

S. SUMMARY

S.1 INTRODUCTION

The National Renewable Energy Laboratory (NREL) is one of ten Department of Energy (DOE) national laboratories and is dedicated to the research, development, and technology transfer of renewable energy and energy efficiency technologies. The DOE Solar Energy Research Institute, founded in 1977, achieved national laboratory status and became NREL in 1991. The Midwest Research Institute and their subcontractors, Battelle Memorial Institute and Bechtel Corporation, operate NREL for DOE. The laboratory is comprised of three main sites: 1) South Table Mountain (STM); 2) Denver West Office Park (DWOP), and 3) The National Wind Technology Center (NWTCT). The STM and DWOP sites are referred to as the STM complex and are the subjects of this environmental document. Future plans for the NWTCT have been assessed in a separate National Environmental Policy Act (NEPA) process that was completed in May 2002.

In accordance with DOE NEPA implementing regulations, DOE is required to evaluate the Site-Wide Environmental Assessment (EA) after five years and annually thereafter to determine whether the documentation and findings continue to adequately address current agency plans, functions, programs, and resource utilization with respect to environmental impacts. A Site-Wide EA for NREL's STM site was published in 1993 (DOE-EA-0620). Since 1993, DOE and NREL have reviewed the EA for continued relevance to ongoing activities and NEPA compliance. In 2002, DOE determined that a new comprehensive Site-Wide EA should be prepared for the STM complex to address new improvements and on-site activities at the STM and DWOP sites and proposed improvements associated with changes in the STM site's boundaries.

In compliance with NEPA (42 United States Code (U.S.C.) 4321) and DOE's NEPA implementing regulations (10 Code of Federal Regulations (CFR) section 1021.330), this Site-Wide EA examines the potential environmental impacts of site operations; a program of proposed improvements at the NREL sites, and a No Action Alternative.

The Proposed Action is to operate the STM site for alternative energy research with new and improved capabilities to support DOE's mission to research, develop and transfer to industry renewable energy technologies. The Proposed Action consists of new activities and new and modified facilities. Construction would include permanent physical improvements to the site that involve buildings and equipment, utilities, and other infrastructure. Implementation of the Proposed Action is expected to occur between 2003 and 2008.

The No Action Alternative would leave the STM in its current configuration, add no new facilities, and maintain current levels of research, operation and management activities.

S.1.1 Purpose and Need

The purpose of the Proposed Action is to support DOE's mission in the research and development of energy efficiency and renewable energy technologies. DOE's Office of Energy Efficiency and Renewable Energy (EERE) leads the national research effort to develop clean, competitive, and reliable energy technologies for the 21st century. The goal of the EERE program is to improve the Nation's overall economic strength and competitiveness, energy security, and environmental health through the development of clean, competitive, and reliable

power technologies. The purpose and need for the Proposed Action is to provide and maintain enhanced facilities and infrastructure that would adequately support state-of-the-art alternative energy research. These improvements are needed to allow for growth of NREL's research programs.

S.1.2 Project Site, Proposed Action and Alternatives

The 327-acre STM site is located on the southeast side of South Table Mountain, north of Interstate 70 (I-70) and west of the I-70 and Denver West Boulevard interchange in unincorporated Jefferson County, near Golden, Colorado. Only 136 acres of the site is available for development. A total of 177 acres is protected by a conservation easement. Development on the remaining 14 acres is restricted by utility easements. There are currently six laboratory facilities, a few small test facilities, and several support buildings on the site. The STM site includes acreage on the South Table Mountain mesa top, slope, and toe, and was formerly part of the Colorado National Guard facility, established between 1903 and 1924, at Camp George West.

The DWOP site is located east of the STM site in the vicinity of the I-70/Denver West Boulevard interchange near Golden, Colorado. DOE and NREL occupy three buildings located at the eastern end of the office complex (Buildings 15, 16, and 17) and one building (Building 27) located north of I-70 just east of the STM site. The DWOP provides administrative offices and space for limited laboratory activities.

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The actual components and implementation schedule for the site improvements are dependent on federal budgeting decisions and fluctuating priorities. Therefore, the Proposed Action is described in general rather than specific terms, and only some portion of the Proposed Action components would be expected to be in place prior to or by 2008. At this time, there is no certainty over which of the many Proposed Action components would be funded and implemented, with one exception. This exception is the proposed Science and Technology Facility (S&TF). The preliminary design and location of the S&TF are known and described in Section 2.1.2. The designs and locations of other proposed facilities are uncertain, so various options are possible. Consequently, specific details are subject to modification, and the analyses in this EA allow for future flexibility.

These proposed improvements and activities are presented in four categories, as follows:

1. Construction of New and Modification of Existing Facilities and Research Areas;
2. Infrastructure Modifications and Improvements;
3. Potential Growth in Research Areas; and
4. Operation and Maintenance of New and Modified Facilities.

For purposes of Site-Wide environmental review, the 2008 scenario includes "bounding analysis" assumptions that represent likely site "buildout" conditions.

Given the intent of this Site-Wide EA, scoping input, and preliminary impact findings, the only alternative to the Proposed Action analyzed in this EA is the No Action Alternative.

NREL's environmental commitments are described in Chapter 1 and listed in Appendix A.

S.1.3 Characteristics of a Site-Wide Environmental Assessment

This document is a "Site-Wide Environmental Assessment" similar to the document NREL prepared for the STM site in 1993. DOE defines a Site-Wide environmental document as follows:

"A broad-scope Environmental Impact Statement (EIS) or EA that is *programmatic* in nature and identifies and assesses the individual and cumulative impacts of ongoing and reasonably foreseeable future actions at a DOE site." (10 CFR Part 1021)

NEPA and other environmental regulations define the term "programmatic" and the application of programmatic environmental documents. In general, a programmatic document applies to a series of related projects and where the projects should be analyzed as an overall program. This approach is proper for analyzing a series of projects that are related either:

1. Geographically,
2. As logical parts in a chain of contemplated actions,
3. In connection with the issuance of rules, regulations, plans or other general criteria to govern the conduct of a continuing program, or
4. As individual activities carried out under the same authorizing statutory or regulatory authority and have generally similar environmental effects which can be mitigated in similar ways.

The Proposed Action, as described in Chapter 2, is composed of improvements that are related geographically and are part of a series of interconnected actions to be implemented by NREL.

This Site-Wide EA provides an analytical superstructure for subsequent, more detailed analyses, as necessary. The document will serve as a planning tool that aids decisions about future development of the site. As details are developed in the future, NREL will conduct subsequent environmental reviews that would incorporate the analyses from this programmatic document. Future reviews would be focused only on those issues that have not been adequately addressed.

In addition to the NEPA reviews, DOE requires that Site-Wide NEPA documents be evaluated periodically by means of a "Supplemental Analysis." The Supplemental Analysis determines whether the Site-Wide EA remains adequate or a new Site-Wide NEPA document is required. NREL is scheduled to prepare the next Supplemental Analysis in 2008.

The Environmental Management Matrix in Section 4.17 highlights key issues for individual improvements.

S.1.4 Organization and Content of the Environmental Assessment

This EA is organized in a manner consistent with NEPA and DOE's NEPA Implementing Regulations, including the specific guidelines for Site-Wide EAs. The EA has six Chapters:

- Summary
- Chapter 1 Introduction
- Chapter 2 Proposed Action and Alternatives
- Chapter 3 Affected Environment
- Chapter 4 Environmental Consequences and Mitigation Measures
- Chapter 5 List of Preparers
- Chapter 6 Bibliography and References
- Appendixes

S.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION AND ALTERNATIVES

S.2.1 Summary of Scoping Process, Input, and Impact Issues

A scoping notice was published in the local media on April 4 and 5, 2002 and a scoping letter was prepared and distributed to an extensive list of agencies, organizations, and members of the public on April 10, 2002. The scoping letter list included a comprehensive group of parties who have expressed interest in the site. Appendix B presents the scoping letter, a complete list of the scoping letter recipients, and copies of response letters that were received during the 30-day scoping period.

S.2.2 Environmental Issues

The scoping letter for the Proposed Action identified the following environmental topics to be addressed in the EA:

- Land Use, Planning, Socioeconomics and Public Policy;
- Traffic and Circulation;
- Air Quality and Noise;
- Visual Quality/Aesthetics;
- Water Resources;
- Soils and Geology;
- Biological Resources;
- Cultural Resources;
- Waste Management;
- Public Facilities, Services and Utilities; and
- Energy.

The following discussions summarize the relevant input received during the scoping period that ended on May 15, 2002. The issues raised by this input are addressed in the EA.

- Visual Quality/Aesthetics: Degradation Due to the Locations and Designs of New Facilities and Associated Lighting, Especially on Top of South Table Mountain.

- Biological Resources: Threatened and Endangered Species: Preble's Meadow Jumping Mouse and Other Protected Species and Habitats.
- Land Use, Planning and Public Policy: Compatibility and Consistency with Existing Land Uses, Planning Policies, Zoning Designations, and Other Local Government Processes and Procedures, Including Open Space Conservation Easements.
- Soils and Geology: Expansive Soils and Slope Failure.
- Resource Conservation: Energy Consumption Inefficiency from Site Development Pattern – Facilities on South Table Mountain and Recycling.
- Traffic.
- Air Quality: Odor.
- Cultural Resources: Outdoor Amphitheater.
- Cumulative Impacts.

NREL has modified the Proposed Action that is the subject of this EA based on the findings of a traffic study completed in November of 2002. The study indicated that the ultimate 20-year STM site buildout, as envisioned by the Proposed Action in the Scoping letter, would cause potentially significant impacts on traffic. Because projected site conditions and surrounding traffic conditions 20 years from now are speculative, DOE and NREL decided to scale back the EA to analyze only the activities that are reasonably foreseeable over the short-term (five-year) time horizon. The revised Proposed Action is presented in Chapter 2. In summary, the revisions reduce anticipated worker levels and appropriately redefine the long-term scenario as not reasonably foreseeable at this time. Longer-term activities and potential impacts will be analyzed in future environmental documents.

The land on top of South Table Mountain is subject to various local government policies and agreements intended to limit development. Previous plans to develop these areas have met substantial public criticism, generated broad community controversy, and/or have been denied by local government. As a federal agency, DOE is generally exempt from local government regulation, but is sensitive to community concerns. It is NREL and DOE's intent to minimize its development on the mesa top, while still fulfilling its mission of research, development, and technology transfer of renewable energy and energy efficiency technologies.

NREL has developed research facilities on the mesa top while agreeing to preserve the majority of the mesa slope and mesa top land within the STM site with a conservation easement involving Jefferson County Open Space. Visual quality and aesthetic impacts from further development on the mesa top by NREL are the primary topic raised by the public during the scoping process.

The following alternatives were defined prior to the scoping period:

- New Site Alternative,
- Off-Site Improvements Alternative,
- Site Development Configuration Alternatives, and
- Reduced Development Intensity Alternative.

No additional alternatives were raised during the scoping period.

At this time, the Proposed Action and the No Action Alternative are the only alternatives addressed in the EA. The Proposed Action Alternative is to continue operation of the STM and DWOP sites for alternative energy research with new and improved capability. The No Action

Alternative would leave the site in its current configuration, add no new facilities or infrastructure, and maintain current levels of research, operation, and management.

Other alternatives raised prior to the scoping period were considered, but were eliminated from further analysis. The rationales for eliminating these alternatives follow.

- New Site and Off-Site Improvements Alternative: not considered feasible because of the technical and cost implications associated with decentralized operations and site/infrastructure complications.
- Other Site Development Configuration Alternatives: not considered feasible because of the interrelated nature of the proposed facilities, site development constraints, and the inherent flexibility of the Proposed Action with respect to future facility footprints.
- Reduced Development Intensity Alternative: not considered feasible because it is inconsistent with the Proposed Action's purpose and need and the intent of preparing this Site-Wide EA.

S.2.3 Comments on the Draft EA and Responses

A total of four comment letters (A-D) were received following circulation of the Draft EA:

- A. United States Department of the Interior, Fish and Wildlife Service, Ecological Services, Colorado Field Office, LeRoy W. Carlson, Colorado Field Supervisor, March 27, 2003.
- B. Southern Ute Indian Tribe, Tribal Information Services, Edna Frost, Director, February 25, 2002.
- C. Jefferson County Planning and Zoning Department, Michael Smyth, AICP, Planner, April 14, 2003.
- D. Sentinel and Transcript Newspapers, Golden Transcript, Sabrina Henderson, Golden Editor, Email Message March 24, 2003.

Chapter 5 of the Final EA provides a response to each substantive comment on the Draft EA. Some responses (A.2, C.29, C.31, C.32 and C.41) involved revising the text presented in the Draft EA. The other comments and responses did not require revising the text of the Draft EA. The text of this Final EA includes the entire text of the Draft EA and the appropriate revisions.

S.2.4 Description and Comparison of Environmental Consequences

The following discussion summarizes findings of this EA and compares the impacts of the Proposed Action with those of the No Action Alternative.

Implementation of the plans associated with the S&TF and the other components of the Proposed Action would not result in significant impacts to the environment because future improvements and activities included in the Proposed Action do not substantially deviate from existing conditions, and because NREL has an extensive set of existing programs, policies and practices intended to avoid, minimize and mitigate potential impacts at the STM. NREL's

environmental commitments are described in Chapter 1 and Appendix A, and mentioned, where applicable, in Chapters 3 and 4.

The direct, indirect, secondary, and cumulative impacts of the Proposed Action are discussed throughout Chapter 4. None of these impacts are considered significant, however several mitigation measures beyond existing NREL commitments are recommended. These measures primarily relate to design refinements anticipated during future processes for proposed improvements. The mitigation measures recommended in this EA include the following.

- As site development proceeds, NREL will consider site development alternatives that maintain habitat connectivity between Lena Gulch and Zone 2 (Conservation Easement) via undeveloped natural corridors.
- Construction areas and access roads should be fenced to limit disturbance to grassland habitat outside of the construction zone;
- If necessary, where water and maintenance requirements can be met, native shrub and tree species will be replaced if they are removed during construction activities.
- When future construction may impact potential habitat for migratory birds, NREL will identify any appropriate field surveys to clarify impacts and develop customized BMPs to be applied during and after construction, if necessary. An example of a customized BMP may involve delaying construction until identified nests are no longer being used for the season.

Consultation with the SHPO to develop final mitigation measures is ongoing. Consistent with Federal law (National Historic Preservation Act, Section 106 and 36 CFR 800.5 and 800.6, DOE and the State Historic Preservation Officer are negotiating MOA regarding requirements for identified cultural resources in Zone 6 (See Appendix C).

S.2.5 Comparison of Proposed Action to No Action Alternative

The vast majority of impacts created by the Proposed Action would be avoided if the No Action Alternative were selected as the preferred alternative. However, none of the impacts of the Proposed Action are considered significant, and the No Action Alternative would eliminate the beneficial impacts that could be expected from increased investment in energy efficiency and renewable energy technology and related research.

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