary to address our national energy, economic, and environmental challenges and to ensure long-term vitality and national value; and
- (2) Establish NREL as a national leader in clean energy technology research, development, and systems engineering; energy systems security and resilience; policy and market analysis; and technology commercialization and deployment.

C.3 Background

EERE is NREL's sponsor and primary client and is responsible for NREL's long-term direction and for stewarding NREL to perform its mission and to sustain its value as a leading research institution.

NREL currently employs approximately 3000 scientific, technological, management, and operations personnel at three primary locations near Golden, Colorado, as well as one in Fairbanks, Alaska, and one in Washington, D.C. NREL conducts a wide range of non-nuclear RDD&D across the spectrum of energy efficiency and renewable energy technologies and energy systems; designs, builds, and operates complex scientific

¹ See DOE Acquisition Guide Chapter 17.6 for more information on the history and purpose of M&O Contracts at http://www.management.energy.gov/policy_guidance/Acquisition_Guide.htm

equipment in support of its RDD&D mission; analyzes technology, policy, and market interactions to provide credible and objective data and information to enable informed decisions on NREL's RDD&D mission, national energy policy and investments; and advises DOE and EERE on the scope, structure, and direction of energy-related programs and policies.

NREL is a FFRDC and operates under Federal Acquisition Regulation (FAR) Part 35 in support of DOE's long-term RDD&D mission. As an FFRDC, NREL has access to DOE, including access to governmental and non-governmental sensitive and proprietary information, well beyond that encountered in a normal contractual relationship, to assist DOE in planning, executing, assessing, and redirecting the policies, programs, and projects necessary to achieve national goals. Accordingly, the Contractor must ensure that the public's interest is always placed above its corporate interest, and potential or actual organizational conflicts of interest are promptly identified, avoided and/or mitigated. The Contractor must ensure objectivity and independence in all NREL technology, policy analysis, and technology deployment matters.

The Contractor is provided the freedom to exercise innovation and creativity to achieve the world-class mission and operational results expected of a DOE National Laboratory in exchange for full accountability for NREL's performance. Accordingly, DOE will define work as outcomes (performance goals) and will use performance objectives, success indicators and notable outcomes to evaluate Contractor performance and to determine award fee to the maximum extent possible.

C.4 Statement of Work

NREL's mission and programs support the overarching DOE energy and science mission to advance foundational science, innovate energy technologies, and inform data driven policies that enhance U.S. economic growth and job creation, energy security, and environmental justice and quality.

Over the term of the Contract extension, the Contractor shall maintain and advance the Laboratory's intellectual and physical capabilities that enable NREL to perform, manage, and integrate long-term, high-risk RDD&D and to conduct complementary technology, policy, and market analyses. The Contractor shall make it possible for the private sector and other partners to join in development activities with the Laboratory to enhance and accelerate the transfer of knowledge and technology that enables development of commercial products and widespread adoption of sustainable transportation, renewable power, and energy efficiency technologies.

The Contractor shall manage and operate all NREL installations, including the main South Table Mountain Campus, the South Table Mountain Energy Park, the Denver West leased space, the D.C. office, the Flatirons Campus, the Cold Climate Housing Research Center, and all other supporting installations effectively and efficiently, to ensure the long-term availability and protection of these installations and the federal investment, and in compliance with applicable laws, regulations, and directives.

The Contractor is expected to manage and operate NREL through management practices designed to enable research effectively and efficiently. The Contractor shall ensure the health and safety of staff and the public and protect the environment. The Contractor shall develop and deploy management systems and practices that enhance research productivity and mission accomplishment and that are effective and efficient.

(a) Research and Development

- (1) *Institutional and Intellectual Leadership*- The Contractor shall manage the resources and capabilities of the Laboratory and provide leadership for this scientific and engineering institution to continually evolve with tomorrow's mission needs, and to keep pace with the forefront of innovations. The Contractor shall ensure that the NREL executive management team members are experts in their respective areas of responsibility and possess the relevant skills necessary to achieve and renew NREL's mission by effectively and efficiently directing the day-to-day management of the Laboratory and proficiently linking all capabilities to accomplish the DOE mission over the long-term. The Contractor shall ensure that all RDD&D activities are conducted to the high standard expected of an FFRDC, and that NREL's integrity as a public institution is protected and maintained.

The Contractor is charged with maintaining, enhancing, and renewing the intellectual resource base in order to avoid erosion of the scientific and engineering foundations at the Laboratory, and to promote world leadership prominence in areas as mandated by the EERE and other DOE Offices. To do so, the Contractor shall place special emphasis on efforts to attract and retain diverse, highly accomplished scientists and engineers in all core and emerging capabilities as designated by DOE.

- (2) *Foundational Science Capabilities*– The Contractor shall maintain DOE recognized foundational science capabilities:

- 2.1 Applied Materials Science and Engineering
- 2.2 Chemical and Molecular Science
- 2.3 Biological System Science
- 2.4 Advanced Computer Science, Visualization and Data
- 2.5 Applied Mathematics
- 2.6 Computational Science

The Contractor shall direct research activities that work towards significant discoveries in these and related scientific fields and translate the findings into commercially relevant technologies to support the current and future DOE mission needs.

- (3) *Engineering, Decision Science, and Analysis Capabilities*- The Contractor shall maintain and enhance applied capabilities:

- 3.1 Mechanical Design and Engineering
- 3.2 Chemical Engineering
- 3.3 Power Systems and Electrical Engineering

- 3.4 Systems Engineering and Integration
- 3.5 Decision Science and Analysis
- 3.6 Biological and Bioprocess Engineering
- 3.7 Earth and Energy Systems and Infrastructure Analysis and Engineering

The Contractor shall additionally continue the development of its capabilities in cyber and information sciences.

The Contractor shall direct research activities that represent undertakings to significantly improve upon state-of-the-art clean energy technologies, systems, and processes to support the current and future DOE mission needs.

- (4) *Designated User Facility and Other RDD&D Assets*– The Contractor shall maintain and enhance capabilities in:

4.1 Large-Scale User Facilities

The Contractor shall ensure effective, efficient, and safe operations of existing and planned user facilities, other appropriate facilities, and provide effective technical support to user clients from public and private sectors. The Contractor shall implement DOE mission objectives to ensure user facilities are user friendly, accessible, and readily available; and operate, to the extent practicable, within conditions requested by user clients.

The Energy Systems Integration Facility (ESIF) is a formally designated user facility at NREL and embodies crosscutting energy systems integration (ESI) research efforts focused on developing, evaluating, and demonstrating innovative technologies and strategies to ensure that the nation's energy sources, demand-response programs, and delivery systems can work together optimally as a system. The ESIF is the only place in the nation where researchers can perform MW-scale power hardware-in-the-loop experiments on a full, multi-device dynamic system.

The Contractor shall maintain, operate and, when necessary, upgrade ESIF and other unique and world-class RDD&D assets on and off the main South Table Mountain Campus to sustain American leadership in clean energy research and technologies. Such assets include, but are not limited to: the Advanced Research on Integrated Energy Systems (ARIES) platform; Solar Energy Research Facility (SERF); S&T Facility (S&TF); Research and Innovation Laboratory (RAIL); Outdoor Test Facility (OTF); Integrated Biorefinery Research Facility (IBRF); South Table Mountain Energy Park (STEP); Flatirons Campus; and Vehicle Testing and Integration Facility (VTIF).

- (5) *Contract Extension Requirements* - For the Contract extension the Contractor is required to:

- Increase the percentage of early-stage Research and Development in NREL's overall portfolio, thereby increasing its scientific contribution and relevance in helping the U.S. lead in addressing climate change, energy security and economic competitiveness;

- Recruit and retain world-class scientists and engineers to strengthen research leaders and bench in each core and emerging capability area;
- Develop and maintain active partnerships with universities that have a strong S&T track record;
- Maximize the impact of the Energy Systems Integration Facility and the Advanced Research on Integrated Energy Systems research platform and place greater emphasis on projects and partnerships that solve integrated energy systems challenges;
- Integrate Diversity, Equity, Inclusion, and Accessibility (DEIA) principles into both the NREL mission and human capital objectives to provide inclusive, sustaining partnership opportunities that make NREL a destination Laboratory. Mission and human capital objectives include expanding NREL's DEIA influence through environmental justice work in traditionally marginalized and rural communities, through small business partnerships, and through development of relationships with community colleges, Historically Black Colleges and Universities (HBCUs) and Minority Servicing Institutions (MSIs) that build a diverse workforce pipeline;
- Commercialize S&T Research into the Market.

The Contractor shall address its plans and metrics for the above requirements in its Annual Laboratory Plan submittal each year starting in FY23 for approval by DOE. Specific performance objectives, success indicators and notable outcomes will be incorporated into the Performance Evaluation Measurement Plan (PEMP).

(b) Protection of Workers, the Public, Information, Facilities, and the Environment

- (1) *Hazards/Risks* – The Contractor shall perform all work in a manner that protects human health and welfare, including employees, on-site temporary personnel (including subcontractors), visitors, and the general public. The Contractor shall also protect the environment in accordance with the NREL Integrated Safety Management System (ISMS); applicable environmental, safety, and health laws and standards; and industry best practices. In addition, the Contractor shall maintain a robust mechanism for establishing, disseminating, implementing, controlling, maintaining, and documenting standards or procedures used to control performance risks. In doing so, the Contractor shall rely on persons qualified by knowledge, experience, or training to assess and categorize risk or to establish risk-based performance standards. Lastly, the Contractor must stop work immediately when directed by an authorized Contracting Officer's Representative pursuant to Clause H.6, Environment, Safety, and Health Stop Work Order;

- (2) *Security* – The Contractor shall protect personnel, personal, proprietary, and business-sensitive information commensurate with the risk of information loss. In addition, the Contractor shall protect Government property and facilities from sabotage, loss, or theft. The Contractor shall obtain approval of safeguards and security plans from the cognizant security authority, which describes protective measures appropriate to the work being performed. Any significant changes or deviations from the approved safeguards and security plans require the cognizant security authority’s review and approval.
- (3) *Energy, Environmental and Transportation Stewardship*- The Contractor shall implement all requirements of Executive Order 14057, Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability. In addition, the Contractor shall initiate and continually improve facility and waste management practices and set aside sufficient project funds to ensure full restoration, remediation and waste disposition can be achieved prior to project completion.

(c) Project Management and Strategic Planning

- (1) *Project Management*- DOE’s Project Management Principles apply to all capital asset projects using a tailored approach as defined or approved by the sponsoring project office. This includes General Plant Projects (GPPs) as defined in DOE O 413.3B Program and Project Management for the Acquisition of Capital Assets. The Contractor shall manage all facility engineering and construction efforts in a manner that allows completion of project objectives in a safe and environmentally sound manner within the planned schedule, cost, and technical baselines. Specifically, the Contractor is expected to achieve all project deliverables associated with scientific facility upgrades and modernization in accordance with DOE Directives and requirements. The Contractor shall recommend alternative standards to replace DOE Directives where the external standard is superior from a cost, implementation, or technical perspective based on assessed risks of the work at hand.
- (2) *Strategic Planning and Coordination with DOE*- The Contractor shall conduct long-term strategic planning efforts with DOE and Field Office personnel to identify opportunities to advance EERE’s mission. The Contractor shall ensure that the resulting Laboratory Plans and other documents are communicated to and reviewed by DOE via established annual and other ad-hoc planning processes, and work with EERE and Field Office personnel to pursue approved projects and activities.

(d) Government-Owned and Leased Buildings and Facilities

- (1) The Contractor shall manage and maintain government-owned buildings and facilities at the Laboratory sites, together with the utilities and appurtenances thereto, as well as Contractor-leased facilities.