DOE/EA-1875

FINAL
ENVIRONMENTAL ASSESSMENT

FOR

THE JACKSON LABORATORY BIOMASS ENERGY CENTER PROJECT, BAR HARBOR, MAINE

U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Golden Field Office

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COVER SHEET

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TITLE: *Final Environmental Assessment for The Jackson Laboratory Biomass Energy Center Project, Bar Harbor, Maine* (DOE/EA-1875)

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ABSTRACT: The U.S. Department of Energy (DOE) is proposing to authorize the expenditure of Federal grant funding to design, permit, and construct a Biomass Energy Center at The Jackson Laboratory (the Laboratory) in Bar Harbor, Maine. Through the American Recovery and Reinvestment Act of 2009 and as part of the Energy Efficiency and Conservation Block Grants Program, the Maine Public Utilities Commission selected the Laboratory's proposed project to receive Federal funding. DOE has not yet authorized the Laboratory to expend grant funds on this proposed project. DOE prepared this environmental assessment (EA) to evaluate the potential environmental consequences of DOE's Proposed Action, which is to authorize the Laboratory to expend Federal funding for its proposed Biomass Energy Center. DOE's Proposed Action would authorize $1 million in grant expenditures. The total cost of the Laboratory's proposed project would be about $4.4 million.

The Laboratory would construct and operate a new Energy Center to house a wood pellet biomass boiler and purchase wood pellets from regional suppliers (proposed project). The proposed project would reduce the amount of fuel oil the Laboratory burns at its current facility, which provides heating, chilling, and emergency power.

To prepare for this EA, DOE notified potentially interested local, state, and Federal agencies—including the office of the Governor of Maine, local stakeholders, and officials in communities from and through which the wood pellets could be shipped—of a 15-day scoping period and the availability of a scoping letter for this EA on its website. In addition, DOE sent consultation letters to the U.S. Fish and Wildlife Service and the Maine State Historic Preservation Office. DOE also solicited input from four American Indian tribes.

By providing Federal funding for this project, DOE is supporting the development of alternative energy resources that provide important environmental benefits and provide a potential for economic development. The Proposed Action would help the Laboratory and the United States to reach their goals to increase renewable energy sources that reduce greenhouse gas emissions and provide economic benefits to the community.

AVAILABILITY: The Final EA is available on the DOE Golden Field Office website at http://www.eere.energy.gov/golden/Reading_Room.aspx and the DOE NEPA website at http://nepa.energy.gov/environmental_assessments.htm.

ACRONYMS AND ABBREVIATIONS

APE	area of potential effect
Recovery Act	American Recovery and Reinvestment Act of 2009
Btu	British thermal unit
CEQ	Council on Environmental Quality
CFR	*Code of Federal Regulations*
dBA	A-weighted decibels
DOE	U.S. Department of Energy
EA	environmental assessment
EECBG	Energy Efficiency and Conservation Block Grants
EPA	U.S. Environmental Protection Agency
FWS	U.S. Fish and Wildlife Service
LED	light-emitting diode
MDEP	Maine Department of Environmental Protection
NEPA	National Environmental Policy Act of 1969, as amended
NPS	National Park Service
PM_{10}	particulate matter with median aerodynamic diameter less than or equal to 10 micrometers
$PM_{2.5}$	particulate matter with median aerodynamic diameter less than or equal to 2.5 micrometers
SHPO	State Historic Preservation Office
SR	State Road
Stat.	United States Statutes
U.S.C.	*United States Code*

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1. INTRODUCTION

Title V, Subtitle E, of the Energy Independence and Security Act of 2007 (Public Law 110-140; 121 Stat. 1492) directed the U.S. Department of Energy (DOE) to establish an Energy Efficiency and Conservation Block Grants (EECBG) Program to help reduce energy use and emissions at the local and regional level. As part of the American Recovery and Reinvestment Act of 2009 (Recovery Act; Public Law 111-5, 123 Stat. 115), DOE is providing Federal grants as part of the EECBG Program. There are $3.2 billion appropriated to DOE to distribute under the EECBG Program to states and eligible cities, counties, and American Indian Nations across the United States to reduce fossil fuel emissions, benefit local and regional communities, and reduce total energy use. Grants under the EECBG Program are formula grants, and the Maine Public Utility Commission received $27.3 million for the program (DOE 2010). The Commission selected The Jackson Laboratory (the Laboratory) in Bar Harbor, Maine, to receive $1 million in EECBG funding. Figure 1-1 shows the location of Bar Harbor.

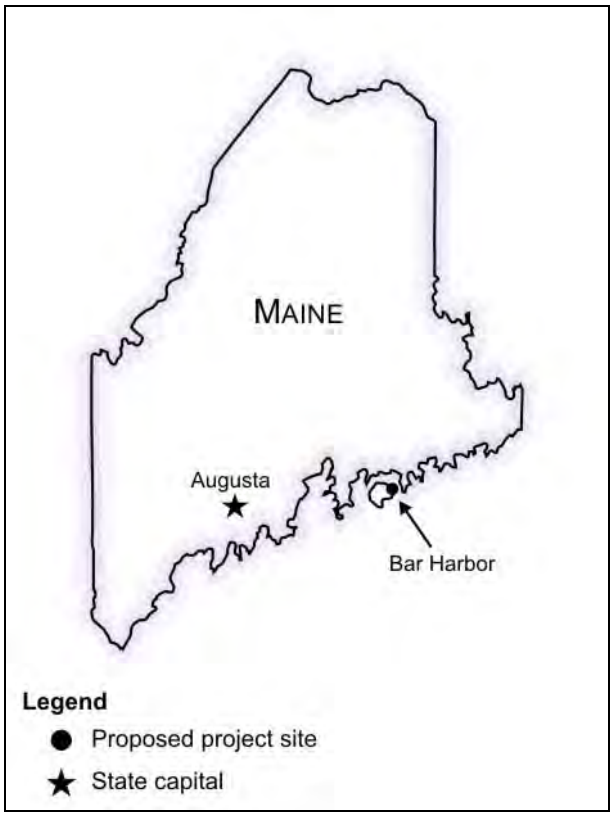


Figure 1-1. General location of Bar Harbor, Maine.

The Laboratory is proposing to construct and operate a Biomass Energy Center that would include a new building to house a boiler fired by wood pellets, a pellet storage silo, a burner assembly and associated equipment, and an ash collection system at its Bar Harbor, Maine, campus. The proposed biomass boiler would offset about 80 percent of the Laboratory's current use of fuel oil. In addition, because transporting wood pellets to the Laboratory during operations would be a connected action under Council on Environmental Quality (CEQ) regulations (40 CFR 1508.25), this document considers the transportation of 11,000 tons of wood pellets per year from three representative pellet manufacturers in Strong, Athens, and Corinth, Maine.

Federal funding of projects under the EECBG Program requires compliance with the National Environmental Policy Act of 1969, as amended (NEPA; 42 U.S.C. 4321 et seq.), the CEQ regulations (40 CFR Parts 1500 to 1508), and DOE NEPA implementing procedures (10 CFR Part 1021). Therefore, DOE prepared this *Final Environmental Assessment for The Jackson Laboratory Biomass Energy Center Project, Bar Harbor, Maine* (EA) (DOE/EA-1875) to evaluate the potential environmental consequences of DOE's Proposed Action, the Laboratory's proposed project, and the No-Action Alternative (Chapter 2). DOE's Proposed Action would authorize a total of $1 million in grant expenditures by the Laboratory for the proposed project. The total cost of the proposed project would be about $4.4 million.

This chapter explains NEPA requirements (Section 1.1), the State of Maine's environmental review requirements (Section 1.2), DOE's purpose and need for action (Section 1.3), and the public involvement process and consultations with other agencies (Section 1.4). Chapter 2 discusses DOE's Proposed Action, the Laboratory's proposed project, and the No-Action Alternative. Chapter 3 discusses the affected environment, and the potential environmental consequences of the proposed project and the No-Action Alternative. Chapter 4 discusses cumulative impacts. Appendix A contains copies of DOE's scoping letter and consultation letters with other agencies. Appendix B contains the details of the transportation traffic analysis.

1.1 National Environmental Policy Act Requirements

In accordance with DOE NEPA implementing procedures, DOE must evaluate the potential environmental impacts of its Proposed Action that could have a significant impact on human health and the environment, including decisions on whether to provide financial assistance to government agencies and private entities. In compliance with these regulations and DOE's procedures, this EA:

- Examines the potential direct and indirect environmental impacts of the Proposed Action and the No-Action Alternative,
- Discusses the relationship between local short-term uses of the human environment and the maintenance and enhancement of long-term productivity,
- Identifies unavoidable adverse environmental impacts if the Proposed Action is implemented,
- Characterizes irreversible and irretrievable commitments of resources that would be involved if DOE approved the Proposed Action, and
- Analyzes past, present, and reasonably foreseeable actions to evaluate potential cumulative impacts.

DOE must meet the requirements of NEPA before it can make a final decision to proceed with a proposed Federal action that could cause significant impacts to human health or the environment. This EA provides DOE and other decisionmakers the information necessary to make an informed decision about the construction and operation of the proposed project at the Laboratory. DOE determined as a result of this EA that the project would not result in significant adverse impacts and has issued a Finding of No Significant Impact.

For purposes of comparison, this EA also evaluates the impacts that could occur if DOE did not authorize funding (the No-Action Alternative), under which DOE assumes the Laboratory would not proceed with the project. The EA does not analyze other action alternatives.

1.2 State and Local Environmental Review

The State of Maine has a comprehensive environmental permitting process that encompasses much of the same type of review as the NEPA process. The Laboratory is subject to Maine's Site Location of Development Law (the Site Law; Title 38, Section 481 of the *Maine Revised Statutes*). The Site Law requires facilities that have developed more than 3 acres of unrevegetated surface since October 1, 1975, to obtain a permit from the Maine Department of Environmental Protection (MDEP). Once a facility is subject to the law, it must apply for modification or amendment to the permit for any additional development. On June 18, 2010, the Laboratory applied for a modification to its Site Law permit for the proposed Energy Center. MDEP approved the modified permit in August 2010 (Egget 2010).

In addition, the Laboratory applied for an air quality permit, and MDEP issued a final permit and indicated Laboratory emissions would be in compliance with the permit while operating the biomass boiler in conjunction with other potential emissions (Cone 2011) (see Section 3.2.2.1).

Before the start of the EA, the Laboratory's engineering and science contractor corresponded with various state agencies and has publically disclosed its plans as part of the review and approval process by the Bar Harbor Planning Board and the State of Maine. The Bar Harbor Planning Board conducted a completeness review of the proposed Energy Center Project on July 7, 2010, and held a public hearing on August 4, 2010. The hearing was announced through local newspapers, postings in the Bar Harbor municipal building, and on the Town's website. The Planning Board approved the proposed project.

On August 2, 2010, the contractor requested comments on the proposed project from the Maine Historic Preservation Commission, which is the State Historic Preservation Office (SHPO) in Maine. On August 10, 2010, the SHPO concluded, "There will be no historic properties affected by the proposed undertaking."

On August 2, 2010, the contractor requested comments from the Maine Department of Inland Fisheries and Wildlife. On August 17, 2010, that department responded that is has "no records of any Essential or Significant Wildlife Habitats on the Jackson Lab Project Site" (Hall 2010).

1.3 Purpose and Need

The purpose of DOE's Proposed Action is to support the EECBG Program, which was established by Congress and is implemented by DOE. The mission of the EECBG Program is to reduce energy use and emissions at the local and regional level. Providing funding to local governments as part of the EECBG Program would partially satisfy the need of that program to assist U.S. cities, counties, states, territories, and Indian tribes to develop, promote, implement, and manage energy efficiency and conservation projects and programs designed to:

- Reduce fossil fuel emissions;
- Reduce the total energy use of the eligible entities; and
- Improve energy efficiency in the transportation, building, and other appropriate sectors.

The EECBG Program received funding through the Recovery Act. That law was enacted in part to create jobs, restore economic growth, and strengthen America's middle class through measures that modernize the nation's infrastructure, enhance America's energy independence, expand educational opportunities, preserve and improve affordable health care, provide tax relief, and protect those in greatest need. Provision of funds under the EECBG Program would partially satisfy the needs identified under the Recovery Act.

The Laboratory's purpose for the proposed project is to facilitate use of renewable energy resources (wood pellets) and to provide the Laboratory a new power source for most of its steam requirements for heating, chilling, and emergency power. The Laboratory currently uses fuel oil to fire boilers to generate steam for these needs at the Bar Harbor campus. The proposed Energy Center would house a wood-fired boiler that would produce up to 44.4 million British thermal units (Btu) per hour and reduce the Laboratory's fuel oil consumption by about 80 percent.

1.4 Public Involvement and Consultations

Public Scoping

In accordance with applicable regulations and policies, DOE notified by mail potentially interested local, state, and Federal agencies—including the office of the Governor of Maine, the Maine SHPO, the U.S. Fish and Wildlife Service (FWS), local stakeholders, and officials in communities from and through which the wood pellets could be shipped—of the availability of the scoping letter for this EA. DOE published the scoping letter on its Golden Field Office Public Reading Room website at http://www.eere.energy.gov/golden/Reading_Room.aspx on October 14, 2010. Through the scoping process, DOE solicited input on the range and scope of issues it should consider in this EA. The scoping period ended on November 15, 2010.

In response to scoping, the U.S. Environmental Protection Agency (EPA) replied on November 15, 2010, and requested that DOE evaluate a range of alternatives to the wood pellet boiler such as different fuels or a combined heat and power system. EPA also asked for a comparison of emissions and outputs from alternative fuels and technologies with consideration of emissions for the transportation of fuel. The Department's decision in relation to the grant and this EA is limited to whether or not to fund the proposed project. The only alternative to this proposed project is the No-Action Alternative, in which DOE would not authorize grant expenditures (Section 2.3). Therefore, this EA does not consider alternatives to the proposed project other than the No-Action Alternative. Section 3.2.2.1.2 compares current laboratory emissions and the estimated emissions under the proposed project.

EPA requested that the EA describe the degree to which storage of reserve fuel supplies is an objective of the project, which DOE addresses in Chapter 2. In addition, EPA requested DOE describe the coordination of the proposed project with the National Park Service (NPS) during project design to avoid and minimize visual impacts to Acadia National Park (below and Section 3.2.2.4). Further, the EPA asked that the EA describe how operation of the proposed project might affect park property and the visitor experience due to noise (Section 3.2.2.3) and emissions (including particulates) (Section 3.2.2.1) from the boiler and associated fuel deliveries. The discussion of impacts to historic and cultural resources (Section 3.2.2.5) contains information that addresses the EPA's request for a description of the coordination between the Laboratory and the NPS.

The NPS also responded to DOE's scoping request on November 15, 2010. The letter requested that DOE describe and analyze potential impacts on the following resources and values of Acadia National Park: air quality, scenic views (visual qualities of the landscape), natural lightscape (quality of the dark night sky), natural soundscape (absence of human-caused noise), and historic properties (motor road and hiking trail systems). DOE discusses these issues in the sections on air quality (Section 3.2.2.1), noise (Section 3.2.2.3), aesthetics and visual resources (Section 3.2.2.4), and historic and cultural resources (Section 3.2.2.5).

In response to the comments on noise, DOE consulted directly with NPS staff at Acadia National Park. That consultation resulted in an NPS recommendation to monitor 24-hour sound levels at two sites in the park near the Laboratory. DOE also monitored at a third site, as discussed in Section 3.2.2.3.

Appendix A contains copies of these letters and those described below.

Consultations

DOE sent consultation letters to the Maine SHPO on October 14, 2010, and the FWS on October 20, 2010. The FWS responded on October 28 and concurred with DOE's conclusion that the proposed project would not affect any Federally listed threatened or endangered species. The FWS requested DOE investigate the potential for impacts to species of special concern to the State of Maine and to bald or golden eagles (Appendix A). Table 3-1 in Chapter 3 addresses these issues. The Maine SHPO responded to DOE's letter by submitting a copy of a letter the SHPO had stamped with a determination of no historic properties affected on August 10, 2010 (Appendix A).

DOE also sent letters to the following four American Indian tribes with potential interests in the area to inform them of the project and request comments: Houlton Band of Maliseet Indians, Penobscot Indian Nation, Aroostook Band of Micmacs, and Passamaquoddy Tribe. The Penobscot Indian Nation replied to indicate the proposed project would appear to have no impact on a structure or site of historic, architectural, or archaeological significance to the Penobscot Nation. The Passamaquoddy Tribe replied to indicate the proposed project would not have any impact on the tribe's cultural and historical concerns. As of the date of publication of this EA, the Houlton Band of Maliseet Indians and the Aroostook Band of Micmacs had not responded to DOE.

Public Comment

DOE published the Draft EA on the DOE Golden Field Office Public Reading Room website on April 28, 2011. DOE sent postcards to announce the availability of the Draft EA to identified stakeholders and published a notice of availability in the *Bangor Daily News* on May 2. The public comment period began May 2 and ended May 16, 2011.

DOE received a letter and an e-mail with comments on the Draft EA; Appendix A contains copies. The following paragraphs summarize the comments and provide DOE's responses.

Comment. Commenters asked that DOE and the Laboratory "do everything in your power to protect our wildlife on this island in your area." Commenters stated the wildlife in the area are "residents" and should be protected from harm and relocation outside their current natural habitat.

Response. The proposed project site is within the existing developed area of the Laboratory's campus. Therefore, due to the existing levels of noise and disturbance in the project area, the proposed Energy Center's impact to wildlife would be minimal and limited to the construction site. In addition, DOE consulted with the FWS, which concurred that there would be no adverse impacts to endangered, threatened, or candidate species.

Comment. Commenters noted there are many days when fog moves through the Laboratory area, which they stated draws pollution down closer to the ground than on clear days. They requested that the Final EA consider and explain what the Laboratory would do to protect residents from this kind of pollution.

Response. Atmospheric considerations, like inversion layers, can affect how air pollution disperses locally in the environment. However, based on the estimated level of air emissions, and in combination with the reduction of emissions from the use of fuel oil, the Laboratory would continue to be classified as a minor source by the State of Maine, as indicated in their recent amended air quality permit (Section 3.2.2.1). The Laboratory would install a baghouse to control particulate matter from the burning of wood pellets in the proposed Energy Center to ensure emissions remained less than the permitted levels.

Comment. Commenters noted that combustible materials can produce significant odors that can have a "dramatic impact on the immediate area." They pointed out that the Draft EA did not discuss potential impacts from the odor and requested that the Final EA do so.

Response. Combustion in the pellet boiler would be so complete that no odor issues are anticipated due to this type of operation. In addition, odor considerations are not part of the amended air quality permit from the State of Maine. The baghouse (Section 2.2.1) would capture the majority of particulate matter emissions, which are the primary cause of odor from combustion. DOE does not anticipate there would be odor issues because of the proposed project's estimated emissions levels, the baghouse, the location within the existing campus, and the distance from offsite receptors.

Comment. Commenters expressed concern about adding wood pellet deliveries along Schooner Head Road, which they noted would increase road damage due to truck traffic "along an already rough secondary road." They also noted a potential for increasing hiker and biker interactions with increased truck traffic. Commenters requested that the Laboratory use Maine State Road (SR)-3 rather than Schooner Head Road. Further, if wood pellet trucks did travel along Schooner Head Road, commenters requested that DOE and the Laboratory assume responsibility for the condition of the road, perhaps in cooperation with the Town of Bar Harbor.

Response. The comparison of existing traffic and estimated traffic for the proposed project in Table 3-11 shows that the increase in truck traffic would average less than one truck per day over the course of a year. Therefore, both increases in road damage and interactions with hikers and bikers would be minimal. The Laboratory has historically used Schooner Head Road for deliveries, and the Laboratory master plan calls for the limitation of access SR-3 for drop offs and visitors for safety and security considerations. The Town of Bar Harbor is responsible for the maintenance of Schooner Head Road.

Comment. Commenters expressed concern about the existing impact of noise from the Laboratory to residents and in Acadia National Park, which they described as already significant, and a concern that the proposed project would affect the ambient levels in the long term. Commenters noted they can hear Laboratory noise in the park, especially on the flanks of Champlain Mountain, and they judge it to be a negative impact on the Acadia National Park experience. They expressed concern that the Draft EA appeared to minimize the noise as a "hum" that is "actually quite disruptive to the neighbors who often cannot open their windows in the summer, or enjoy their decks and porches without discomfort." Commenters stated the existing noise levels are excessive and expressed a desire for the Laboratory to reduce them. Commenters noted the Draft EA did not specify when DOE took the ambient sound measurements and that, because Laboratory noise varies seasonally, the Final EA should include that information. Commenters asked the Laboratory remediate some of the current noise and that DOE and the Laboratory ensure that noise levels would not increase in part by implementing the noise reduction approaches DOE noted in the Operations Impacts portion of Section 3.2.2.3.2 (for example, insulating the silo fill pipe).

Response. As Section 3.2.2.3.1 discusses, mechanical systems noise from Laboratory facilities is noticeable from areas of Champlain Mountain in Acadia National Park as well as residential locations near the Laboratory. Current Laboratory noise levels are part of the existing environment, and noise abatement for existing conditions is outside the scope of the EA for this project. The EA addresses the proposed project, which is the construction and operation of the Energy Center. As Section 3.2.2.3 notes, the Laboratory has committed to maintain noise levels below the Maine Site Law regulatory limits and local noise standards. The Laboratory included sound-attenuating measures in the design of the project and, if necessary, would install additional noise controls if sound levels from the proposed Energy Center exceeded the noise standards.

DOE measured the ambient noise levels in April.

Comment. Commenters stated the proposed deliveries would add significantly to traffic noise and "negatively affect the hiking experience along the Schooner Head Trail." They noted that noise impacts from the deliveries would be greater at night, including those from the fill pipe during unloading. Commenters requested that the Laboratory use Maine State Road (SR)-3 rather than Schooner Head Road. Commenters requested that deliveries occur during daytime hours rather than between 7:00 p.m. and 5:00 a.m.

Response. The additional truck deliveries along Schooner Head Road, particularly those occurring during the night, would increase vehicular noise for residents along that road. However, fuel deliveries have historically taken place at night and the increases in truck traffic due to this project would occur mostly in winter when residents usually do not have windows open. The increase would be less than one delivery per day over the course of a year (Table 3-11). The regulation of traffic noise is outside of DOE's jurisdiction and concerns can be referred to the Bar Harbor Planning Board or the Bar Harbor Code Enforcement Division.

Comment. Commenters expressed approval of the Laboratory's plans to lessen potential visual impacts but noted that the seven 4-foot white pines the Laboratory would plant near the new building would take many years to grow large enough to effectively screen the proposed Energy Center both in terms of noise and visual impacts. Commenters requested that the Laboratory plant trees of 10 to 12 feet in height, which would more quickly screen the facility from view and reduce its noise impacts.

Response. Based on communications with NPS, the Laboratory has committed to plant white pines to help screen the proposed Energy Center from view and to abate noise levels. The initial plan is to plant at least seven white pines of at least 4 feet in height. However, the Laboratory has committed to continue its coordination with NPS and to adjust the plans as necessary.

Comment. Commenters noted that night lighting at the Laboratory from recent expansion such as the parking lot across SR-3 has already disrupted the night sky experience in the area. They requested DOE and the Laboratory consider this carefully in planning and construction and ensure there would be no further light pollution.

Response. Section 3.2.2.4 of the EA discusses night sky issues. The Town of Bar Harbor has taken steps to reduce local light pollution through the Bar Harbor Lighting Ordinance (Chapter 125 of the Town Code). The Laboratory has committed to installing the minimally required lighting for safety and security and to adhere to the standards of the International Dark-Sky Association.

Comment. Commenters expressed approval of the Laboratory's and DOE's goal to reduce U.S. dependence on fossil fuel resources, to adopt sustainable alternatives, and of the care that the Laboratory and DOE took in preparing the EA.

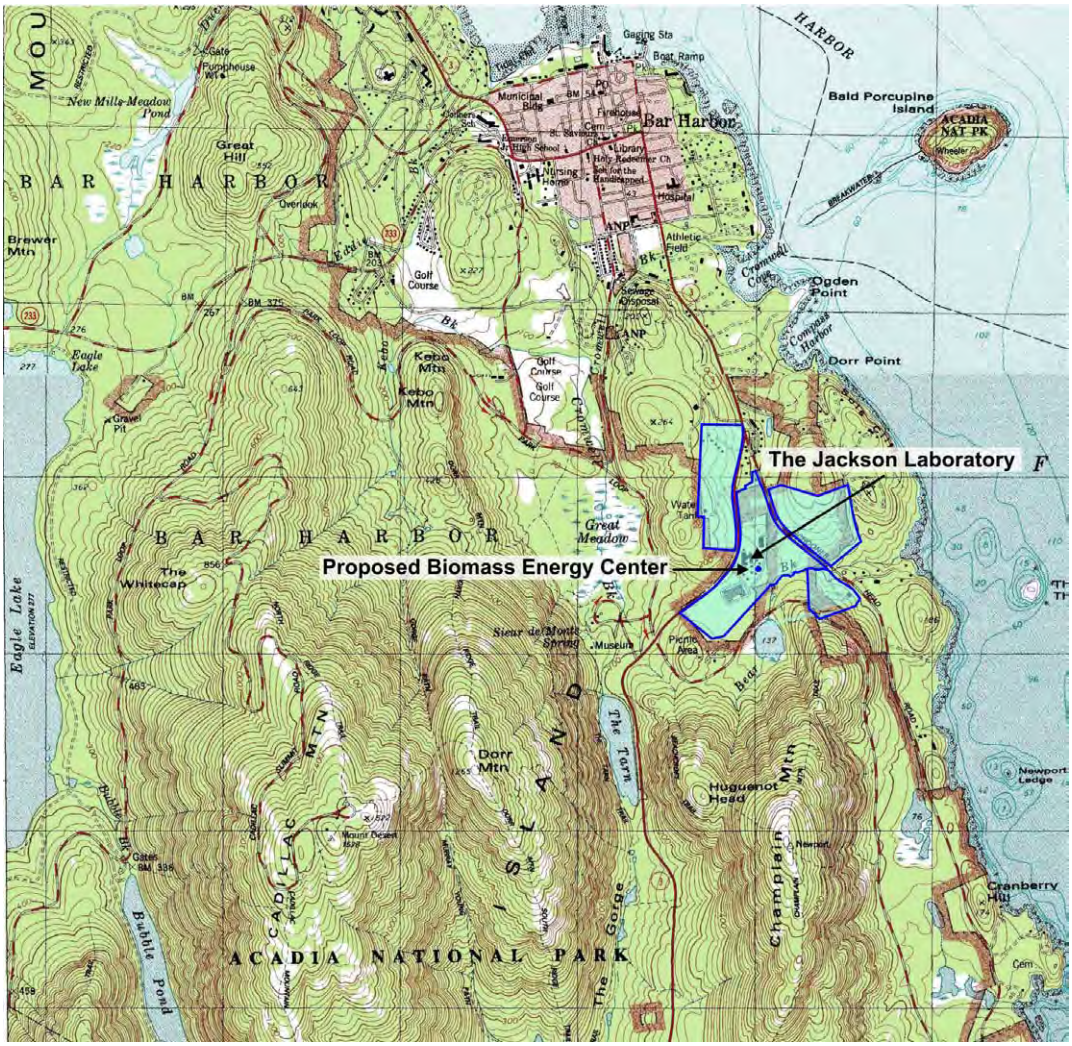
Response. Thank you for your comment.

2. DOE PROPOSED ACTION AND ALTERNATIVES

This chapter describes DOE's Proposed Action (Section 2.1), The Jackson Laboratory's proposed project (Section 2.2), and the No-Action Alternative (Section 2.3).

2.1 DOE's Proposed Action

DOE has provided a $27.3 million EECBG Program grant to the Maine Public Utility Commission, which selected the Laboratory to receive $1 million in funding to design, permit, and construct a Biomass Energy Center that would use a wood pellet boiler at its campus at 600 Main Street south of downtown Bar Harbor, Maine (Figure 2-1). DOE's Proposed Action in this EA would authorize use of EECBG Program funds by the Laboratory for the proposed project. DOE has not yet authorized the Laboratory to expend Federal funds on its proposed project. The total cost of the Laboratory's proposed project would be about $4.4 million.



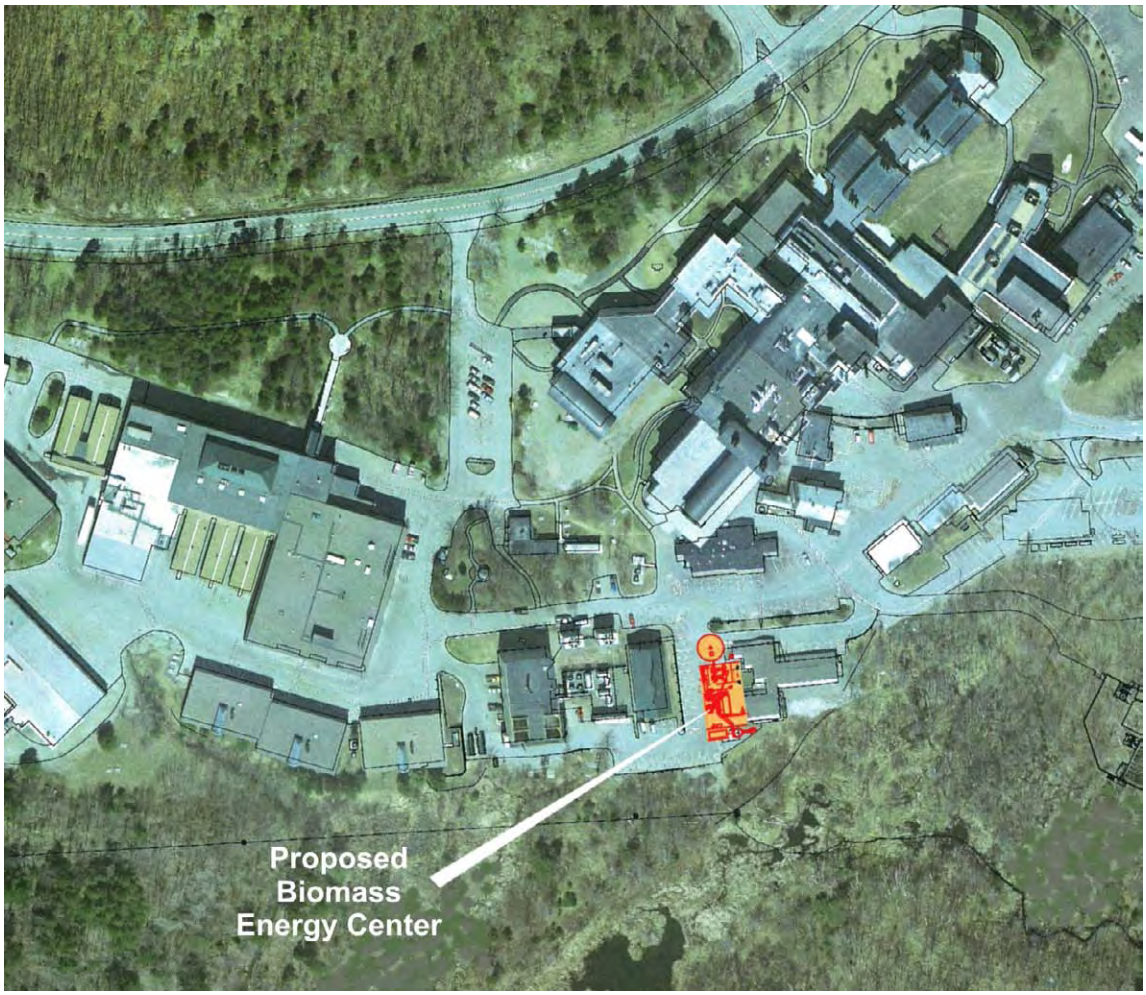
Sources: USGS 1982, 1983.

Figure 2-1. The Jackson Laboratory.

2.2 The Jackson Laboratory's Proposed Project

The Laboratory was established in 1929 as a nonprofit institution and is engaged in mammalian genetics research. Research areas include the genetic bases for preventing, treating, and curing human diseases. This type of research uses mice, and the Laboratory breeds and provides specialty mice through its JAX® Mice and Services division for its own research and to other research institutions. The Laboratory owns about 150 acres in four parcels in the area, of which about 26 acres are developed.

The Laboratory proposes to construct the new Energy Center at its Bar Harbor campus to house a new biomass wood pellet boiler. The boiler would burn wood pellets from regional suppliers. The proposed project would reduce the amount of fuel oil the Laboratory burns at its existing facility, which provides heating, chilling, and emergency power. The proposed boiler would generate up to 44.4 million Btu per hour. The proposed project would tie into existing Laboratory infrastructure and include a silo for wood pellet storage. The proposed Energy Center would occupy about 4,400 square feet in an area with buildings, paving, and grass (W&C 2010). Figure 2-2 is a closer view of the area showing the proposed site of the new Energy Center.



Source: Nicholson 2010a.

Figure 2-2. Area of the proposed project.

2.2.1 Project Site and Facility Components

The proposed project site is currently a mix of grassed area, paved parking, and modular buildings. Figure 2-3 is a visual simulation of the proposed project when complete. The proposed Energy Center would replace part of and be next to Building 45, which houses administrative offices. Site preparation would include bringing the site to grade and installing concrete foundations and structural floor slabs. The Laboratory would construct the 37-foot tall, 4,400-square-foot steel-framed structure to complement the Laboratory's existing architecture to minimize potential visual impacts to visitors of Acadia National Park, parts of which are adjacent to the Laboratory campus. The proposed Energy Center would house a main boiler room; a control room for primary electrical power distribution, boiler control and communication; and the fire alarm and building automation controls. The building would also include energy-efficient lighting, networked fire detection systems, fire suppression systems, an emergency shower and eyewash station, and telecommunications cabling (W&C 2010).

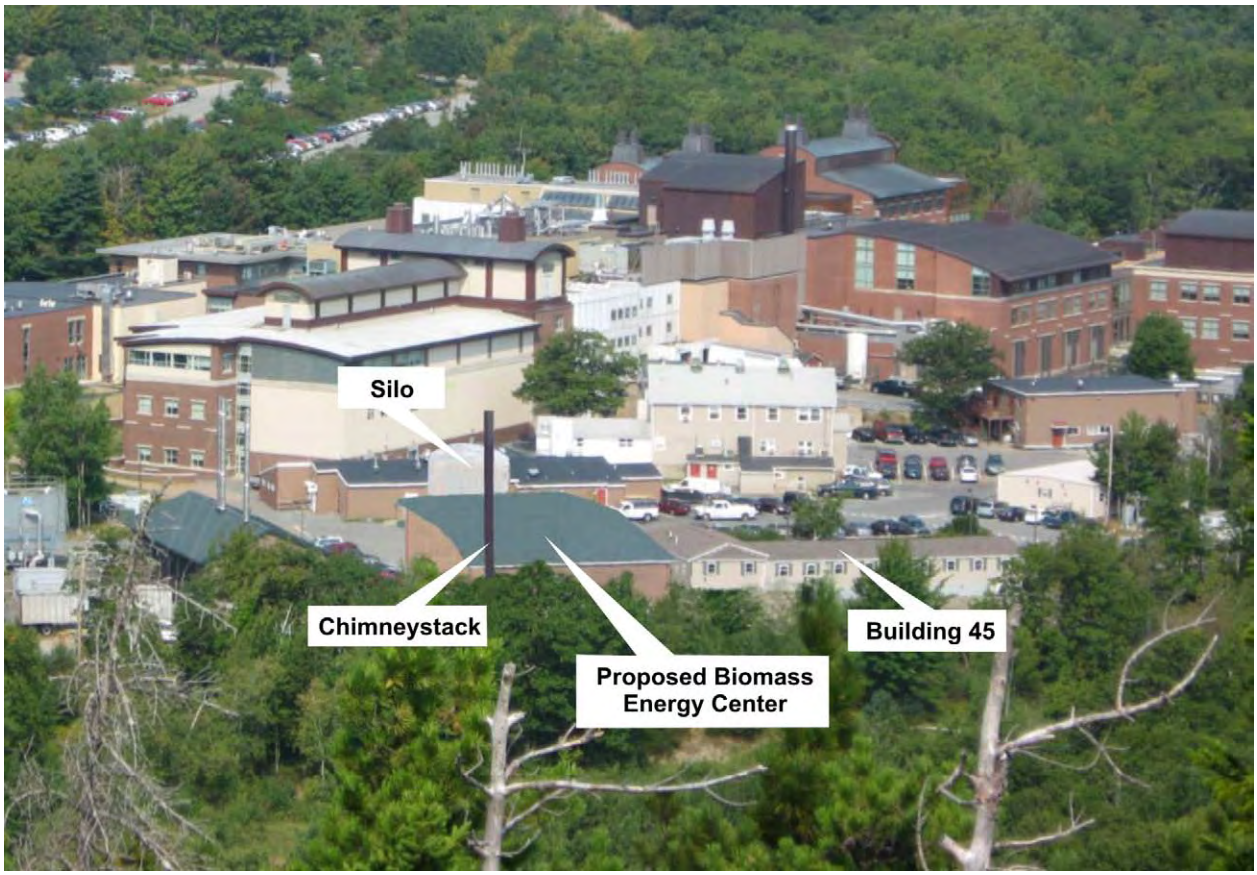
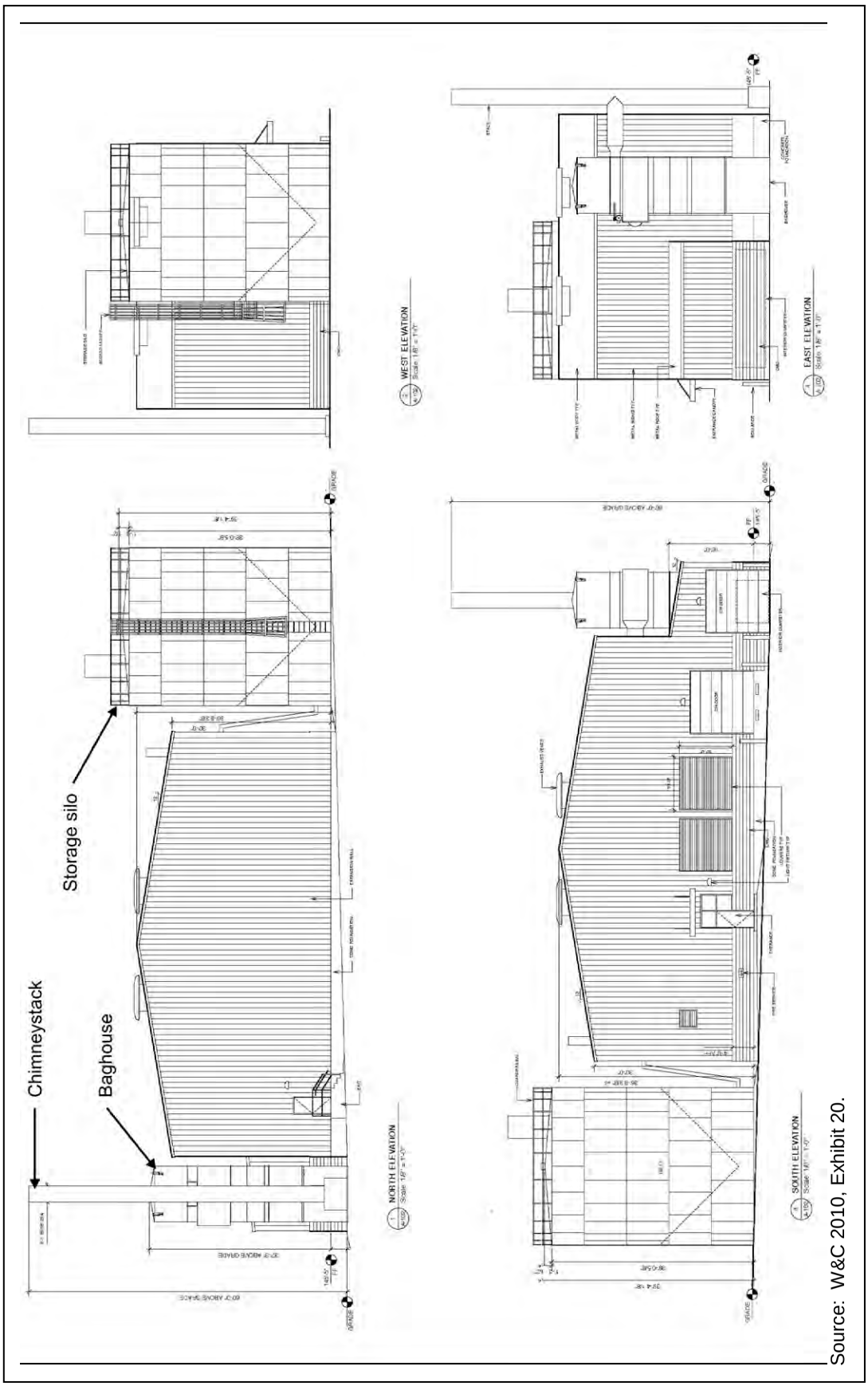


Figure 2-3. Visual simulation of proposed project.

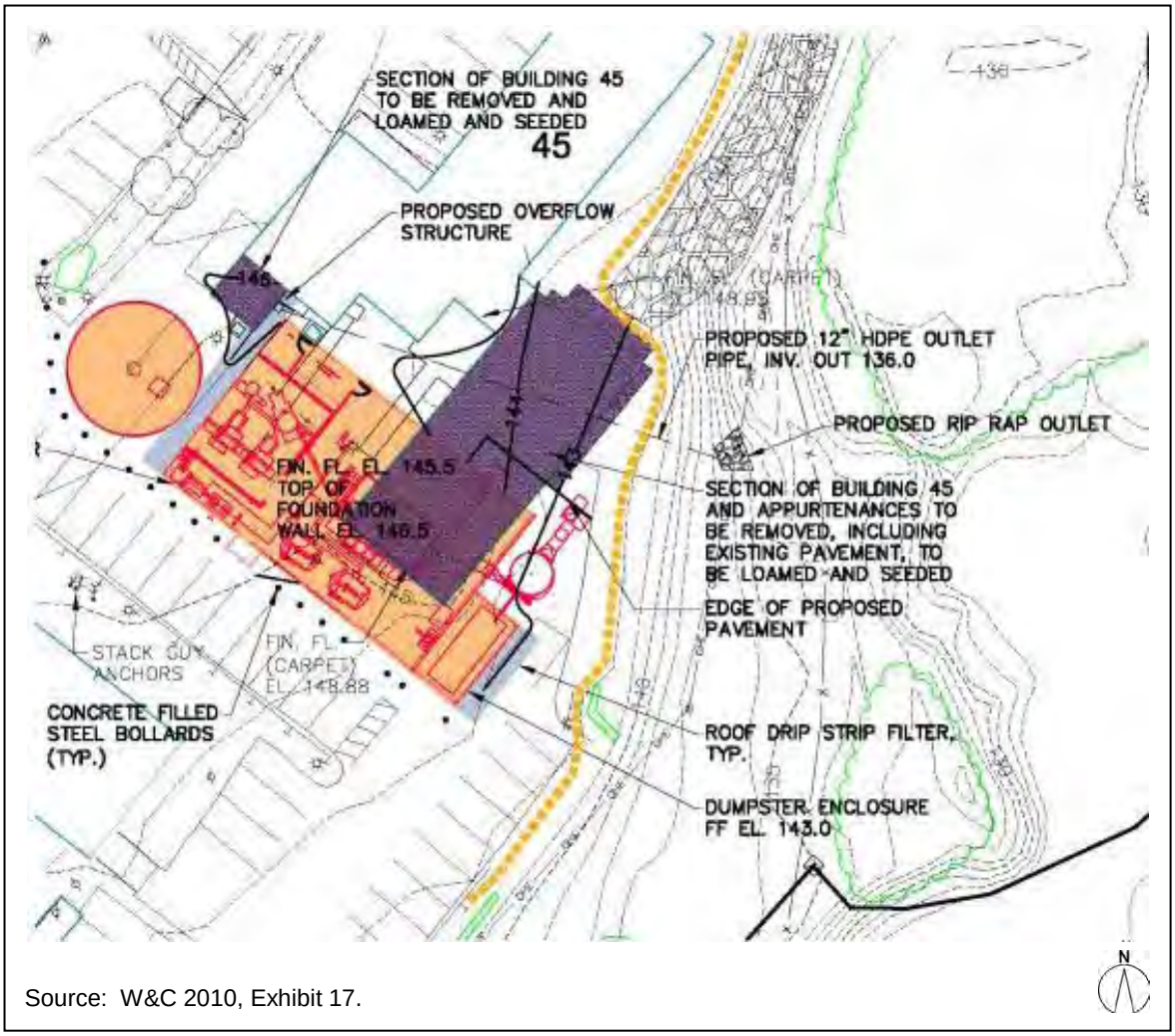
In addition to the building structure and its contents, the proposed project would include an exterior pellet storage silo capable of holding about 440 tons of pellets, which is about a 1-week supply at maximum operation (Cone 2011). The storage silo would be about 39 feet tall and 33 feet in diameter (about 860 square feet). There would be a 37-foot-tall baghouse outside the Energy Center building to capture the wood pellet ash with an attached 60-foot chimneystack to vent the combustion gases. Preinsulated steam and condensate piping would connect the new building with the existing underground steam distribution systems. A preinsulated boiler feed water pipe would connect the proposed Energy Center and the existing boiler plant. Figure 2-4 shows elevation drawings of the proposed Energy Center with storage silo, baghouse, and stack.



Source: W&C 2010, Exhibit 20.

Figure 2-4. Elevation drawings of proposed new building with silo, baghouse, and chimneystack.

As part of the construction project, the Laboratory would remove portions of Building 45 (purple areas in Figure 2-5) and loam and seed some of the cleared land.



Source: W&C 2010, Exhibit 17.

Figure 2-5. Site plan showing portions of Building 45 to be removed (purple) and new construction (orange).

2.2.2 Energy Center Operations

The proposed wood pellet boiler would be the primary boiler and operate in parallel with the existing number 2 fuel oil boilers. The new boiler would burn about 11,000 tons of wood pellets per year, which would reduce the Laboratory's fossil fuel consumption by about 1.28 million gallons of fuel oil each year (about 80 percent), and would eliminate about 13,400 tons per year of carbon dioxide emissions and about 29 tons of sulfur dioxide emissions per year. The six existing oil-fired boilers would remain in place to provide the balance of steam for plant operations during high-demand periods in excess of the biomass boiler's capacity of 44.4 million Btu per hour. The existing boilers would also operate as standby steam generators for maintenance periods or unplanned system down time. After implementation of the proposed project, the existing boilers would burn about 300,000 gallons of fuel oil a year (W&C 2010).

Trucks would bring the wood pellets to the proposed Energy Center between 7 p.m. and 5 a.m. The trucks would connect to an air blower inside the mechanical room that would pressurize the truck tank

and convey the pellets into the silo (Nicholson 2010b). A feed system would move the pellets from the silo into a sound-insulated hammermill room for crushing and then to the boiler burner. A blower system would move the ash from the burned wood pellets to a baghouse. The baghouse would vent the combustion gases through a chimneystack and collect the ash in a rollout container dumpster. The dumpster would be hauled off the site two to four times per year by container truck, and the ash would be disposed of in accordance with local and state regulations. The Laboratory would transport the wood ash to an approved landfill or, with State of Maine approval, to a reuse facility where it could be used in agriculture as a soil conditioner or in concrete applications (Egget 2010). If the wood ash cannot be recycled, it would likely be disposed of at the New England Organics Juniper Ridge landfill. The baghouse and dumpster would be on the east-southeast end of the building. The sealed baghouse would occupy an open-air area of about 15 by 30 feet, and the enclosed and covered dumpster area would be about 15 by 26 feet. Figure 2-6 shows a layout of the system elements including the silo, hammermill, boiler, baghouse, chimneystack, and dumpster (W&C 2010).

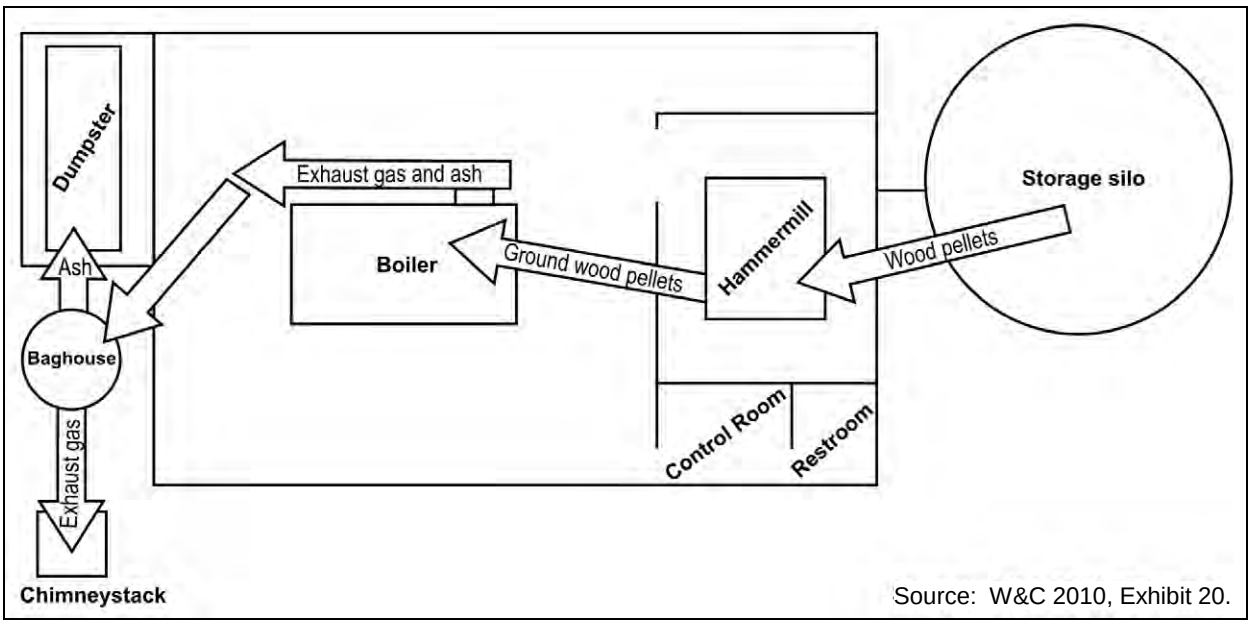


Figure 2-6. Basic elements of the wood pellet boiler system.

Emissions control would include the baghouse, which filters particulate matter such as ash from the exhaust gas before venting it to the stack. The baghouse would filter at least enough of the particulate matter to meet the permit limit of 0.04 pound per million Btu.

Typical maintenance activities for the proposed boiler would include (MDER 2007):

- Emptying ash collection containers;
- Monitoring control devices to check combustion temperature, stack temperature, fuel consumption, and boiler operation;
- Checking boiler settings and alarms, such as those that alert to a problem with soot buildup;
- Greasing augers, gearboxes, and other moving parts; and
- Checking for wear on conveyors, augers, motors, or gearboxes.

2.2.3 Best Management Practices

The Laboratory has committed to certain best management practices to avoid or minimize the potential for impacts from Energy Center construction and operation (Nicholson 2010b,c,d, 2011a):

- The Laboratory would use best management practices to control erosion and sedimentation. All measures would be implemented in accordance with the *Maine Erosion and Sedimentation Handbook for Construction: Best Management Practices*.

- The Laboratory has a Contingency Plan in place for emergency response and including plans for materials that could contribute to explosion, fire, chemical, or radiation hazards. The Laboratory is in compliance with the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6901 et seq.) and MDEP regulations. The Laboratory would store such materials in accordance with all applicable Federal, state, and local laws, codes, rules, and regulations, and it would maintain its Contingency Plan, which details the steps it would take in the event of a spill, release, explosion, or fire.

- The Laboratory would use sound-attenuating devices and engineering solutions to minimize sound from the Energy Center.

- The Laboratory has a tradition of night sky conservation and would use only full cutoff exterior lighting fixtures on and around the proposed Energy Center. The Laboratory would minimize the use of light-emitting diode (LED) bulbs and minimize the number of new fixtures to provide only those lights necessary for safety and security.

- The Laboratory would plant seven 4-foot white pine trees on the side of the Energy Center that faces Acadia National Park, which when mature would reduce noise and visual impacts, including those from night lighting.

- Buildings and equipment would be neutral to earth tone colors to match as closely as possible with adjacent buildings, and the Laboratory would limit the use of reflective surfaces to minimize visual impacts.

2.2.4 Wood Pellet Suppliers

This EA evaluates the potential air quality (Section 3.2.2.1), transportation (Section 3.2.2.2), and noise (Section 3.2.2.3) impacts from delivery of wood pellets from each of three representative suppliers to the Laboratory as a connected action. For purposes of analysis, DOE assumed the Laboratory would purchase the pellets from one or more of the three regional suppliers listed below:

- Corinth Wood Pellets, located in Corinth, Penobscot County, began operations in 2007. The travel distance from Corinth to the Laboratory is about 70 miles. The facility is capable of producing about 140,000 tons of wood pellets per year.

- Geneva Wood Fuels, located in Strong, Franklin County, began operations in 2009. The travel distance from Strong to the Laboratory is about 140 miles. The facility is capable of producing about 100,000 tons of wood pellets per year.

- Maine Wood Pellets, located in Athens, Franklin County, began operations in 2008. The travel distance from Athens to the Laboratory is about 95 miles. The facility is capable of producing about 100,000 tons of wood pellets per year.

These three companies are members of the Maine Pellet Fuels Association, a trade association created in 2008 to advance the production and use of wood pellet fuel in Maine. The raw wood materials come from sustainable woodlands that are owned and managed by loggers, sawmills, and other wood product users. The wood pellets are made of sawdust, which is sometimes made from bark-stripped wood. Pellets can be softwood, hardwood, or a blend. The pellets are typically 0.5 to 1.5 inches long and are dried to very low moisture levels.

2.3 No-Action Alternative

Under the No-Action Alternative, DOE would not authorize use of EECBG Program funds for the proposed project. As a result, the Laboratory could delay the proposed project as it sought other funding sources or abandon the project if it could not obtain other funding. As a result, DOE's ability to achieve its objectives under the EECBG Program and the Recovery Act would be impaired.

Although the Laboratory might proceed with the project if DOE did not authorize expenditures, DOE assumes for the No-Action Alternative analyses in this EA that the proposed project would not proceed. This approach provides a basis of comparison for the potential impacts of the proposed project. If the Laboratory did proceed without DOE's financial assistance, and assuming the scope of the project remained the same, the potential impacts would be essentially identical to those this EA identifies.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter of the EA describes the affected environment in terms of environmental, social, cultural, and economic conditions in the project area as well as the potential impacts to these resources that could result from implementation of the proposed project and from the No-Action Alternative. The Laboratory would build the proposed 4,400-square-foot Energy Center on 5,200 square feet of property on the southeast side of the developed portion of the Laboratory's Bar Harbor campus (Figure 2-2).

This chapter of the EA examines the potential environmental impacts of the proposed project and of the No-Action Alternative for the following environmental resource areas: geology and soils; land use; water resources; biological resources; socioeconomics; environmental justice; waste and hazardous materials; utilities, energy, and materials; occupational health and safety; air quality; transportation; noise; aesthetics and visual resources; and historic and cultural resources.

3.1 Environmental Consequences of the No-Action Alternative

Under the No-Action Alternative, DOE would not authorize the Laboratory to expend Federal funding for the proposed project. As a result, the project could be delayed until the Laboratory could identify other funding sources. The project could also be abandoned if other funding sources could not be obtained. If the project was abandoned, reductions in fossil fuel use and improvements in energy efficiency would not occur and DOE's ability to achieve its objectives for renewable energy and energy efficiency would be impaired. In addition, if the proposed project did not proceed, the potential impacts to the resource areas discussed in this EA, including potential beneficial impacts to the local and state economies, would not occur.

If the project did proceed without DOE's financial assistance, the potential impacts would be essentially identical to those under DOE's Proposed Action (that is, providing assistance that allows the project to proceed). In order to allow a comparison between the potential impacts of a project as implemented and the impacts of not proceeding with a project, DOE assumes that if it decided to withhold assistance from this project, final design and construction of the Laboratory's proposed project would not proceed.

3.2 The Jackson Laboratory's Proposed Project

The proposed project would potentially affect the environmental resources near the project site and in the region. The following sections describe each resource area and discuss potential impacts.

3.2.1 Considerations Not Carried Forward for Further Analysis

In an effort to focus the analyses on resource categories commensurate with their importance in relation to the proposed project, DOE limited the evaluations of certain resource areas. This sliding-scale approach is consistent with NEPA regulations [40 CFR 1502.2(b)], under which impacts, issues, and related regulatory requirements are to be investigated and addressed with a degree of effort commensurate with their importance. DOE concluded that the proposed project would result in no, minimal, or temporary impacts to the resource areas in Table 3-1 and did not carry those resource areas forward for detailed description and analysis.

Table 3-1. Environmental resource areas with no, minimal, or temporary impacts.

Environmental resource area	Impact consideration and conclusion
Geology and soils	Maine has a history of random periodic earthquakes; the chances of a small earthquake in any particular year are quite good (Berry and Marvinney 2003). The Laboratory would construct the Energy Center to meet the 2003 International Building Code standards applicable to areas of seismic activity (Nicholson 2010e). The soil is Udorthents-Urban land complex that consists of fill material and nonsoil material such as construction waste mixed with a small amount of other soil materials. The soils are not rated severe or very severe for erosion (NRCS 1998). There is no prime or unique farmland in the project disturbance area (NRCS 1998). The proposed project would require clearing and grading to prepare for foundation construction, drainage control, and paving activities, but this would not result in major changes to the topography of the site. The proposed project would disturb 5,200 square feet of land that is currently part of the existing Building 45 and a small area of grass. There would be a short-term potential for soil erosion and sedimentation during construction of the Energy Center (NRCS 1998). After construction, asphalt paving and permanent seeding and mulching would be applied when the site was at final grade (W&C 2010). The Laboratory has committed to control of erosion and sedimentation in accordance with the *Maine Erosion and Sedimentation Handbook for Construction: Best Management Practices* (Nicholson 2010c). DOE has determined there would be minor and temporary impacts to soils.
Land use	The proposed Energy Center would be consistent with land use on the Laboratory campus, and the Laboratory has designed the Energy Center to blend with existing campus facilities. The proposed Energy Center would not result in land use changes outside the campus boundaries. New construction at the Laboratory must undergo review by MDEP under Maine's Site Law. That review is complete and MDEP has approved an amended permit for development of the Energy Center (Section 1.2). In addition, every project planned by the Laboratory undergoes review and requires approval by the Bar Harbor Planning Board. The Board has completed its review process and has approved the proposed Energy Center (Section 1.4).
Water resources	Water resources include surface water and groundwater on and in the area of the proposed Energy Center. Based on a review of soil maps (NRCS 1998), aerial photos, and the online National Wetlands Inventory map (FWS 2003), there are no wetlands present on the project site. There is a small freshwater pond about 50 feet east of the project site that is fed by Bear Brook from the south and drains to the northeast into Bar Harbor. Neither the pond nor Bear Brook is within the footprint of the proposed project. Therefore, there would be no direct impacts to wetlands or other surface waters. The Laboratory campus is not in a 100- or 500-year flood zone, as determined by the Federal Emergency Management Agency (FEMA 1991). The Town of Bar Harbor Municipal Geographic Information System online maps also show that the Laboratory is not in a floodplain. Therefore, the proposed project would not require a Flood Hazard Development Permit. There are no sole source aquifers, as classified by the U.S. Environmental Protection Agency, on Mount Desert Island (EPA 2010a). In addition, there are no impaired waters under Section 303(d) of the Clean Water Act in the project area (EPA 2011a). The Laboratory would build the proposed 4,400-square-foot Energy Center over an area that is primarily pavement and buildings. An 800-square-foot grassed area eliminated by the project would be more than offset by about 2,400 square feet of new loamed and seeded area included in the project design for a net increase in pervious area of 1,500 square feet. In addition, a new roof drip line filtration storm water treatment system would provide treatment

Table 3-1. Environmental resource areas with no, minimal, or temporary impacts (continued).

Environmental resource area	Impact consideration and conclusion
Water resources (continued)	for at least 3,400 square feet of the proposed new roofing, where none exists on the current roofing. Therefore, the proposed project should improve storm water management of the site (W&C 2010). The area of disturbance is less than 1 acre; therefore, a National Pollution Discharge Elimination System permit would not be required from the MDEP Bureau of Land and Water Quality. The Laboratory has a site-specific Stormwater Erosion and Sedimentation Control Plan that includes best management practices for temporary erosion control measures during construction and permanent features to control erosion and sedimentation after construction (W&C 2010). Surface runoff from the project site currently flows to Bear Brook and would continue to flow from the site in the same manner. The project would not increase the amount of runoff, and would have no impact on existing runoff patterns. DOE has determined there would be minor to no impacts to wetlands and other surface waters, groundwater, or floodplains from the proposed project.
Biological resources	All demolition and construction activities would occur in a developed industrial area with no natural, undisturbed areas and little landscaping. The site consists of a portion of where Building 45 is and two grassy areas. There is a potential for a small number of wildlife deaths, and wildlife could avoid the area during that time as a result of construction activities. The Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) provides for conservation of ecosystems on which threatened and endangered species of wildlife and plants depend. The Act prohibits unauthorized taking, possession, sale, and transport of endangered species. Section 7 of the Act requires Federal agencies to ensure actions authorized, funded, or carried out by the agency are not likely to jeopardize the continued existence of listed species or modify critical habitats for those species. The site of the proposed project is within the range of the Gulf of Maine Distinct Population Segment of Atlantic salmon (*Salmo salar*), a Federally listed endangered species. However, surface water is not present on the project site and the Laboratory campus is not in a watershed that has been designated as critical habitat of the Atlantic salmon. No other Federally listed or candidate species are known to occur in the project area. In a letter on October 28, 2010, FWS concurred that this project would not affect any Federally listed species. Appendix A contains a copy of this letter. The bald eagle is protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.) and, under certain circumstances, the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.). The nearest known bald eagle nest is more than a mile away on Bald Porcupine Island. This is well beyond the FWS-suggested buffer zone of 330 feet to avoid disturbance of bald eagles (FWS 2007). In a letter on August 17, 2010, the Maine Department of Inland Fisheries and Wildlife informed the Laboratory it had reviewed its Habitat Files and found no records of any Essential or Significant Wildlife Habitats on the Laboratory's proposed project site (Hall 2010). The Maine Department of Conservation Natural Areas Program reviewed its Biological and Conservation Data System files for information on the presence of known rare or unique botanical features in the vicinity of the project site. There is a rare natural community of pitch pine woodland on the western and southern edges of the Laboratory campus. In a letter on August 18, 2010, the Program informed the Laboratory it had concluded that construction of the proposed Energy Center would be far enough away that there would be no effects to this natural resource (Demers 2010). Therefore, DOE has concluded that the proposed project would not affect any Federally or State-protected or candidate species or critical habitat and would have minimal or no impact on other biological resources.

Table 3-1. Environmental resource areas with no, minimal, or temporary impacts (continued).

Environmental resource area	Impact consideration and conclusion
Socioeconomics	Socioeconomics is the study of the interrelation between social and economic factors. These factors include demographics, employment, and income. Hancock County is 95-percent rural with a population of about 53,000 residents. The county has an employment base of about 38,000 nonfarming jobs in a well-diversified economy. The 2008 per capita income of $36,200 in Hancock County was over 99 percent of that in Maine as a whole. The proposed project would involve 15 to 25 temporary construction jobs. One or more local construction companies would be contracted for this temporary work. The direct employment would not result in any indirect jobs because the new direct jobs would be filled from the local labor force. Therefore, no workers would move into the area. There would be a small, one-time boost in the economy from the construction of the Energy Center. The $4.4 million project expenditure would have a final earnings effect of about $6.3 million (Baxter 2010). Operation of the proposed boiler would be unlikely to create direct jobs, but it could help to preserve jobs or community resources, particularly in the forestry industry. The representative suppliers of the wood pellets are all based in Maine. Maintenance personnel would be current employees, so there would be no new direct or indirect positions. The economy in the region would receive a small, positive benefit from the use of sustainable forest growth. The operations of the boiler could help to preserve jobs or community resources, particularly in the forestry industry (Baxter 2010). As described above, the proposed project would not result in discernable increases in direct or indirect employment from construction or operations. Therefore, there would be no associated increase in population or additional pressure on public services, including educational services and housing availability (Baxter 2010). There would be no project-related changes in population, employment, wages, or per-capita income due to the project. Therefore, there would be no impact to socioeconomic variables or public services.
Environmental justice	Executive Order 12898, "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations," directs Federal agencies to address environmental and human health conditions in minority and low-income communities. The evaluation of impacts to environmental justice is dependent on determining if high and adverse impacts from the proposed project would disproportionately affect any low-income or minority group in the affected community. In 2008, the aggregate percent of all racial minorities (Black, American Indian or Alaskan Native, Asian, Native Hawaiian or other Native Islander, or persons of two or more races) was 2.9 percent in Hancock County. Persons of Hispanic or Latino origin made up about 1.1 percent of the population. In 2008, about 11 percent of county residents lived below the poverty level (Baxter 2010). The proposed project would not have adverse impacts on population, employment, or income for any population group in Hancock County including people of a minority race, minority ethnicity, or low-income individuals. In addition, DOE has determined that there would be no high and adverse impacts from the proposed project. Therefore, there would be no high and disproportionate impacts to any minority, ethnic, or low-income population.

Table 3-1. Environmental resource areas with no, minimal, or temporary impacts (continued).

Environmental resource area	Impact consideration and conclusion
Waste and hazardous materials	The Energy Center would create ash from burning the wood pellets at an estimated rate of 55 tons per year. This ash would be collected in roll-off container dumpsters at the site and hauled off the site about two to four times a year. The Laboratory would transport the wood ash to an approved landfill or, with State of Maine approval, to a reuse facility where it could be used in agriculture as a soil conditioner or in concrete applications (Egget 2010). The wood ash from the proposed Energy Center would not affect existing licenses or the capacity for solid waste removal or the capacity of waste disposal sites (W&C 2010, Exhibit 19). The Laboratory is a regulated large quantity waste generator under the Resource Conservation Act of 1976 (Nicholson 2010b). The proposed Energy Center would not require amendment of its existing licenses. The Laboratory is in compliance with all licenses and applicable environmental regulations (W&C 2010, Exhibit 19).
Utilities, energy, and materials	The proposed Energy Center would not require increases in utility services. The Laboratory obtains water from municipal sources, and water for the new wood pellet boiler would offset water use at the existing boilers. Therefore, there would be no net increase in water use (Nicholson 2010d). The proposed Energy Center would reduce use of fuel oil by about 1.28 million gallons per year. The boiler would burn about 11,000 tons of wood pellets per year, and the project would require the materials for construction and installation as described in Section 2.2. The reduction in the use of fuel oil would result in a small positive energy impact. The amounts of materials necessary to construct the proposed Energy Center would be negligible and would not affect regional capacity.
Occupational health and safety	The Laboratory has a comprehensive occupational health and safety program that includes new employee training, safety meetings, emergency drills, and safety audits. Because of the materials it handles and the work it performs, the Laboratory uses 100-percent outside air ventilation and carefully controls heating and air conditioning for the safety of the Laboratory's employees and the research laboratories. The Laboratory is in compliance with Occupational Safety and Health Administration reporting requirements. Based on information the Laboratory submitted to the Administration for the 5-year period from 2005 to 2009, the Laboratory experienced an annual average of 35.4 cases with days away from work, job transfer, or restriction in almost 12 million employee work hours (Nicholson 2010b), which is an incidence rate of 0.59 per 100 full-time equivalent workers. This is far below the national average for the same 5-year period of 4.6 cases in the industry category to which the Laboratory reports (BLS 2006 to 2010). There were no fatalities at the Laboratory in those years (Nicholson 2010b). As part of its overall occupational and public health and safety program, the Laboratory has a Contingency Plan that addresses emergency events such as accidental spills, releases, explosions, or fires. The plans are in place to minimize injuries to people and damage to the environment. The Laboratory has distributed the plans to its organization and to public emergency responders including the Bar Harbor police and fire departments and Mount Desert Island Hospital. Chapter 2 lists applicant committed actions that include those related to the potential dangers due to reasonably anticipated possible explosions or fire, chemical, or radiation hazards.

3.2.2 Considerations Carried Forward for Further Analysis

The focus of the more detailed analyses is on those environmental resource areas that could require new or amended permits or have the potential for significant impacts or controversy. Sections 3.2.3 to 3.2.5 discuss unavoidable adverse impacts, short-term use of local resources and long-term productivity, and irreversible or irretrievable commitment of resources.

3.2.2.1 Air Quality

3.2.2.1.1 Affected Environment

The ambient air quality in an area can be characterized in terms of whether it complies with the primary and secondary National Ambient Air Quality Standards. The Clean Air Act (42 U.S.C. 7401 et seq.) requires the EPA to set national standards for pollutants that are considered harmful to public health and the environment. The EPA established standards for six criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter [both with a median aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}) and less than or equal to 2.5 micrometers ($PM_{2.5}$)], and sulfur dioxide. Primary standards define levels of air quality for each of the six criteria pollutants that would provide an adequate margin of safety to protect public health including the health of sensitive populations such as children and the elderly. Secondary standards define levels of air quality that are deemed necessary to protect the public welfare including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Table 3-2 lists the primary National Ambient Air Quality Standards for criteria pollutants and the 2008 values for Hancock County. Hancock County is in attainment for all criteria pollutants (EPA 2010b).

Table 3-2. Primary National Ambient Air Quality Standards and 2008 Hancock County air quality data.

Pollutant	Averaging period	Primary standard	Hancock County[a]
Carbon monoxide	8 hours	9 ppm	0.4 ppm
	1 hour	35 ppm	0.3 ppm
Lead	Quarterly	1.5 $\mu g/m^3$	NA
Nitrogen dioxide	Annual	0.053 ppm	NA
Ozone	8 hours	0.075 ppm	0.074 ppm
PM_{10}	24 hours	150 $\mu g/m^3$	NA
$PM_{2.5}$	Annual	15.0 $\mu g/m^3$	5.68 $\mu g/m^3$
	24 hours	35 $\mu g/m^3$	NA
Sulfur dioxide	Annual	0.03 ppm	0.004 ppm
	24 hours	0.14 ppm	0.000 ppm

a. Source: EPA 2011b.
NA = not available; ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.

Table 3-3 provides estimated 2009 boiler air emissions from the Laboratory, which the Laboratory estimated using emissions factors from the EPA assuming an annual fuel oil use of 1.5 million gallons.

3.2.2.1.2 Environmental Consequences of the Proposed Project

Construction Impacts

Air emissions from construction activities for the Laboratory's proposed project would include combustion emissions from vehicles and heavy-duty equipment for construction and installation of the proposed project components. These emissions would have short-term adverse impacts that the Laboratory could minimize through best management practices such as soil stabilization and watering of exposed soils. Fugitive dust emissions would end on completion of construction, so long-term impacts would be negligible.

Table 3-3. Estimated 2009 boiler air emissions and facility permit levels.

Pollutant	2009 boiler emissions (tons per year)	Existing permit levels for entire facility (tons per year)
Nitrogen oxides	18.05	94.1
Carbon monoxide	3.76	17.1
Sulfur dioxide	36.32	64
$PM_{10}/PM_{2.5}$	1.5	20.1
Volatile organic compounds	0.19	2.3

a. Source: Nicholson 2011b.

Operations Impacts

The Laboratory proposes to install and operate a 44.4 million Btu per hour wood pellet boiler that would burn pellets with a maximum moisture content of 10 percent. The proposed wood pellet boiler would be the primary boiler and operate in parallel with the existing boiler plant. The new boiler would reduce the Laboratory's number 2 fuel oil consumption by approximately 1.28 million gallons of fuel oil each year (about 80 percent). The Laboratory would use the existing boilers to supplement the wood pellet boiler when it was out of service or when its capacity was not sufficient. After implementation of the proposed project, the existing boilers would consume about 300,000 gallons of fuel oil a year.

The proposed project location is in Hancock County, which is in attainment of the National Ambient Air Quality Standards for all criteria air pollutants. Based on the currently available information, the Laboratory estimated emissions using a combination emission factors for combustion and control technology limits (Table 3-4). The estimated emissions for the project in the Table 3-4 include emissions from the burning of the wood pellets and the use of fuel oil in the existing boilers. Table 3-5 provides the new licensed annual emissions for the entire laboratory.

Table 3-4. Existing boiler emissions and estimated proposed project emissions (tons per year).

Pollutant	2009 boiler emissions	Boiler emissions with proposed project	Change in emissions
Nitrogen oxides	18.05	31.59	13.54
Carbon monoxide	3.76	31.59	27.83
Sulfur dioxide	36.32	8.21	-28.1
$PM_{10}/PM_{2.5}$	1.5	4.21	2.71
Volatile organic compounds	0.19	2.11	1.92

Source: Nicholson 2011b.

Under the proposed project, the particulate matter, nitrogen oxide, carbon monoxide, and volatile organic compounds would increase while sulfur emissions would decrease. The increase in emissions would not be large enough to label the facility a major source. MDEP determined the proposed project would not result in a major modification to the Laboratory's air emissions (Cone 2011).

To reduce particulate matter emissions, the Laboratory would construct and operate a baghouse outside the Energy Center building to capture the wood pellet ash with an attached 60-foot chimneystack to vent the combustion gases. A baghouse uses fabric filters to separate dust particulates from the combustion gases and would reduce particulate emissions by over 90 percent to meet the limit of 0.04 pounds of particulate per million Btu as described in the air permit (Cone 2011). The permitted level for particulate emissions would not increase as a result of the proposed project.

Table 3-5. Total licensed annual emissions for the entire Laboratory, including the proposed project (tons per year).

Equipment	Total PM	PM_{10} (includes $PM_{2.5}$)	Sulfur dioxide	Nitrogen oxides	Carbon monoxide	Volatile organic compounds	Hazardous air pollutants
Boilers	12.6	12.6	12.45	47.3	47.3	3.15	0
Generator #2	0.1	0.1	0.1	2.6	0.6	0.2	0
Generator #3	0.1	0.1	0.1	2.7	0.6	0.2	0
Generator #6	0.4	0.4	0.2	10	2.7	0.3	0
Generator #8	0.3	0.3	0.1	4.3	2	0.2	0
Generator #9	0.3	0.3	0.1	4.3	2	0.2	0
Generator #10	0.3	0.3	0.1	4.3	2	0.2	0
Incinerator #1	3	3	4.2	9.3	0.8	0.4	0
Incinerator #2	3	3	4.2	9.3	0.8	0.4	0
Sterilizers	0	0	0	0	0	0	0.8
Totals	**20.1**	**20.1**	**22.6**	**94.1**	**58.8**	**5.3**	**0.8**

Source: Cone 2011.

Section 176(c)(1) of the Clean Air Act requires Federal agencies to ensure that their actions conform to applicable implementation plans for the achievement and maintenance of the National Ambient Air Quality Standards for criteria pollutants (DOE 2000). To achieve conformity, a Federal action must not contribute to new violations of the standards for ambient air quality, increase the frequency or severity of existing violations, or delay timely attainment of standards in the area of concern. The EPA general conformity regulations (40 CFR Part 93, Subpart B) contain guidance for determining if a proposed Federal action would cause emissions to be above specified levels in nonattainment or maintenance areas.

The Laboratory applied for a revised air quality permit for the proposed project. MDEP issued a final permit and indicated Laboratory emissions would be in compliance with the permit while operating the biomass boiler in conjunction with other potential emissions (Cone 2011). The Laboratory would continue to operate as a minor emissions source in accordance with State of Maine regulations for individual point source emissions.

Based on the revised air permit emissions levels (Table 3-4), including the proposed project emissions, the Laboratory's emissions would have a negligible impact on air quality (Cone 2011). Because the Laboratory would remain a minor source, its emissions and associated air quality and visibility impacts would also be negligible in relation to the regulatory requirements for Class I areas within 50 kilometers (about 31 miles) of Acadia National Park.

Hancock County is in attainment for all criteria pollutants; therefore, no conformity determination under the Clean Air Act would be necessary (DOE 2000). In the final air permit, MDEP concluded that the Laboratory's proposed configuration would not cause or contribute to a violation of any sulfur dioxide, PM_{10}, nitrogen dioxide, or carbon monoxide standards under the National or Maine Ambient Air Quality Standards. In addition, it would not cause or contribute to a violation of any sulfur dioxide, PM_{10} (which includes $PM_{2.5}$), or nitrogen dioxide standards for Class I or Class II areas (Cone 2011).

The proposed project would result in an additional 56,803 heavy truck miles a year, an increase of 0.01 percent on the regional roads by all traffic types. While the increased truck traffic would result in a corresponding increase in heavy truck air emissions, DOE concluded these emissions would be negligible when placed in context of the traffic baseline.

Greenhouse Gas Emissions

The burning of fossil fuels such as fuel oil emits carbon dioxide, which is a greenhouse gas. Greenhouse gases can trap heat in the atmosphere and have been associated with global climate change. The Intergovernmental Panel on Climate Change, in *Climate Change 2007: Synthesis Report, Summary for Policy Makers*, stated that warming of the earth's climate system is unequivocal, and that most of the observed increase in globally averaged temperatures since the mid-20th century is very likely due to the observed increase in concentrations of greenhouse gases from human activities (IPCC 2007).

In a typical boiler, combustion converts nearly all of the carbon in the natural gas to carbon dioxide. The existing boilers at the Laboratory generate approximately 13,400 tons of carbon dioxide each year.

In a biomass boiler, the combustion of the wood pellets converts nearly all of the stored carbon in the wood to carbon dioxide. However, wood pellets are considered a carbon neutral fuel for two reasons: (1) the carbon in plant material comes from the atmosphere through photosynthesis as plants grow, and (2) the vast majority of the carbon eventually returns to the atmosphere as the plant material decomposes naturally. At present, the sawdust from which the wood chips would be made is waste that eventually rots, releasing carbon dioxide. Therefore, burning the wood pellets would produce the same amount of carbon dioxide as the natural carbon cycle does from the sawdust.

Because the biomass component of the proposed project is carbon neutral, replacement of the natural gas with wood pellets would result in a decrease of about 13,400 tons of carbon dioxide emissions per year at the Laboratory. Because the proposed project would displace energy currently being supplied via fossil fuels, there would be an expected reduction in regional greenhouse gas emissions.

3.2.2.2 Transportation

This section provides the results of the transportation analysis. Appendix B provides a detailed description of the existing traffic conditions along roadways the proposed project would affect and the analysis of changes in traffic due to operations.

3.2.2.2.1 Affected Environment

For this analysis, DOE assumed the proposed project would involve transportation of wood pellets to the Laboratory by three representative vendors in Strong, Athens, and East Corinth, Maine. There would be three routes (one from each vendor site) to Bangor, Maine, and a common route from Bangor to the Laboratory (Figure 3-1).

Table 3-6 lists mileage and traffic flow information (average annual daily traffic) for each route. The table also lists information on truck traffic, including combination trucks similar to those that would be likely to supply wood pellets to the Laboratory. These data cover 1991 through 2009.

Traffic Flow

Maine State Road (SR)-3 is the primary entry point to Mount Desert Island, Acadia National Park, and the Laboratory. As Figure 3-2 shows, all vehicular traffic must enter and leave Mount Desert Island by crossing the Thompson Island Bridge. SR-3 is a two-lane highway with wide shoulders and a design capacity of 1,700 passenger cars per hour for each direction of travel (3,200 per hour for both directions) (TRB 2000).

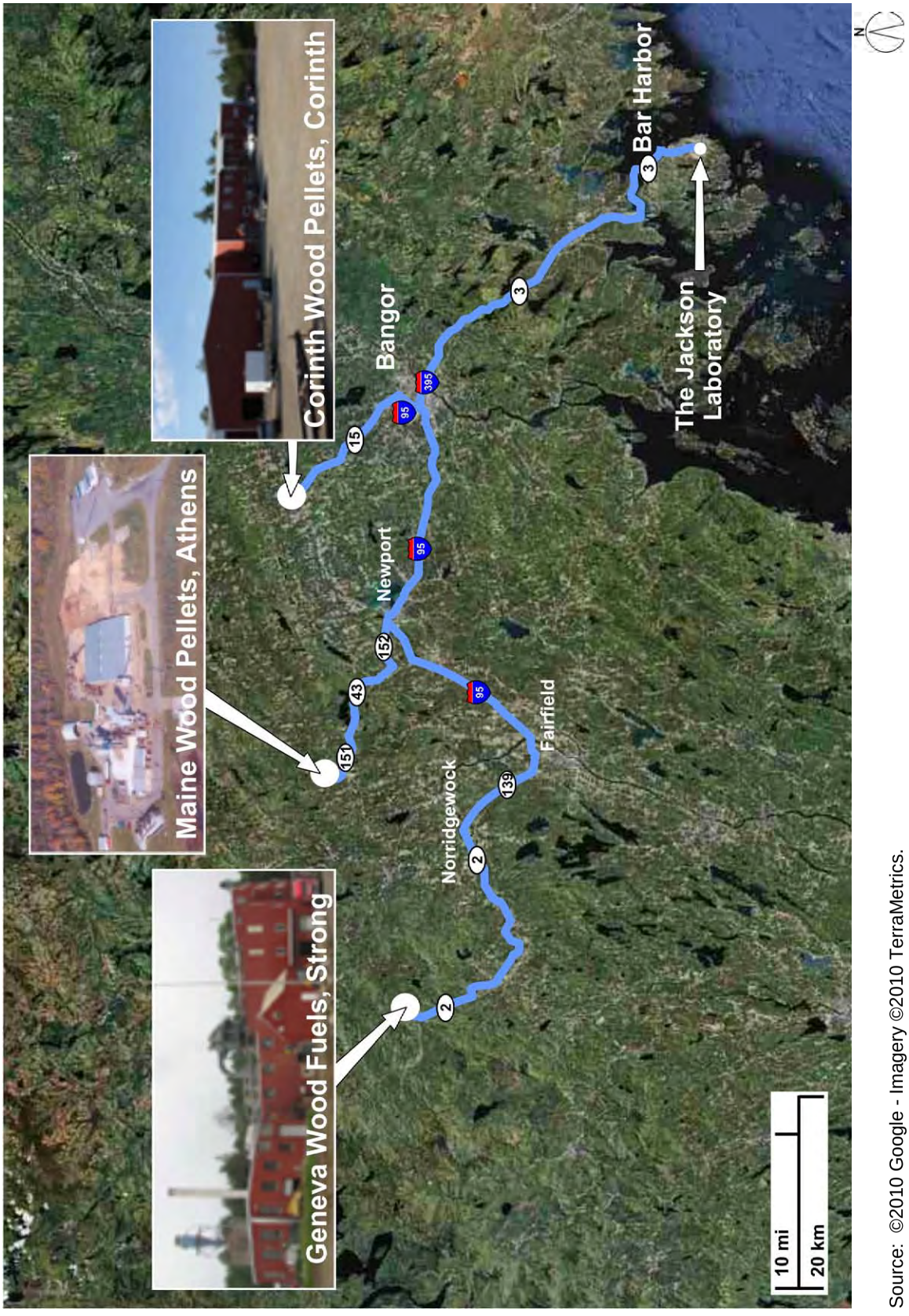


Figure 3-1. Truck routes from representative wood pellet vendors to the Laboratory.

Table 3-6. Average annual daily traffic and associated mileage for vendor routes to the Laboratory.[a]

Route	Distance (miles)	All vehicles				All trucks				Combination trucks			
		Low	High	Average	Miles per year	Low	High	Average	Miles per year	Low	High	Average	Miles per year
Vendor routes													
Athens to Bangor	***46.5***												
SR-151 (includes SR-2 and -11 to I-95)	21.1	1,370	1,410	1,390	10,705,085	19	36	28	215,642	7	10	9	69,314
I-95 (Newport to Bangor – north- and southbound)	25.4	2,490	22,039	14,501	134,438,771	173	1,870	1,418	13,146,278	74	1,347	884	8,195,564
Strong to Bangor	***90.5***												
SR-4 (includes SR-145)	7.7	3,139	6,000	3,797	10,671,469	297	532	336	944,328	40	334	147	413,144
SR-2 (includes SR-139)	33.8	2,050	10,320	5,520	68,100,240	200	1,335	618	7,624,266	124	758	323	3,984,851
I-95 (Fairfield to Newport – north- and southbound)	23.6	1,609	14,120	10,466	90,154,124	1,297	1,824	1,527	13,153,578	907	1,318	1,114	9,595,996
I-95 (Newport to Bangor – north- and southbound)	25.4	2,490	22,039	14,501	134,438,771	173	1,870	1,418	13,146,278	74	1,347	884	8,195,564
East Corinth to Bangor	***20.9***												
SR-15	18.5	8,930	1,230	10,580	71,441,450	420	454	437	2,950,843	159	228	193	1,303,233
I-95 (Broadway to I-395)	2.4	18,860	22,991	20,290	18,514,625	1,605	1,830	1,697	1,548,513	845	1,021	903	823,988
Common route													
Bangor to the Laboratory	***48.9***												
I-395 (I-95 to US-1 – east- and westbound)	4.4	32,000	35,000	33,500	53,801,000	NA	NA	4,000	6,424,000	NA	NA	2,384	3,828,288
SR-1A (Brewer to Ellsworth)	22.8	5,940	20,080	10,979	91,367,238	370	1,592	983	8,180,526	20	650	344	2,862,768
SR-3 (Ellsworth to the Laboratory)[b]	21.7	769	15,371	7,909	62,639,840	24	850	402	3,184,041	2	81	28	219,511

Source: Hanscom 2010.

a. Miles per year = average annual daily traffic averaged over affected routes multiplied by route distance and 365 days per year.

b. Traffic count data provided only for Trenton, Maine, and downtown Bar Harbor. High counts are for Trenton and low counts are for downtown Bar Harbor.

I = Interstate Highway; NA = not readily available; US = U.S. Highway.

Figure 3-2. Mount Desert Island showing the Thompson Island Bridge and the Laboratory along SR-3.

Level of Service

Traffic operations are evaluated in terms of level of service, which is a qualitative measure that designates operations by level. The levels range from A (very little delay) to F (extreme delays). Level of service D is generally acceptable in urban locations, while level of service E is generally the capacity of a road or

intersection and the minimum tolerable level. The level of service for intersections without traffic signals is based on average control delay per vehicle for each minor opposed movement (such as left turns against oncoming traffic) (Table 3-7).

Table 3-7. Level of service at intersections without traffic signals.

Level of service	Delay range (seconds)
A	≤ 10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Source: TRB 2000.

The Laboratory currently employs about 1,200 workers at the Bar Harbor campus. In 2003, the Laboratory commissioned a traffic impact report (CGE 2003) to evaluate the effects of increased traffic from a proposed Laboratory expansion. The expansion was to include 148 additional employees in addition to the 1,250 employees in 2003 (Nicholson 2009). The traffic impact report concluded that changes to the level of service from the higher number of employees would not cause the level of service on local roads to fall below acceptable standards (that is, no lower than D) (see Appendix B).

Traffic Accidents

The analysis for the EA based its determination of injury and fatality rates along the routes of interest on accident data from the Maine Department of Transportation (Costello 2010) for a 3-year period from January 1, 2007, through December 31, 2009. The accident data, together with the mileage for each route from Table 3-8, enables estimates of injuries and fatalities per mile; Table 3-9 lists these estimates. The analysis based the number of accident fatalities that involved large trucks (combination trucks) on data from 2005 through 2009, which indicated that 12 percent of all fatalities in Maine involved large trucks (DOT 2010). The injury and fatality rates for all vehicles along the routes of interest would be about 1.87×10^{-6} (0.00000187) injuries per mile and 2.14×10^{-8} (0.0000000214) fatalities per mile. Fatalities for heavy trucks would be about 1.62×10^{-8} (0.0000000162) per mile.

3.2.2.2.2 Environmental Consequences of the Proposed Project

Construction Impacts

Level of Service. Construction and installation of the wood pellet boiler, the pellet silo, and other support structures would take about 6 months. Fifteen to twenty-five tradesmen would be on the site during construction (Nicholson 2010b). In addition, there would be about one delivery per day to supply the boiler equipment and other materials.

The addition of 15 to 25 construction workers and delivery trucks could result in an increase in average daily traffic of 30 to 50 vehicles (assuming no car-pooling) on the roads near the Laboratory. This would be about 1 to 5 percent of the average annual daily traffic in 2008 for affected roads near the Laboratory (see Table B-5). In addition, construction workers would represent less than 2 percent of the current workforce at the Laboratory. Therefore, potential construction impacts on level of service from these increases would be minimal and temporary (about 6 months).

Table 3-8. Injuries and fatalities on routes of interest.

Route	Accident data January 1, 2007, to December 31, 2009 — 3-year totals					
	Total crashes	Total vehicles involved	Combination trucks involved	Injuries all vehicles	All vehicles injuries per mile	Fatalities all vehicles
Vendor Routes						
Athens to Bangor						
SR-151 (includes SR-2 and -11 to I-95)	154	257	5	47	1.46E-06	0
I-95 (Newport to Bangor – north- and southbound)	464	578	39	176	4.36E-07	2
Strong to Bangor						
SR-4 (includes SR-145)	200	362	9	73	2.28E-06	0
SR-2 (includes SR-139)	312	509	33	112	5.48E-07	3
I-95 (Fairfield to Newport – north- and southbound)	326	385	30	99	3.66E-07	2
I-95 (Newport to Bangor – north- and southbound)	464	578	39	176	4.36E-07	2
East Corinth to Bangor						
SR-15	490	928	8	212	9.89E-07	0
I-95 (Broadway to I-395)	201	364	10	67	1.21E-06	0
Common route						
Bangor to the Laboratory						
I-395 (I-95 to US-1 – east- and westbound)	103	150	0	25	1.55E-07	0
SR-1A (Brewer to Ellsworth)	445	754	8	199	7.26E-07	4
SR-3 (Ellsworth to the Laboratory)	574	1,051	8	208	1.11E-06	3

Source: Costello 2010.
I = Interstate Highway; US = U.S. Highway.

Table 3-9. Additional heavy truck mileage under the proposed project.

Route	Distance (miles)	Additional heavy truck trips per year	Additional heavy truck miles per year
Vendor routes			
Athens to Bangor	***46.5***		
SR-151 (includes SR-2 and -11 to I-95)	21.1	232	4,895
I-95 (Newport to Bangor – north- and southbound)	25.4	232	5,893
Strong to Bangor	***90.5***		
SR-4 (includes SR-145)	7.7	232	1,786
SR-2 (includes SR-139)	33.8	232	7,842
I-95 (Fairfield to Newport – north- and southbound)	23.6	232	5,475
I-95 (Newport to Bangor – north- and southbound)	25.4	232	5,893
East Corinth to Bangor	***20.9***		
SR-15	18.5	232	4,292
I-95 (Broadway to I-395)	2.4	232	580
Common route			
Bangor to the Laboratory	***48.9***		
I-395 (I-95 to US-1 – east- and westbound)	4.4	412	1,813
SR-1A (Brewer to Ellsworth)	22.8	412	9,394
SR-3 (Ellsworth to the Laboratory)	21.7	412	8,940
Total	N/A	N/A	56,803

I = Interstate Highway; N/A = not applicable; US = U.S. Highway.

Traffic Accidents. The addition of as many as 25 construction workers could result in 50 trips per day to and from the Bangor area, a distance of about 50 miles. Over the 6-month construction period, the construction workers would drive a total distance of about 350,000 miles. Based on the injury and fatality rates in Section 3.2.2.2.1 of 1.87×10^{-6} (0.00000187) injuries per mile and 2.14×10^{-8} (0.0000000214) fatalities per mile, the total injuries and fatalities would be less than 1. Therefore, additional traffic injuries or fatalities due to construction activities would be unlikely.

Operations Impacts

Under the proposed project, there would not be an increase in the number of operations employees. Existing employees would oversee the operation of the wood pellet boiler and adjacent buildings (Nicholson 2010b).

In 2009, the Laboratory consumed about 1.5 million gallons of fuel oil per year (Nicholson 2011b). DOE calculated it takes about 178 truck deliveries per year or about 1 delivery every 2 days to deliver this amount of fuel oil. During operations, the wood pellet boiler would offset as much as 1.28 million gallons of fuel oil per year with wood pellets. Based on the information in Appendix B, DOE calculated it would take 2.45 wood pellet trucks to replace 1 fuel oil truck. Therefore, there would be about 348 wood pellet deliveries per year, which would displace 142 fuel oil deliveries.

Level of Service. The increase in traffic along the affected roadways would range from a low of 0.003 percent along Interstate Highways 95 and 395 to a high of 0.05 percent on SR-151 near Athens, Maine (see Table B-9). These small increases in the average annual daily traffic, together with the fact that the fuel delivery trucks would make deliveries only during off-peak hours (7 p.m. to 5 a.m.), would result in minimal impacts to the level of service along these roadways under the proposed project. Therefore, all affected roadways near the Thompson Island Bridge and the Laboratory would continue to have an acceptable level of service.

Traffic Accidents. Table 3-9 lists the increase in heavy truck mileage under the proposed project. These data include consideration of the 142 displaced oil trucks on the roadways from Bangor to the Laboratory. The table indicates the proposed project would require an additional 56,803 heavy truck miles over current fuel deliveries. Using the injury rate for all vehicles of 1.87×10^{-6} (0.00000187) injuries per mile, there would be an estimated additional 0.1 injury per year under the proposed project. In other words, a single traffic injury would be likely about every 9 years.

Using the fatality rate for heavy trucks of 1.62×10^{-8} (0.0000000162) fatalities per mile, there would be an estimated additional 0.0012 fatality per year, or 1 fatality every 800 years. In other words, no additional traffic-related fatalities from operations for the proposed project would be likely.

3.2.2.3 Noise

Noise is defined as unwanted sound (ANSI 2004). It has the potential to interfere with communication, damage hearing and, in many cases, is viewed as an annoyance. Noise can occur at different levels and frequencies dependent on the type of source and the distance from the listener.

The standard unit for measuring sound pressure levels is the *decibel*, A decibel is a unit that describes the amplitude (or difference between levels) of sound, equal to 20 times the logarithm to the base 10 of the ratio of the measured pressure to the reference pressure, which is 20 micropascals. Environmental and occupational sound pressure levels are typically measured on the A-weighted decibel scale (dBA). The A-weighted scale deemphasizes the low- and high-frequency components of sound in a manner similar to

the frequency response of the human ear. Figure 3-3 shows example sound levels of common indoor and outdoor sources.

Common outdoor sound levels	dBA	Common indoor sound levels
Jet flyover at 1,000 feet	110	Rock band
	100	Inside subway train (New York)
Gas lawnmower at 3 feet		
Diesel truck at 50 feet	90	
Noisy urban daytime		Food blender at 3 feet
		Garbage disposal at 3 feet
	80	
		Very loud speech at 3 feet
Gas lawnmower at 100 feet		
	70	
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet		
	60	Large business office
		Quiet speech at 3 feet
		Dishwasher, next room
	50	Small theater, large conference room (background)
Quiet urban nighttime		
	40	
Quiet suburban nighttime		Library
	30	Bedroom at night
Quiet rural nighttime		Concert hall (background)
	20	
		Broadcast and recording studio
	10	
	0	Threshold of hearing

Figure 3-3. Common sound levels.

Various measures are used to evaluate noise. The L_{max} is the maximum noise level over the measurement period, and the L_{eq} (level equivalent) is the energy-averaged noise level over the measurement period. The day-night average sound level is essentially a 24-hour average sound level with a 10-decibel upward adjustment for nighttime sound levels. This adjustment accounts for people's increased sensitivity to noise at night. A third measure, $L_{90,}$ is the noise level exceeded 90-percent of the time within each hour and is generally considered the lowest ambient noise level because it "filters out" short-term noise events.

3.2.2.3.1 Affected Environment

Project activities that would produce noise include construction, operation of the facility, and increased heavy truck traffic to and from the site for wood pellet delivery. The nearest sensitive receptor would be at a residence that is about 1,400 feet away from the proposed Energy Center, and an Acadia National Park boundary is 93 feet from the proposed Energy Center. The area in the vicinity of the project is rural. Local sound sources would include existing activities at the Laboratory as well existing vehicular traffic on SR-3.

DOE collected ambient noise data continuously for 24 hours at three locations near the Laboratory. Figure 3-4 shows the approximate locations of the measurement sites. Sites 1 and 2 are within Acadia National Park and were selected with input from Park staff. Site 1 is at the Champlain overlook along a hiking trail at higher elevation than the laboratory facilities, Site 2 is at a picnic area, and Site 3 is at a residence at 33 Schooner Head Road. These sites were selected to be spatially representative of nearby noise sensitive areas. Figures 3-5 to 3-7 show the results of these ambient noise measurements.

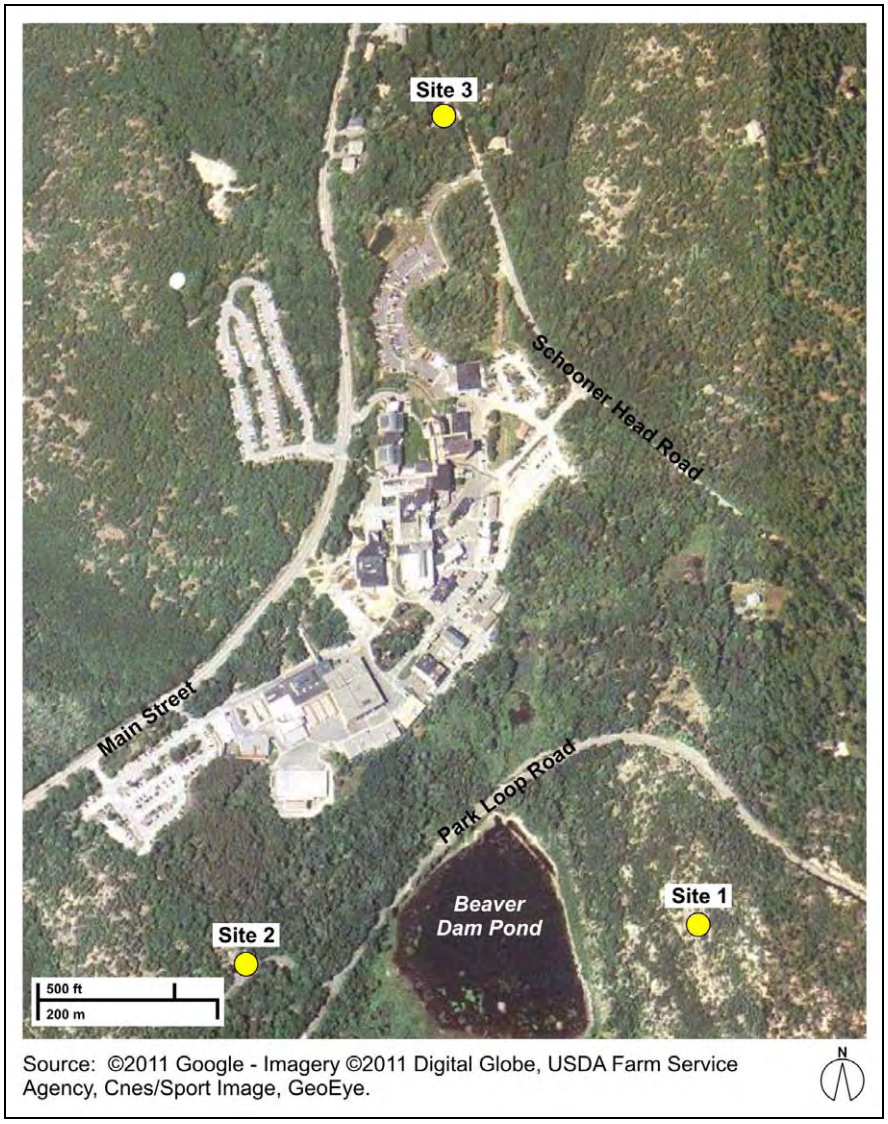


Figure 3-4. Ambient noise monitoring sites.

Figure 3-5 shows the hourly L_{eq} and L_{90} values for each hour at Site 1 (the Champlain overlook). As noted, the L_{eq} is essentially the average noise level over each hour, and the L_{90} is generally considered the lowest ambient noise level. Audible noise sources at this site included air-handling units at Laboratory facilities, backup alarms from forklift operations at the Laboratory, insects, birds, wind, and occasional aircraft. The reason the L_{90} is very close to the L_{eq} is that the air-handling units are the controlling noise source at this site. The day-night average sound level for this measuring site was 51 dBA, which the EPA considers typical of "small town residential" land use.

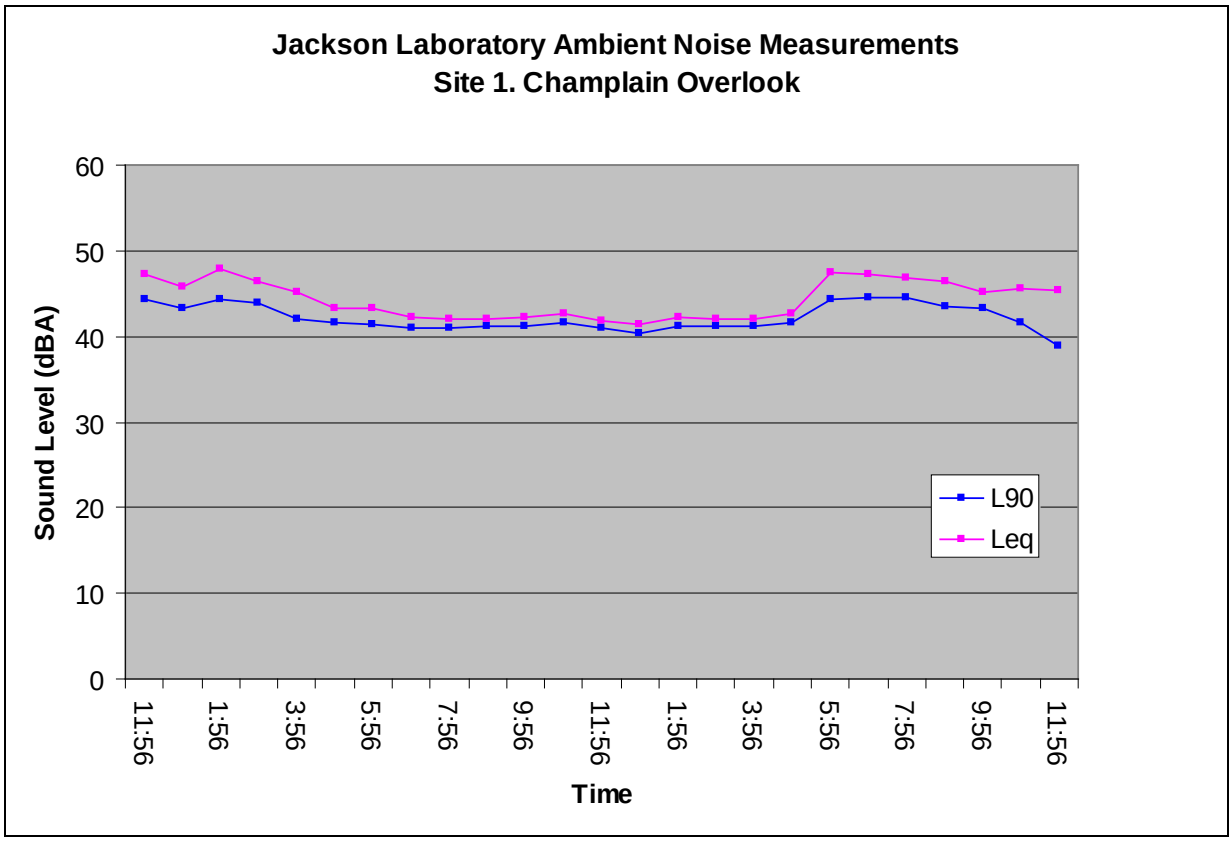


Figure 3-5. Ambient noise measurements, Site 1, Champlain Overlook, Acadia National Park.

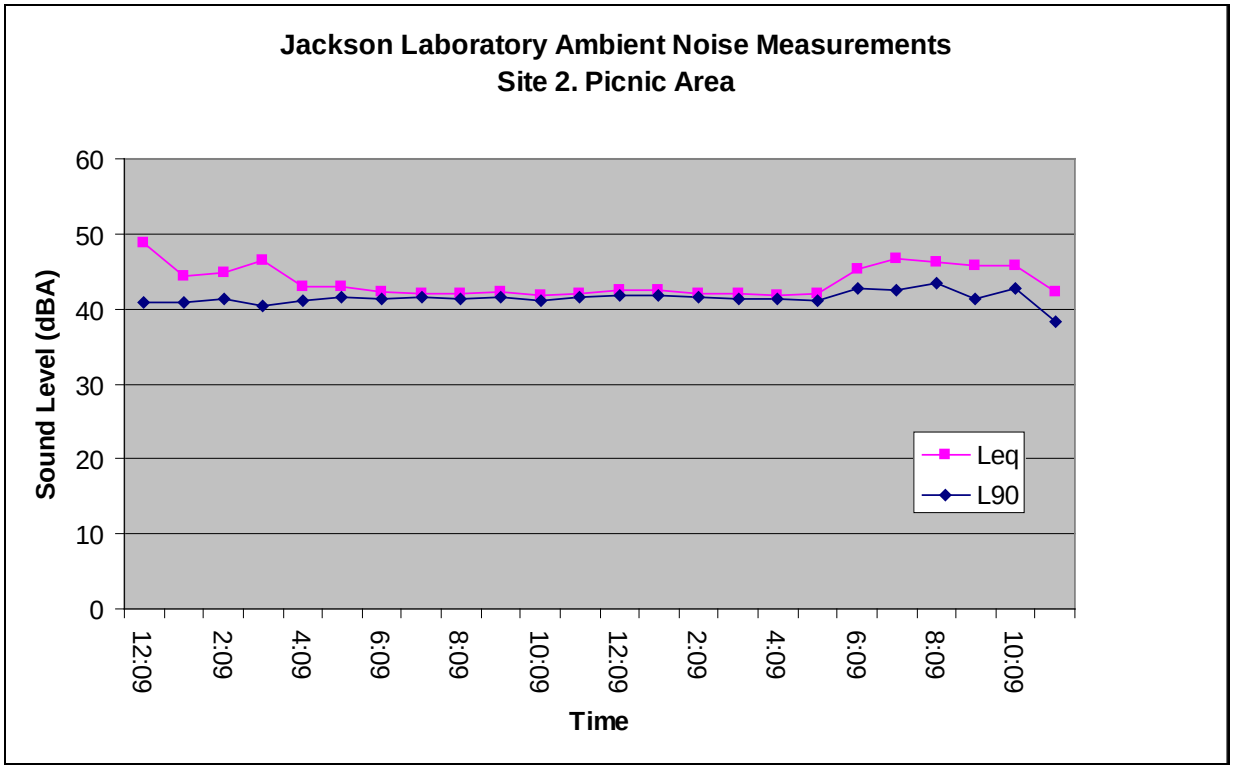


Figure 3-6. Ambient noise measurements, Site 2, Picnic Area, Acadia National Park.

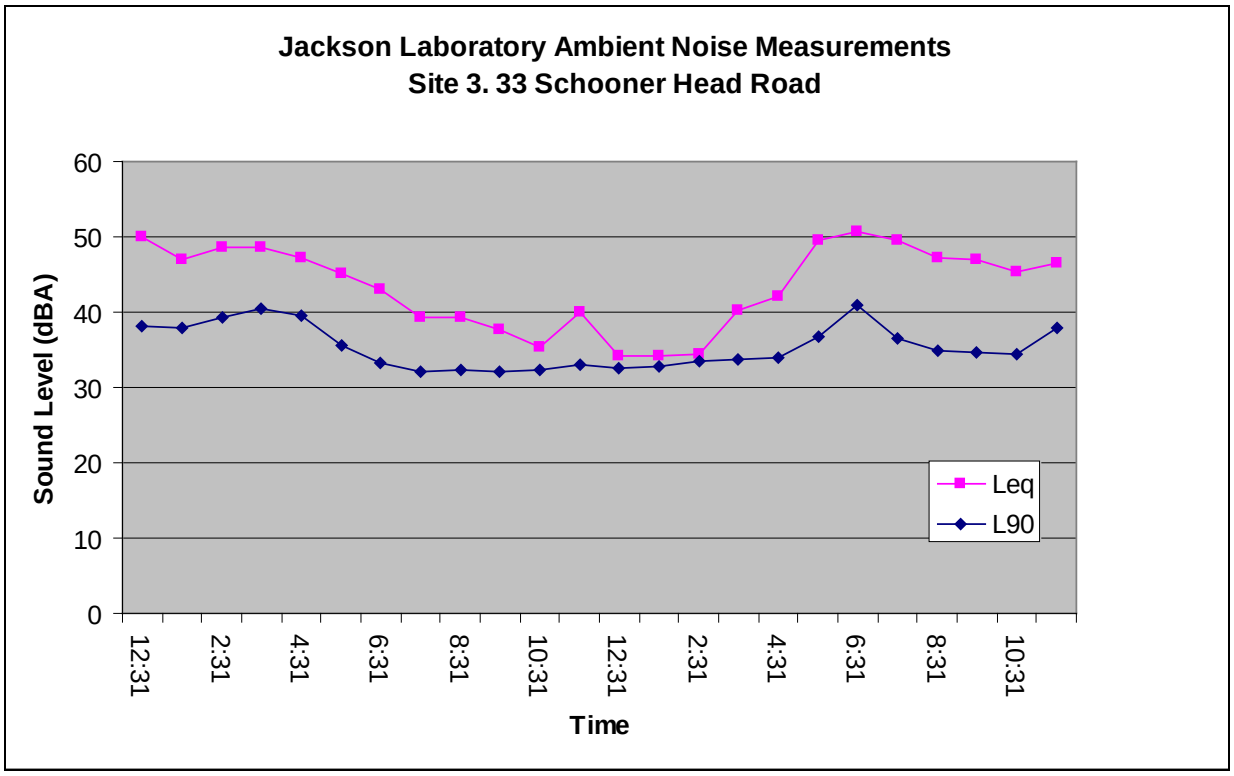


Figure 3-7. Ambient noise measurements, Site 3, residence at 33 Schooner Head Road.

Audible noise sources at Site 2 (the picnic area) were similar to those at Site 1, and the L_{90} is similarly close to the L_{eq} because of the air-handling units. The day-night average sound level for this measuring site was 50 dBA, also typical of "small town residential" land use.

Audible noise sources at Site 3 (the residence) were similar to those at Sites 1 and 2 except that the air-handling unit noise levels were considerably lower. In addition, traffic on Schooner Head Road is very noticeable and is reflected in the L_{eq}, which corresponds with daytime traffic patterns. The day-night average sound level for this measuring site was 51 dBA, also typical of "small town residential" land use.

3.2.2.3.2 Environmental Consequences of the Proposed Project

Construction Impacts

Construction of the proposed Energy Center would result in a temporary increase in noise and vibration.

Construction of the Energy Center would involve the use of heavy construction equipment. Table 3-10 lists typical noise levels for common construction equipment. The table lists L_{max} sound levels at 50 feet along with typical acoustic use factors. The acoustic use factor is the assumed percentage of time each piece of construction equipment would operate at full power (that is, at its noisiest). Use factors yield estimated L_{eq} values from L_{max} values. For example, the L_{eq} value for a piece of equipment that operates at full power 50 percent of the time (acoustical use factor of 50 percent) is 3 dB less than the L_{max} value.

Construction equipment for the proposed project would include an excavator that would result in a noise level of about 77 dBA L_{eq} at 50 feet. Assuming a reduction of 6 decibels per doubling of distance, the noise level at the nearest residence (at about 1,400 feet) would be 48 dBA L_{eq}. Because construction noise would be temporary and intermittent during daytime hours, adverse effects from construction noise

Table 3-10. Typical construction equipment noise levels at 50 feet (dBA).

Equipment	Typical maximum noise level (L_{max}) (dBA)[a]	Acoustical use factor (percent)[a]	Typical equivalent noise level (L_{eq}) (dBA)
Compactor (ground)	83	20%	76
Dozer	82	40%	78
Dump truck	76	40%	72
Excavator	81	40%	77
Generator	81	50%	78
Grader	85	40%	81
Pickup truck	75	40%	71
Warning horn	83	5%	70
Crane	81	16%	73

a. Source: FHWA 2006, Table 9.1.

would not be likely. Construction would not involve highly dynamic equipment, such as a pile driver, that would produce heavy vibration. Given this and the fact that the nearest residence is about 1,400 feet from the site, there would be no adverse vibration impacts from construction.

Operations Impacts

Noise at the Energy Center. The Maine Site Law standards provide the regulatory limits for noise (*Code of Maine Rules*, Department 6, Division 96, Chapter 375, Section 10). For the proposed project, these limits are (1) 75 dBA at the property line and at any protected location in an area for which the zoning (or if unzoned, the existing use or use contemplated under a comprehensive plan) is not predominantly commercial, transportation, or industrial; (2) 60 dBA between 7:00 a.m. and 7:00 p.m. (the daytime hourly limit); and (3) 50 dBA between 7:00 p.m. and 7:00 a.m. (the nighttime hourly limit).

The nearest protected location is Acadia National Park, a boundary of which is about 93 feet from the corner of the proposed Energy Center. During operations, noise-generating equipment would include the baghouse, the system that transfers the pellets from the silo to the boiler, the hammermill that crushes the pellets, the trucks that deliver the fuel pellets, and the system to transfer pellets to the silo. The pellet transfer system and the hammermill would be inside the building in a sound-insulated room. The baghouse would also have noise insulation to guarantee that these noise standards would be met. The noise standards are included in the specifications for the equipment. The new wood pellet boiler would normally replace the function of the existing boilers, which are similarly close to the property line with the park. However, the Laboratory would use the existing boilers to supplement the wood pellet boiler when it was out of service or when its capacity was not sufficient. The noise from the proposed Energy Center would normally replace rather than add to the noise of the existing boilers.

The Laboratory would use the following noise control practices to meet State of Maine and local noise regulations:

- Provide an insulated acoustic enclosure for the fan.
- Use an alternate rotary blower design for the baghouse rather than a noisier pulse-style blowdown device.
- Provide insulated plenums at the louvers to eliminate the direct horizontal sound transmission path.
- If necessary, insulate the silo fill pipe to reduce sound during wood pellet delivery.

Noise along Transportation Routes. Heavy trucks (using the Federal Highway Administration's definition of three axles or more) would deliver fuel pellets to the proposed Energy Center and would increase noise levels along routes to and from it. In addition, deliveries would occur during nighttime hours (7 p.m. to 5 a.m.) when people are more sensitive to noise. Table 3-11 provides a comparison of current traffic levels on the transportation routes and the estimated levels including the proposed wood pellet deliveries.

Table 3-11. Existing and estimated average annual daily traffic volumes.

Route	Average existing volumes[a]			Average estimated volumes		
	All vehicles	All trucks	Heavy trucks	All vehicles	All trucks	Heavy Trucks
Vendor routes						
Athens to Bangor						
SR-151 (includes SR-2 and -11 to I-95)	1,390	28	9	1,391	29	10
I-95 (Newport to Bangor – north- and southbound)	14,501	1,418	884	14,502	1,419	885
Strong to Bangor						
SR-4 (includes SR-145)	3,797	336	147	3,798	337	148
SR-2 (includes SR-139)	5,520	618	323	5,521	619	324
I-95 (Fairfield to Newport – north- and southbound)	10,466	1,527	1,114	10,467	1,528	1,115
I-95 (Newport to Bangor – north- and southbound)	14,501	1,418	884	14,502	1,419	885
East Corinth to Bangor						
SR-15	10,580	437	193	10,581	438	194
I-95 (Broadway to I-395)	20,290	1,697	903	20,291	1,698	904
Common route						
Bangor to the Laboratory						
I-395 (I-95 to US 1 – east- and westbound)	33,500	4,000	2,384	33,502	4,002	2,386
SR-1A (Brewer to Ellsworth)	10,979	983	344	10,981	985	346
SR-3 (Ellsworth to the Laboratory)[b]	7,909	402	28	7,911	404	30

a. Source: Table 3-6.
b. Traffic count data provided only for Trenton, Maine, and downtown Bar Harbor.
I = Interstate Highway; US = U.S. Highway.

Traffic noise is a function of traffic volumes; speeds; the mix of automobiles, medium trucks, and heavy trucks; distance from the roadway; and a number of other factors. The generalized form for the change in noise level due to changes in traffic volume is:

$$\textit{Change in noise level}\ (\text{dB}) = 10 \times \log\ (V_2/V_1) \qquad \text{Equation 3-1}$$

where

V_2 = proposed project traffic volume
V_1 = existing traffic volume

Heavy trucks produce more noise than automobiles or medium trucks. The analysis used source noise level data for heavy trucks, medium trucks, and automobiles from the *FHWA Traffic Noise Model® User's Guide* (FHWA 1998) along with vehicle volumes and day and night traffic levels to estimate the increase in noise level from the introduction of the additional project-related heavy trucks. Because of the relatively high existing traffic volumes and low numbers of project-related trucks, increases in traffic

noise level would be less than 1 dB. A 3-decibel increase is generally noticeable for most people, so the increase in traffic noise of 1 dB would be negligible.

3.2.2.4 Aesthetics and Visual Resources

3.2.2.4.1 Affected Environment

This section describes the visual setting of the existing environment as well as the potential for visual impacts associated with the proposed Energy Center. In the broadest sense, visual resources are the visible features that make up the landscape: the landforms, the vegetation, the water bodies, and human development patterns (DeWan 2008).

The Laboratory campus and parking lot (about 4.4 miles south of downtown Bar Harbor) are prominent features within the local landscape. Figure 3-8 is a satellite view showing the extent of development at the Laboratory and the nearby borders of the Acadia National Park. Figure 3-9 shows the visible features of the Laboratory, which include a mix of multistory industrial buildings, modular buildings, and asphalt parking areas; the proposed project would occupy part of the area of Building 45 and an open area to the left of the building. Structural materials and building colors are primarily earth tones that help reduce visual impacts.

Figure 3-8. Satellite view of the Laboratory facilities and surrounding area.

Figure 3-9. Existing character of the Laboratory as seen from Acadia National Park (Nicholson 2010a).

Just outside of the campus, the landscape transitions to mixed coniferous-deciduous forest on foothills that rise to the surrounding mountains of Acadia National Park. The woodland provides a partial visual barrier to the campus for travelers along SR-3 and visitors in the surrounding Acadia National Park. The woodland also provides a dense visual buffer for nearby residences, the closest of which is about 1,400 feet away.

Night Sky. In many places, the night sky and natural darkness are becoming lost in the glow of artificial lights and many people seek protected lands, such as National Parks, to experience this resource. The National Park Service, the State of Maine, and the Town of Bar Harbor place a high value on the darkness of the night.

The primary cause of light pollution is outdoor lights that aim upwards or sideways. The light is dispersed into the atmosphere where it can brighten the night sky and diminish the natural lightscape.

Even a single light can be disruptive. While one light might not affect the entire night sky, the bright point source of light can annoy neighbors, reduce perceptions of solitude and naturalness, and spoil cultural landscapes.

NPS defines light pollution as (NPS 2007a):

> *Principally, the illumination of the night sky caused by artificial light sources, decreasing the visibility of stars and other natural sky phenomena. Also includes other incidental or obtrusive aspects of outdoor lighting such as glare, trespass into areas not needing lighting, use in areas where or at times when lighting is not needed, and disturbance of the natural nighttime landscape.*

The Town of Bar Harbor has taken steps to reduce local light pollution. The Bar Harbor Lighting Ordinance (Chapter 125 of the Town Code) established minimum requirements for outdoor lighting that increase visibility and public safety while controlling glare and light intrusion on adjacent properties and the natural environment. The ordinance includes lighting requirements that incorporate dark sky lighting standards such as the use of full cutoff fixtures and other best practices, following the principles set forth by the International Dark-Sky Association.

The International Dark-Sky Association is an international nonprofit organization that works to educate the public about the adverse effects of light pollution and preservation of the nighttime environment of dark skies through quality outdoor lighting. The Association's Night Sky Friendly Lighting Principals include the use of outdoor cutoff lights only where necessary (NPS 2007b).

3.2.2.4.2 Environmental Consequences of the Proposed Project

The proposed Energy Center includes construction of a 37-foot tall, 4,400 square-foot steel-framed structure that would house the boiler and its components. In addition, the proposed project would include an exterior pellet storage silo that would be about 39 feet tall and 33 feet in diameter (about 860 square feet). There would be a 37-foot tall baghouse outside the Energy Center building to capture the wood pellet ash with an attached 60-foot chimneystack to vent the combustion gases. The simulation in Figure 3-10 shows the campus with the proposed Energy Center as viewed from the Park Loop Road in nearby Acadia National Park.

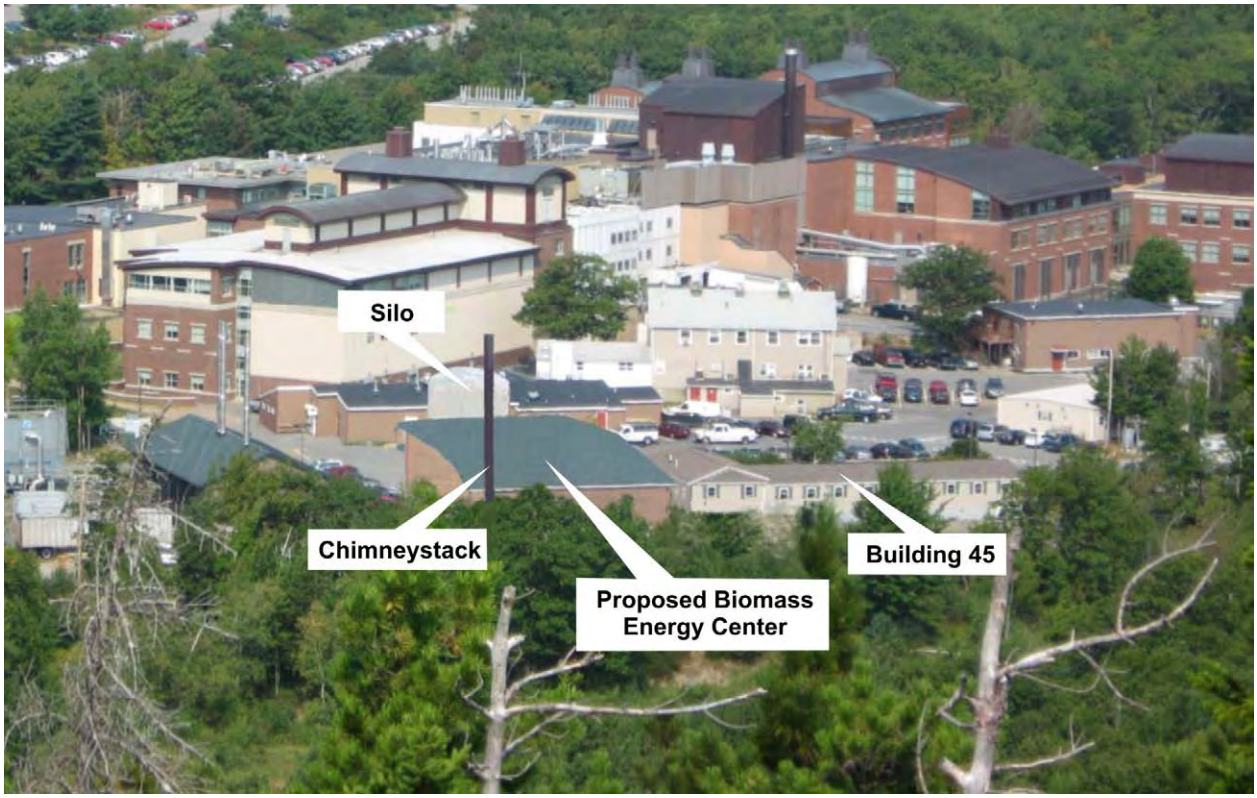


Figure 3-10. Simulated view with proposed Energy Center (Nicholson 2010a).

The tallest building associated with the Energy Center would be 39 feet high, which would be below the 40-foot height limit in the Town ordinance standards for building height (Town of Bar Harbor Code, Chapter 125).

Construction Impacts

The proposed project would cause short-term impacts from ground disturbance, the presence of construction equipment for the partial demolition of Building 45, and the construction of the Energy Center. The construction activity would be most visible in the existing campus and from the portion of the Park Loop Road nearest the Laboratory. However, construction activities would be short term, and impacts to visual resources would therefore be short term. Construction activities for the new Energy Center would end by 5:00 p.m. every day, so there would be no impacts to dark skies during construction (Burdzel 2011).

Operations Impacts

The proposed Energy Center would be similar in appearance to existing buildings and would not change the general appearance of the campus. It would be visible from Acadia National Park, particularly from the Park Loop Road and the nearby Champlain North Ridge Trail and Beachcroft Path hiking trails. However, the change in the character of the existing views would be minor because the building design is synchronous with the surrounding Laboratory structures. The most noticeable feature would be the 60-foot chimneystack. The Energy Center would not be visible from SR-3 or nearby residences due to the intervening woodlands.

Night Sky. There are currently seven pole lights within 50 to 60 feet of Building 45, including one pole-mounted light on the east side of the building and two others on the south side that have an unobstructed view from the Acadia National Park (W&C 2010). The Laboratory would remove one pole light for construction of the proposed Energy Center. The proposed Energy Center would include installation of four new wall-mounted fixtures. Lights would be installed at the main north and south entrance doors, the equipment bay door, and at the dumpster bay door (W&C 2010, Exhibit 20). None of these lights would directly face Acadia National Park. The lights would be full cutoff fixtures that are dark sky compliant and would provide adequate light for the proposed use of the area. The new fixtures would meet the Bar Harbor Lighting Ordinance requirements and are International Dark-Sky Association-approved.

The Laboratory has made several commitments to minimize visual impacts from construction of the proposed Energy Center (Nicholson 2010b,c,d, 2011a):

- Provide a building that is earth tone in nature and more specifically medium or dark brown in color with dark green metal panel roofing to match as close as possible the adjacent Building 45 emergency generator facility.

- Minimize the use of reflective surfaces on the building and equipment.

- Equipment next to the proposed plant would be selected from the manufacturers' standard color offerings. The Laboratory would choose a neutral to earth tone color to be consistent with the Laboratory's existing building colors.

- Plant seven 4-foot white pine trees on the east side of the proposed Energy Center, which when mature would provide buffering and screening of exterior equipment. Figure 3-11 shows the planned locations of the trees.

- Use only full cutoff exterior lighting fixtures on and around the proposed Energy Center with minimal use of LED bulbs and provide only enough fixtures to provide the light necessary for safety and security.

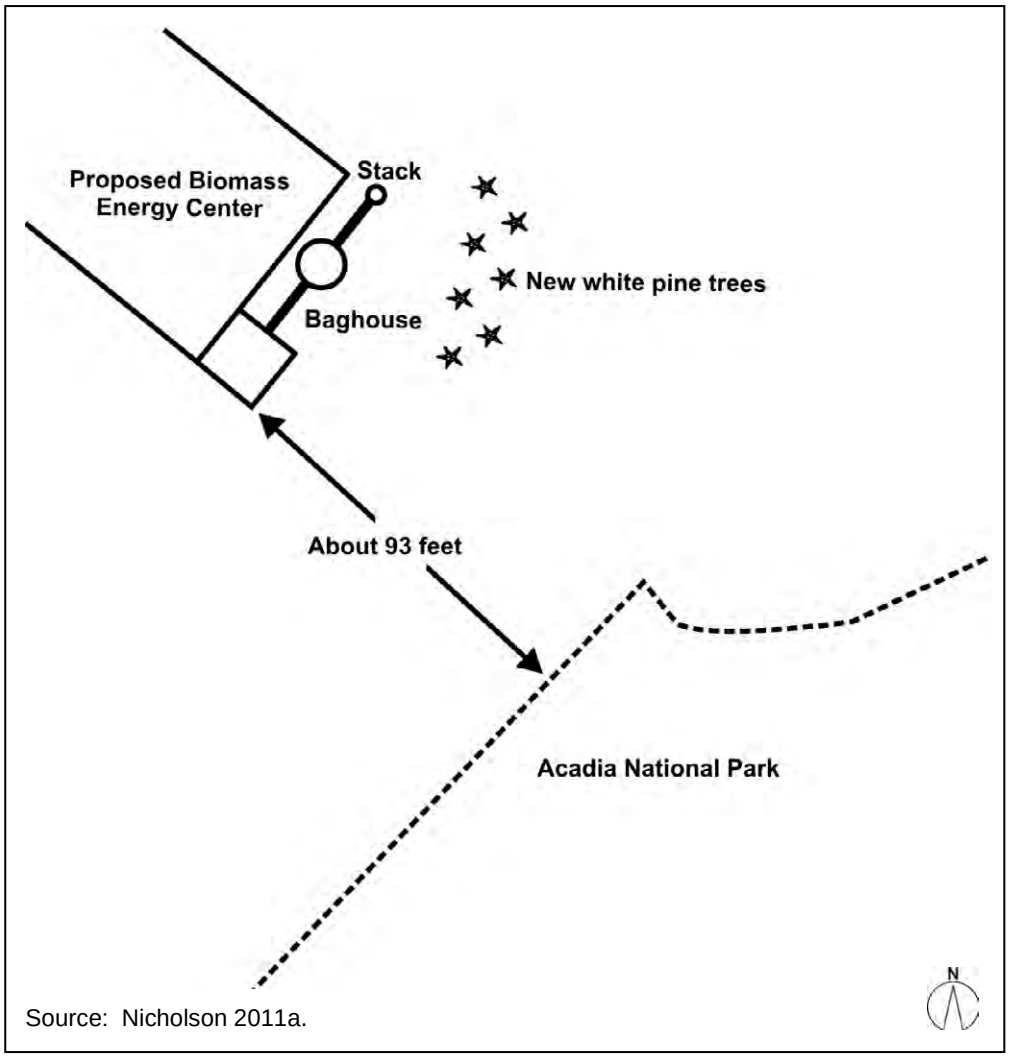


Figure 3-11. New tree planting.

Every Laboratory project that involves changes to the landscape undergoes review and requires approval by the Bar Harbor Planning Board. The Board has completed its review process and has approved the proposed Energy Center (Section 1.4).

Because of the relatively low population density, the distance from most observers, and the general use of this area for commercial and industrial purposes, the addition of the new structures would not result in unacceptable impacts to aesthetics.

3.2.2.5 Historic and Cultural Resources

NEPA Requirements

NEPA establishes the Federal policy of protecting important historic, cultural, and natural aspects of our national heritage during Federal project planning and obligates Federal agencies to consider the environmental consequences and costs of their projects and programs as part of the planning process. All Federal or Federally assisted projects requiring action pursuant to Section 102 of NEPA must take into account the effects on cultural resources.

In considering whether an action might "significantly affect the quality of the human environment," NEPA regulations require an agency to consider, among other things, unique characteristics of the geographic area such as proximity to historic or cultural resources and the degree to which the action could adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the *National Register of Historic Places* (40 CFR 1508.27).

The NEPA regulations also require that, to the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with environmental impact analyses and related surveys and studies required by the National Historic Preservation Act [40 CFR 1502.25(a)].

Section 106 of the National Historic Preservation Act

The National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.) establishes the Federal government policy on historic preservation and the programs, including the National Register, through which the policy is implemented. Under the Act, historic properties include any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register (16 U.S.C. 470w).

Section 106 requires that impacts on significant cultural resources, hereafter called historic properties, be taken into consideration in any Federal undertaking. "*Historic property* means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the *National Register of Historic Places* maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria" (36 CFR 800.16).

The Section 106 process contains five steps:

- Initiate the Section 106 process,
- Identify historic properties,
- Assess potential adverse effects,
- Resolve adverse effects, and
- Implement the project.

Significance Criteria

NEPA and the National Historic Preservation Act require Federal agencies to consider the effect of their undertakings on significant resources, known as historic properties. The Federal significance of an archaeological site or an architectural resource is defined by its inclusion in the National Register, which requires a resource to meet certain *significance criteria.* These criteria state that a resource must be at least 50 years old (unless meeting exceptional criteria) and possess the quality of significance in American history, architecture, archaeology, engineering, and culture and is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet one or more of the following criteria (36 CFR 60.4):

A. Is associated with events that have made a significant contribution to the broad patterns of history;

B. Is associated with the lives of persons significant in the past;

C. Embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or

D. Has yielded, or may be likely to yield, information important in prehistory or history.

If a particular resource meets one of these criteria and retains integrity, it is considered as an eligible "historic property" for listing in the National Register.

Application of the Criteria of Adverse Effect

To comply with Section 106 of the National Historic Preservation Act, any effects of the proposed undertaking on properties listed in or determined eligible for inclusion in the National Register must be analyzed by applying the criteria of adverse effect (36 CFR 800.5), as follows:

An adverse effect is found when an undertaking could alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Adverse effects on historic properties include, but are not limited to:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
- Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long term preservation of the property's historic significance.

In a letter on November 15, 2010 (Appendix A), NPS identified three historic properties in close proximity to the proposed project:

1. Champlain North Ridge Trail hiking trail,
2. Beachcroft Path hiking trail, and
3. Park Loop Road.

DOE also conducted a review of the National Register database for the presence of previously identified cultural resources in or near the project area. The database lists historic resources for the project area but does not yet contain detailed information. DOE also reviewed *Historic Resources of Acadia National Park Multiple Property Listing* (NPS 2005) and *General Management Plan, Acadia National Park, Maine* (NPS 1992), as described in the following sections.

3.2.2.5.1 Affected Environment

DOE determined that the APE would consist of The Jackson Laboratory campus area that would be directly affected by construction activities including demolition of portions of Building 45 and construction of the proposed Energy Center building, pellet storage silo, baghouse, and chimneystack. Because the Energy Center would be near the boundary with the Acadia National Park (about 93 feet), DOE determined the APE also extends to the area of visual and audible influence of the proposed Energy Center on historic resources in the Park.

Native Americans inhabited Mt. Desert Island as long as 6,000 years ago, but diseases brought by early European explorers in the early 1600s devastated many Native American communities. The French and British battled for control and, after 150 years, British troops triumphed and settled the land to live off the diverse natural resources. In the mid-1800s, artists began to paint the dramatic scenery that advertised the beauties of Mt. Desert Island. Outsiders were drawn to the scenic nature to hike the mountains and developed Acadia's earliest recreational trail system. As the appeal of the island spread, it became a summer retreat for socially and politically prominent people who worked to protect the land and preserve public access. Acadia National Park was the first National Park established east of the Mississippi (NPS 1992).

In 1984, NPS conducted an inventory of buildings at Acadia National Park. The inventory identified 169 structures, many of which are now listed in or eligible for inclusion in the *National Register of Historic Places* (NPS 1992). Most of these are beyond the APE, but three are close to the Laboratory. These include the Park Loop Road, the Champlain North Ridge Trail, and the Beachcroft Path. The Park Loop Road is part of the Acadia All American Road, which is designated by the Federal Highway Administration as a National Scenic Byway (see the NPS scoping response in Appendix A).

Hiking Trails. In the late 1800s, attracted by the island's natural beauty, prominent people such as the Rockefellers, Morgans, Fords, Vanderbilts, Carnegies, and Astors began to spend their summers on Mount Desert Island. To promote interaction with and enjoyment of the natural landscape, village improvement associations and societies sponsored construction of over 120 miles of trails in the park. Innovative trail construction such as stone stairways and iron rung ladders helped hikers traverse cliffs, talus slopes, and steep mountains. With the introduction of the automobile to the island, footpaths and trails were abandoned. However, in 1933 the Civilian Conservation Core rehabilitated the trails; today's hikers can follow the same trails to enjoy the scenic landscape. The hiking trails were determined eligible for listing in the National Register in 2001 (NPS 2005).

Hiking trails in the park have significance in relation to the National Historic Preservation Act at the local level and qualify for listing in the National Register under both Criteria A and C. In relation to Criterion A, the trails are noteworthy examples of landscape enhancements completed by village improvement groups in New England in the late nineteenth and early twentieth centuries. This system is also significant because it provided an impetus for creating the first organized land conservation group on the island—the Hancock County Trustees for Public Reservations. The trails are also reflective of the Picturesque Style, and as such they are eligible under Criterion C. Many of the features now common to the hiking trail system as a whole, including stone staircases, stepping stones, and flat paving, were initially achieved on the hiking trails (NPS 2005).

Motor Roads. Between 1913 and 1940, philanthropist John D. Rockefeller, Jr., planned and financed the construction of 57 miles of rustic carriage roads that wind through the eastern half of Mount Desert Island. He designed the roads to blend harmoniously with the natural surroundings to preserve scenic views of the mountains and the sea. Although he initially opposed the use of automobiles on the Island, Rockefeller saw they were inevitable he funded the first park road for automobiles. Other segments of the road network were constructed through collaboration with NPS, the U.S. Department of Agriculture, and the Bureau of Public Roads. The integrated system of roads allows visitors to enjoy the diverse scenery from their vehicles. The motor roads were designed to blend with the surrounding landscape. Several segments of the motor roads are known now as Park Loop Road. The motor road system was determined eligible for listing in the *National Register of Historic Places* in 1993 (NPS 2005).

Areas that have significance in relation to the National Historic Preservation Act include conservation, recreation, transportation, architecture, landscape architecture, and engineering. The motor roads are significant at the national level and eligible for the National Register under Criteria A, B, and C. Under Criterion A, the motor roads are illustrative of the NPS system-wide goal of providing public access while seeking to conserve the natural beauty of the parks. Under Criterion B, this resource is significant as an example of Rockefeller's interest in the construction and beautification of roads in the National Parks, his collaborative efforts with the NPS, and his philanthropic contributions. Under Criterion C, the motor roads are excellent examples of Rustic Design, a harmonious combination of the Picturesque Style and the Rustic Design standards developed by the NPS. In addition, the motor road system is distinctive in its relationship with both the natural topography and the other circulation systems. At Acadia National Park, the motor roads are woven into the existing network of hiking trails and carriage roads, creating distinctly separate circulation systems (NPS 2005).

The National Register includes 20 facilities and 1 historic district in Bar Harbor, Maine. None are in the APE of the proposed project. The closest, the Nannau Seaside Bed and Breakfast, built in 1904 as a summer cottage, is more than a quarter-mile north of the Laboratory. There are no listed historic archeological sites (Garret 2006).

3.2.2.5.2 Environmental Consequences of the Proposed Project

The mission of Acadia National Park is to protect and preserve outstanding scenic, natural, scientific, and cultural values for present and future generations, and to provide programs and opportunities for nonconsumptive, resource-based recreation and education (NPS 2005). In relation to the historic and cultural resources, the objective is to protect, preserve, and restore, as appropriate, the cultural heritage of the park. Management goals for park visitors includes provision of high-quality, resource-related visitor experiences and preservation of opportunities for recreational activities that range from high to low density and solitude.

In its scoping response for this EA, NPS stated:

> *According to a visitor survey conducted in 2009, the park resources/attributes receiving the highest combined proportions of "extremely important" and "very important" ratings included clean air/visibility (98%), scenic views (96%), natural quiet/sounds of nature (92%), and dark/starry sky (77%). The park facilities receiving the highest combined proportions of "extremely important" and "very important" ratings included hiking trails (95%) and the Park Loop Road (91%)* (Appendix A).

Construction Impacts

There are no cultural, archaeological, or historic resources eligible for listing in the National Register on the Laboratory property. Therefore, there would be no direct impacts to cultural resources during construction. No construction would occur in Acadia National Park.

The proposed project would cause short-term visual impacts from ground disturbance, construction equipment for the partial demolition of Building 45, and construction of the proposed Energy Center. The construction activity would be most visible from within the existing campus and from the portion of the Park Loop Road nearest the Laboratory. However, construction activities would be limited in duration and have only short-term visual impacts to the Park Loop Road, the Champlain North Ridge Trail, and the Beachcroft Trail. Construction noise would also be limited in duration and have only short-term impacts to these cultural resources. Fugitive dust emissions due to construction activities would end on completion of construction.

Operations Impacts

Potential impacts to cultural resources would include air quality, visual, and noise impacts to a Class I area.

There are no cultural, archaeological, or historic resources listed or eligible for listing in the National Register on the Laboratory property. Therefore, there would be no direct impacts to cultural resources.

Air Quality. Under the Clean Air Act, the Laboratory is a minor source whose emissions are insignificant by definition and whose effects on air quality are negligible (Cone 2011). Because the Laboratory would remain a minor source, emissions and associated air quality and visibility impacts during operations including the proposed project would be negligible in relation to the regulatory requirements for Class I areas within 50 kilometers of the site (that is, Acadia National Park). Although visibility impacts would be negligible, the air permit from MDEP provides stipulations on visibility requirements that the Laboratory must meet.

Visual Resources. Potential visual effects would include the landscape setting and the visual contrast of the proposed Energy Center to the setting. Vegetation and topography hide much of the Laboratory campus from the Park Loop Road, but for about a quarter-mile stretch the campus is a prominent feature of the landscape (Figure 3-9). The campus is also visible from many places along the hiking trails. The proposed Energy Center would add to the industrial look of the campus as the simulation in Figure 3-10 shows, but the addition would be similar in nature to other existing buildings. The 60-foot chimneystack would be the most prominent new feature.

The Laboratory has worked with the NPS to minimize visual impacts by painting buildings in earth tone colors such as dark green colors on roofs and by minimizing the use of reflective materials to help blend the campus into the surrounding landscape (Section 3.2.2.4.2). The Laboratory would also use full cutoff lighting to minimize impacts to the night sky.

Noise. Potential noise effects would include the introduction of audible elements that would potentially diminish the integrity of the park's significant historic features. There are no established noise evaluation criteria for historic properties under Section 106 regulations, under CEQ NEPA regulations, or from the NPS. Therefore, the Maine Site Law standards (Chapter 375) provide the regulatory limits for noise.

Noise from current activities at the Laboratory campus is audible as a hum on the nearby portions of Park Loop Road and the hiking trails (Kelly 2011). The Laboratory would use the sound control practices described in Section 3.2.2.3.2 of this EA to meet local noise regulations.

On August 2, 2010, the Laboratory's engineering and science contractor requested the Maine Historic Preservation Commission to provide comments on the proposed project. On August 10, 2010, the SHPO concluded, "There will be no historic properties affected by the proposed undertaking." Appendix A contains a copy of the letter.

DOE initiated consultation with the Maine SHPO on October 20, 2010. DOE identified the APE as the project site on the Laboratory campus as well as DOE's intent to prepare an EA. Based on the SHPO's August 10, 2010, letter to Woodard & Curran, DOE concluded that there are no known or proposed historic properties within the project APE. In response to DOE's letter, the SHPO forwarded the August 10, 2010, letter to Woodard & Curran (Appendix A) that concluded there would be no historic properties affected by the proposed undertaking.

In a letter on November 15, 2010, the NPS requested the EA address potential impacts to three historic properties in the park including the Park Loop Road, Champlain North Ridge Trail, and Beachcroft Path. DOE expanded the APE to include these concerns, as addressed above. DOE also sent letters to the following four American Indian tribes with potential interests in the area to inform them of the proposed project and request comments: Houlton Band of Maliseet Indians, Penobscot Indian Nation, Aroostook Band of Micmacs, and Passamaquoddy Tribe. The Penobscot Indian Nation replied to indicate the proposed project would appear to have no impact on a structure or site of historic, architectural, or archaeological significance to the Penobscot Nation. The Passamaquoddy Tribe replied to indicate the proposed project would not have any impact on the tribe's cultural and historical concerns. As of the date of publication of this EA, the Houlton Band of Maliseet Indians and the Aroostook Band of Micmacs had not responded to DOE.

Based on the above, DOE has concluded that there would be a minor impact to visual resources because the existing campus is already a prominent feature in the landscape and the Laboratory has committed to measures that would help merge the appearance of the proposed Energy Center with other structures on the campus (Section 3.2.2.4.2). The proposed Energy Center would have negligible impacts to air quality, and noise levels would be indistinguishable from existing conditions (Sections 3.2.2.1.2 and 3.2.2.3.2). Therefore, DOE has determined there would be no significant adverse effects on cultural and historic resources.

3.2.3 Unavoidable Adverse Impacts

Site preparation could result in some wildlife deaths and temporary relocation of wildlife due to construction activity and noise. There would be increases in emissions of nitrogen oxides, carbon monoxide, particulate matter, and volatile organic compounds. There would be minimal noise and visual impacts to users of the Acadia National Park hiking trails and the Park Loop Road that pass the proposed project area. The Energy Center would contribute minimal incremental noise levels to the ambient background noise levels in the local area. The Energy Center would result in a minimal alteration to the existing visual landscape because of the addition of a building on the Laboratory campus as well as the height of the chimneystack and silo.

3.2.4 Relationship Between Local Short-Term Uses of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity

Short-term uses of the environment in the context of this proposed project would encompass the operational life of the Energy Center. Long-term productivity refers to the period after decommissioning and removal of the facility. The short-term use of the environment would not affect long-term productivity.

In the short term, the proposed project would require the use of the land on which the Energy Center would stand and the resources necessary to operate and maintain the facility such as lubricants and 11,000 tons per year of wood pellets. Wood pellets are a sustainable resource in the region, so there would be no effect on long-term productivity. Once the Energy Center had served its operational life, the Laboratory could dismantle and remove it, then return the site to its natural state or use it for another purpose.

3.2.5 Irreversible and Irretrievable Commitment of Resources

The proposed project would result in the irreversible commitment of resources necessary to construct the Energy Center, fabricate the biomass system components, prepare the site, install the system, and provide maintenance for its operational life. These materials would consist of concrete, gravel, vehicle fuels, lubricants, electricity, water, metals, and composite materials. The expenditure of Recovery Act funding from DOE would also be irreversible. The Energy Center site would represent an irretrievable commitment of land during its operational life.

4. CUMULATIVE IMPACTS

The CEQ regulations that implement NEPA require assessment of cumulative impacts in the decisionmaking process for Federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7).

DOE determined the cumulative impacts for this assessment by combining the impacts of other past, present, and reasonably foreseeable future actions with those of the proposed project. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects in the area. Past environmental impacts have already passed through the environment or are captured as part of the existing baseline conditions as given in Chapter 3. Ongoing and reasonably foreseeable projects in the vicinity include possible subsequent phases of commercial or recreational development activities in the area of the proposed project, possible Maine Department of Transportation improvements to SR-3 between Ellsworth and Bar Harbor, and completion of the Acadia Gateway Center on SR-3 near Trenton.

The Jackson Laboratory Master Plan

In 2007, the Laboratory issued a 10-year master plan for campus facilities. Figure 4-1 shows the property as of 2007, and Figure 4-2 shows the master plan, in which brown indicates existing buildings and orange indicates new or replacement buildings. As the figures show, the planned changes are primarily internal to the main campus and would involve building replacements, additions, and removals that would create more green space than currently exists. In 2010, the Laboratory built the Bio-Containment Facility in the area of parking lot E (the central potential site in Figure 4-2; the other sites will not be used).

The only proposed expansions outside the boundaries of the existing development are for an additional parking lot next to lot B and a new operations village to the west of the existing facilities. The Laboratory has not yet built the operations village, but both the Town of Bar Harbor and MDEP have approved permits for it.

Features of the plan for the existing campus include (Nicholson 2011a):

- A modified visitor's entry on the west side of campus to include a circular drive, drop-off court, enhanced lobby, and a new conference center;
- An enlarged science services building at the north end of the campus and a new building to house research activities;
- A new warehouse and materials management center and a parking garage off Schooner Head Road.
- A new service road to a new central physical plant, the enhanced JAX Mice and Services production facilities, and loading docks in the core campus area;
- A new telephone and information technology center and administrative space on the west side of the service road;

Source: Nicholson 2011a.

Figure 4-1. Existing facilities.

Brown indicates existing buildings. Orange indicates new or replacement buildings.

Source: Nicholson 2011a.

Figure 4-2. Planned facilities.

- A new genetic resource science and administrative building between the core campus and the production facilities; and

- Removal of parking from the core campus to return the area between the new service road and the core campus to green space.

The proposed parking expansion next to Lot B and the operations village would be on land that is directly adjacent to Acadia National Park. If this expansion occurs, potential impacts from noise and to aesthetics might require design measures in terms of noise controls, vegetative screening, and cutoff lighting similar to that for the proposed Energy Center.

In general, new construction, modification, and consolidation would result in temporary increases in traffic volumes from the delivery of construction materials and construction waste. There would be temporary increases in noise from construction activities. Impacts to air quality from construction equipment and increased vehicle activity would be minimal and short term. The Laboratory would minimize the potential for soil erosion and sedimentation during construction through the use of design features and best management practices. The new and modified facilities would blend in with the existing facilities with muted natural colors and roofs and minimal lighting. Impacts to cultural and historic resources in Acadia National Park would be similar to those for the proposed Energy Center.

DOE expects the potential for impacts to health and safety from construction activities and normal operations would be within industry averages. DOE expects minimal but positive impacts to socioeconomics in the region and no impacts to environmental justice. No impacts to public services, water supply, or waste landfill capacities would be likely.

Transportation

The assessment of traffic impacts from the proposed project considered past and existing traffic volumes and the potential for future traffic growth along the affected routes and therefore considered other past, present, and reasonably foreseeable development in the project area.

Average annual daily traffic volumes in the project area have been declining since about 2003 (Tables B-3 and B-5). These declines can likely be attributed to several causes: (1) decreasing populations, (2) negative employment growth, and (3) increasing use of intermodal transportation.

Although the State of Maine gained about 7 percent in overall population between 1990 and 2009, the Town of Bar Harbor lost about 5 percent of its population (about 135 residents) (CLR 2010). Most of these individuals commuted to work by automobile and the affected households had one or more automobiles (City-Data 2010), which resulted in somewhat lower traffic volumes on the routes in the project area. Hancock County had no population increase since about 2003 (USCB 2010). This could be due to a decrease in employment in the county since 2006, which fell nearly 4 percent from 2008 to 2009 (FDIC 2010).

The largest decrease in traffic volumes on roads in the area of the proposed project area has been the increase in ridership of the intermodal transit that serves Mount Desert Island and the Acadia National Park during the summer months. Since its inception, average daily ridership has increased from about 1,900 in 1999 to nearly 5,000 in 2008 (TTI and CS 2009). Assuming an average of just under three individuals per vehicle, the daily ridership on the transit system has reduced the daily traffic volumes on the primary roads in the project area by almost 3,700 vehicles per day (almost 25 percent) during the peak summer months (Figure B-2). The Maine Department of Transportation is currently constructing the

Acadia Gateway Center (MDOT 2010) near Trenton to further enhance the ridership of the transit system, which will further improve the traffic flows in future years.

The ongoing construction of the Acadia Gateway Center and the addition of a turn lane are having a temporary adverse impact on traffic on SR-3 near Trenton. Visitors to Mount Desert Island are experiencing short traffic delays during the busy summer months, but these delays will end when road construction is complete early next summer. The Maine Department of Transportation has erected the appropriate signage to warn the traveling public of construction activities to minimize adverse impacts.

Possible construction of improvements to SR-3 from Ellsworth to the Laboratory could result in similar impacts during their construction periods. The Maine Department of Transportation would implement appropriate education and signage for those projects to help prevent surprise and frustration among residents and visitors. With these minimization aspects in place, temporary, short-term adverse impacts from construction for those projects should be minimal.

5. REFERENCES

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6. NOTIFICATION LIST

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Director
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Lois Barker
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Town of Strong, Maine

Stephen Bunker
Board of Selectmen
Town of Farmington, Maine

Bob Farrar
Assistant City Manager
City of Bangor, Maine

Joy Mase, Chairman
Board of Selectmen
Town of Skowhegan, Maine

Planning Board
Town of Bar Harbor, Maine

Tracey Rotondi
Municipal Clerk
Town of Athens, Maine

Donald Strout
Municipal Clerk
Town of Corinth, Maine

American Indian Tribes

Brenda Commander, Tribal Chief
Houlton Band of Maliseet Indians

Kirk Francis, Chief
Penobscot Indian Nation

Victoria Higgins, Chief
Aroostook Band of Micmacs

Richard M. Phillips-Doyle, Governor
Passamaquoddy Tribe-Pleasant Point Reservation

Joseph Socobasin, Governor
Passamaquoddy Tribe-Indian Township Reservation

Bonnie Newsom
Tribal Historic Preservation Officer
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C. Lee and Doris L. Walton
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Dennis J. and Deborah H. Weber
Bar Harbor, Maine

Compass Harbor Village
Coral Gables, Florida

Paraiso Holdings
Portland, Maine

Sound Investments
Mount Desert, Maine

APPENDIX A
SCOPING, CONSULTATION, AND COMMENT LETTERS

This appendix contains copies of the scoping letter and DOE's letters of consultation as follows:

- Scoping letter (page A-2);
- EPA response to scoping letter (page A-9);
- NPS response to scoping letter (page A-11);
- Letter from DOE to the FWS (page A-13) and the response (page A-19);
- Letter from DOE to the Maine SHPO (page A-23) and the response, which is a copy of the letter from Woodard & Curran that the SHPO stamped with a determination of no historic properties affected (page A-29);
- One copy of the letters from DOE to the Houlton Band of Maliseet Indians, Penobscot Indian Nation, Aroostook Band of Micmacs, and Passamaquoddy Tribe (page A-30);
- The reply from the Penobscot Indian Nation (page A-34);
- The reply from the Passamaquoddy Tribe (page A-35);
- The comment e-mail from W. Schroder and S. Boyer (page A-36); and
- The comment letter from Alan F. and Marie A. Bartsch and Dean S. and Penny B. Read (page A-38).

Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

October 14, 2010

Subject: Notice of Scoping – Jackson Laboratory Wood-Pellet-Fired Steam Boiler, Bar Harbor, Maine

The U.S. Department of Energy (DOE) is proposing to authorize the expenditure of federal funds by Maine's State Energy Office for a project at Jackson Laboratory (Laboratory) in Bar Harbor, Hancock County, Maine. The Laboratory is proposing to design, permit, and construct a new Biomass Energy Center covering more than 4,000 square feet that would use wood pellets, a renewable resource, as a fuel (Proposed Project). Wood pellet manufacturers in Strong, Athens, and Corinth, Maine would provide the Laboratory with 11,000 tons of pellets per year. The proposed project would reduce fossil fuel consumption by approximately 1,200,000 gallons of No. 2 fuel oil each year. The attached Project Description discusses the proposed project.

Pursuant to the requirements of the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations (40 CFR Parts 1500 to 1508), and DOE NEPA implementing procedures (10 CFR Part 1022), DOE is preparing the draft EA to:

- Identify any adverse environmental effects and potential associated mitigation should this Proposed Project be implemented; Analyze potential impacts connected to the Proposed Project;
- Evaluate viable alternatives to the Proposed Project, including a No-Action Alternative;
- Describe the relationship between local short-term use of the environment and the maintenance and enhancement of long-term productivity;
- Characterize any irreversible and irretrievable commitments of resources that would occur if the Proposed Project were implemented; and
- Analyze past, present, and reasonably foreseeable actions to evaluate potential cumulative impacts.

The EA will describe and analyze impacts on the environment the Proposed Project could cause and identify possible mitigation measures to reduce or eliminate those impacts. At a minimum, the EA will evaluate the impacts that could affect:

- Water Resources
- Air Quality
- Aesthetics and Visual Resources
- Noise
- Traffic and Transportation
- Historic and Cultural Resources
- Socioeconomics and Environmental Justice

In particular, the EA will discuss visual impacts and noise in relation to Acadia National Park, which is adjacent to the Jackson Laboratory campus.

NEPA requires DOE to consider a reasonable range of alternatives to the proposed action during an environmental review. The definition of alternatives is governed by the "rule of reason"; that is, an EA must consider a reasonable range of options that could accomplish the agency's purpose and need and reduce environmental effects. Reasonable alternatives are those that could be feasible based on environmental, technical, and economic factors.

The No Action Alternative will be addressed. The need for project redesign, or a project alternative, will be determined during the course of environmental review.
DOE invites the public; Federal, State of Maine, and local agencies; and American Indian Tribes to identify issues they feel the Department should consider in the EA. The Department will post the draft EA in the DOE Golden Field Office online reading room later this year at http://www.eere.energy.gov/golden/reading_room.aspx.

The DOE Golden Field Office welcomes your input throughout the NEPA process. To ensure the Office receives your comments in time for consideration in the EA, please provide them on or before November 15, 2010, to:

Melissa Rossiter
NEPA Document Manager
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401
melissa.rossiter@go.doe.gov

We look forward to hearing from you.

Sincerely,

Melissa Rossiter
NEPA Document Manager

Attachment: Project Description

PROJECT DESCRIPTION

JACKSON LABORATORY WOOD PELLET-FIRED STEAM BOILER
BAR HARBOR, HANCOCK COUNTY, MAINE

The Jackson Laboratory (Laboratory) in Bar Harbor, Hancock County, Maine, proposes to construct a new 4,000- square-foot Biomass Energy Center on its Bar Harbor campus to house a new wood-pellet-fired, 1,000-horsepower steam boiler. The Laboratory would build the proposed project in an area of existing facilities on the developed area of the campus immediately adjacent to the existing Energy Center and Generator Building, which provides heating, chilling, and emergency power. Figure 1 is a map that shows the location of the Laboratory and indicates the site of the proposed Biomass Energy Center.

The new boiler would tie into existing infrastructure. Environmental space conditioning and 100% outside air ventilation is a critical requirement for the safety of Jackson Laboratory employees working in research laboratories and the health and welfare of animals housed in production barrier facilities.

The Laboratory would use this new unit as a base-load boiler operating in parallel with the existing energy plant, an operation that would reduce fossil fuel consumption by approximately 1,200,000 gallons of No. 2 fuel oil annually (an 80% reduction). The six existing oil-fired boilers would remain in place to provide steam for plant operations during demand periods that exceeded the biomass boiler's capacity. In addition, the existing boilers would operate as standby steam generators during periods of scheduled maintenance or unplanned downtime of the biomass boiler. The existing boilers would continue to consume approximately 300,000 gallons of No. 2 fuel oil per year to support Laboratory needs that the proposed biomass boiler could not fully offset by the proposed project.

At present, the site of the proposed project is a mix of grassed and paved parking areas. The Laboratory would build the new Biomass Energy Center adjacent to the existing administrative office module, Building B45. Figure 2 shows Building B45 in relation to the proposed facility; Figure 3 is a diagram of the Biomass Energy Center layout. The project would bring the site to grade, install concrete foundations and structural floor slabs, and build a 4,000- square-foot, steel-framed structure with roofing and siding systems that would complement Laboratory architecture and minimize visual impacts to visitors of adjacent Acadia National Park. The Laboratory would build a 320-square-foot control room in the new Energy Center for primary electrical power distribution panels, boiler control and communication panels, and fire alarm and building automation control panels. The boiler, ash removal system, and emissions control equipment would be in the main boiler room. The Energy Center would contain energy-efficient lighting, networked fire detection systems, wet type fire suppression systems, emergency shower/eyewash stations, and CAT6 telecommunications cabling.

In addition to the Biomass Energy Center and its contents, the project site would include two exterior 40-foot-high pellet storage silos, each of which could hold a 1-week fuel supply to provide an onsite source in the event of a disruption of fuel supplies. The structure and fencing and screening materials would block the silos from view. Preinsulated steam and condensate piping would connect the new plant with existing underground distribution systems. The Laboratory would install a preinsulated boiler feed water pipe between the Biomass Energy Center and the existing boiler plant.

The Laboratory's unique location bordering Acadia National Park requires special consideration to minimize impacts on air quality, water quality, noise, and aesthetics. Figure 4 is a view of the Laboratory property from the Park showing the location of the proposed Biomass Energy Center. Throughout the project, including funding, design, and regulatory review, the Laboratory would incorporate applicable regulations and permits into the design process to ensure that the final project meets all requirements and that it had obtained all necessary permits. The proposed project would require permits from the Town of

Bar Harbor (Site Plan Review) and the Maine Department of Environmental Protection (Site Location, and Air Emissions).

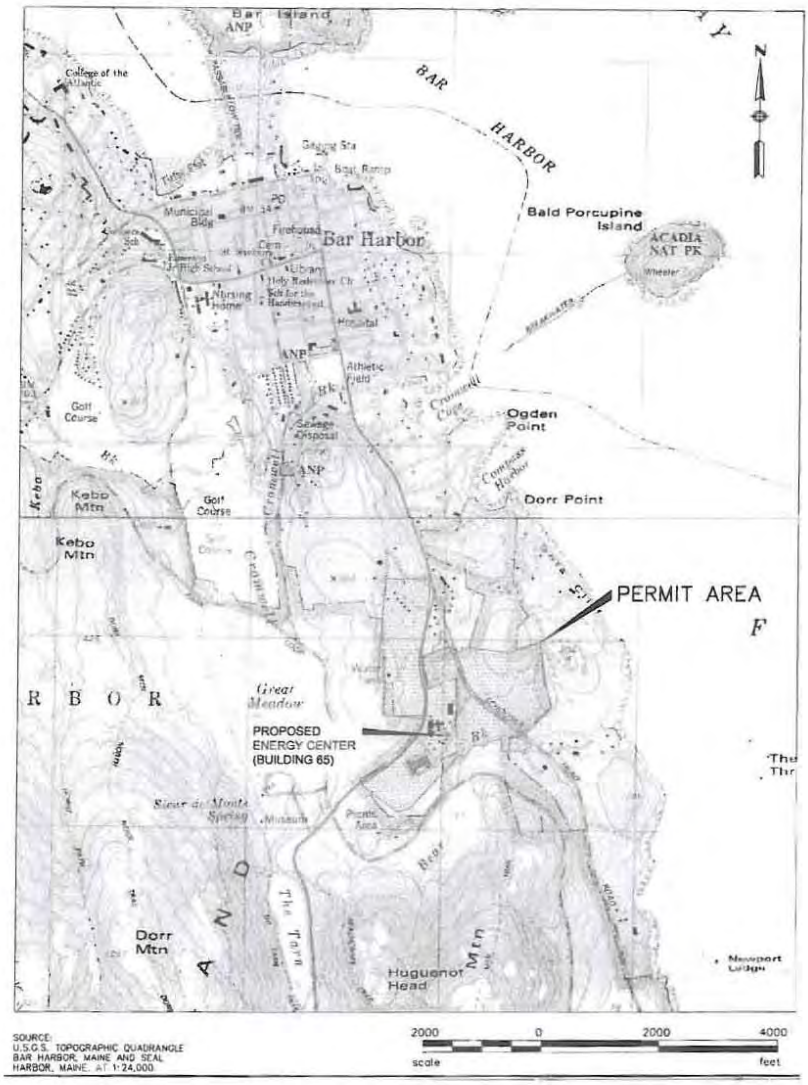


Figure 1. Bar Harbor, Maine, and Location of Proposed Biomass Energy Center.

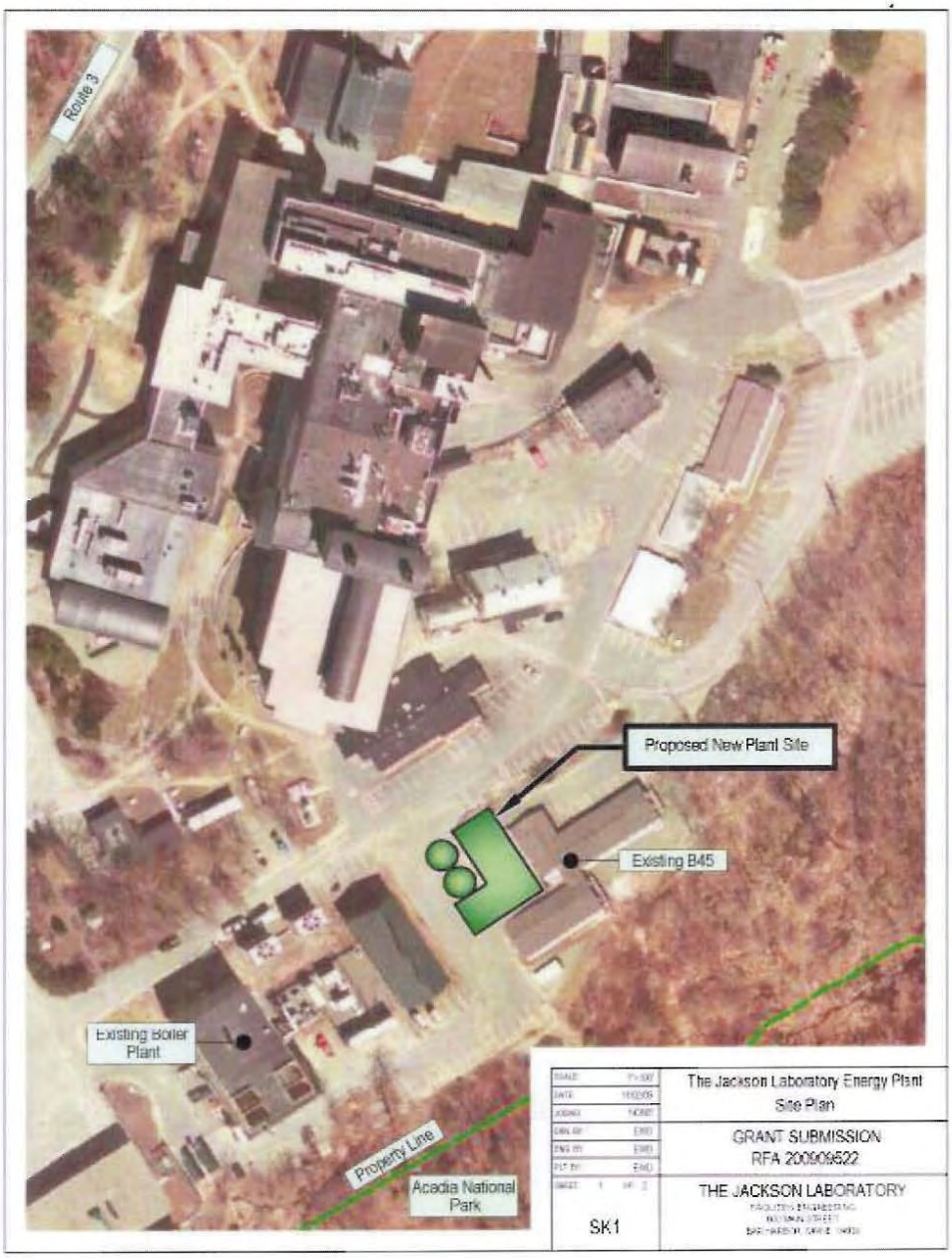


Figure 2. Proposed Site Plan.

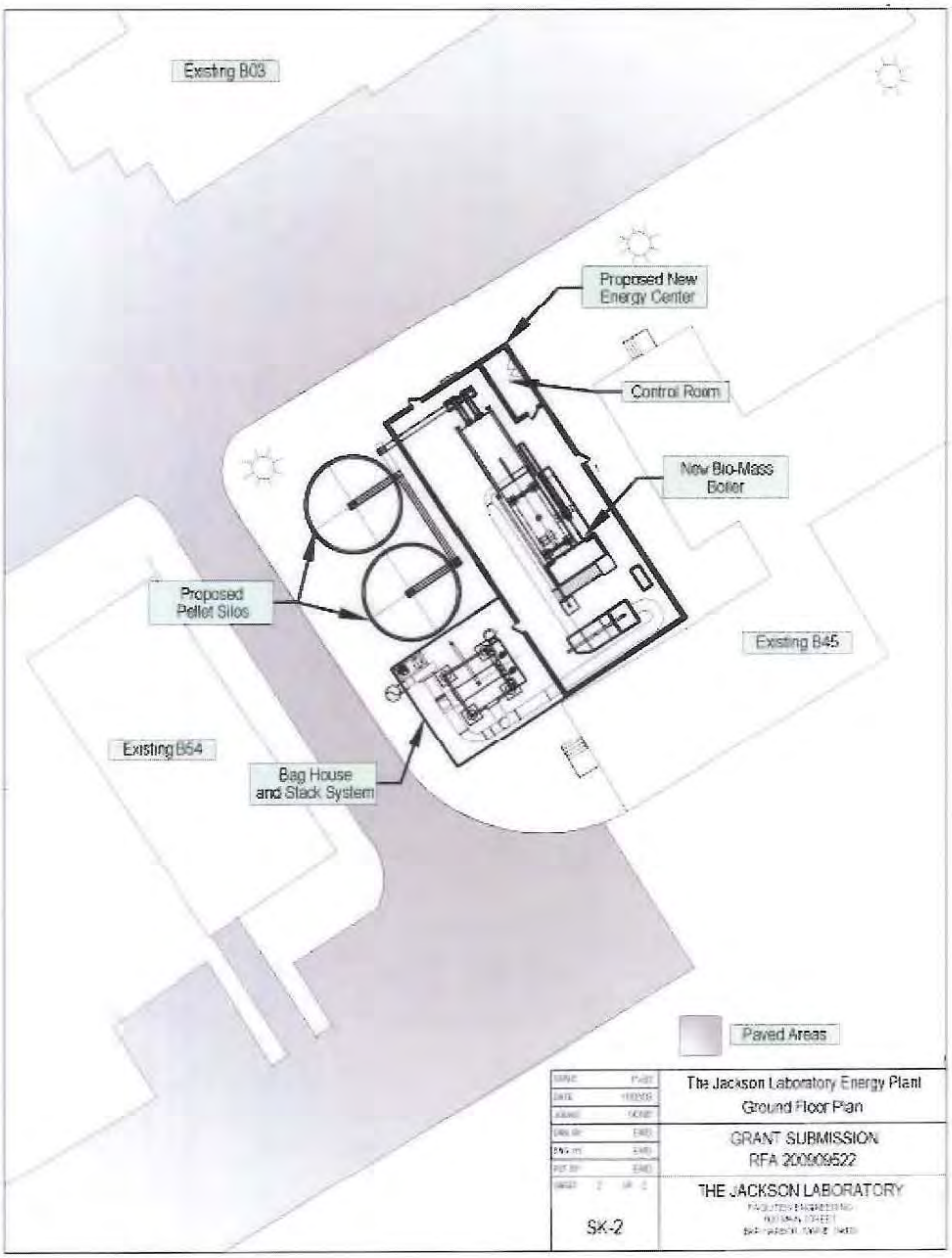


Figure 3. Proposed Building Plan.

Figure 4. View of Proposed Plant from Acadia National Park.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

OFFICE OF THE
REGIONAL ADMINISTRATOR

November 15, 2010

Melissa Rossiter
Department of Energy Golden Field Office
1617 Cole Blvd.
Golden, Colorado 80401

Re: Scoping Comments for the Environmental Assessment for the Jackson Laboratory Wood-Pellet-Fired Steam Boiler Project, Bar Harbor, Maine

Dear Ms. Rossiter:

In accordance with our responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA), the Environmental Protection Agency (EPA) has reviewed the Department of Energy (DOE) notice of scoping for an Environmental Assessment (EA) for the proposed Jackson Laboratory Wood-Pellet-Fired Steam Boiler Project in Bar Harbor, Maine. The EA would address the impacts associated with the expenditure of federal funds by the Maine State Energy Office to support the development of a new Biomass Energy Center at the Jackson Laboratory. The Jackson Laboratory, founded in 1929, is a private, nonprofit biomedical research institution recognized for genetic research and for the mice it produces to support research around the world. The laboratory employs approximately 1,200 people at the Bar Harbor campus. The project site is located in the southern portion of Bar Harbor east of Acadia National Park.

According to the scoping notice, the proposed Biomass Energy Center would use wood pellets supplied by manufacturers in Strong, Athens and Corinth, Maine, to fuel a 1,000-horsepower steam boiler. The boiler would be operated as a base-load unit in parallel with the existing energy plant. The use of wood pellets is expected to reduce heating oil consumption at the laboratory by approximately 1,200,000 gallons annually (a reduction of 80 percent).

The scoping notice notes that the EA will describe and analyze project alternatives and impacts of the project related to water resources, air quality, aesthetics and visual resources, noise, traffic and transportation, historic and cultural resources, and socioeconomics and environmental justice. The scoping notice highlights the need for analysis of visual and noise impacts of the project given its proximity to Acadia National Park. While we generally agree with the list of issues to be addressed in the EA, we request that the following issues also be addressed.

617-918-1010
Internet Address (URL) • http://www.epa.gov/region1

Alternatives Analysis

The EA should evaluate a range of renewable and non-renewable energy generation alternatives for the proposed expansion of the energy center at the Jackson Campus. In particular, the discussion should focus on fuel alternatives for the new boiler system and include a comparison of the emissions from the proposed biomass boiler to those of a similarly sized modern oil fired boiler, and a natural gas fired unit if natural gas is available. Each of these should be compared on the basis of similar heat/energy output for each unit. We suggest that the emissions comparison be done for CO2, PM, NOx, SO2, and CO. The analysis should also include and compare emissions related to the delivery of fuel to the facility for each alternative.

In addition, we suggest that the alternatives analysis include an assessment of the potential for combined heat and power (CHP) applications. Since it appears that the use of the new unit will be to provide a 24 hour thermal load to the facility, there is the potential for the plant to simultaneously generate some of the electricity for the campus. CHP applications typically increase the overall efficiency of such systems to over 70%, and have additional emissions benefits associated with reduced demand for electricity from the electric grid.

We note that the scoping notice project description includes two proposed onsite pellet storage silos that can hold a week's worth of reserve fuel should fuel supplies be disrupted. The EA should describe the degree to which storage of reserve/backup fuel supplies is an objective of the project. If that is the case, the alternatives analysis should include a discussion of this issue for the alternative fuels.

Potential for Impacts to Acadia National Park

We support the scoping notice's call for specific attention to the potential for project related visual and noise impacts to Acadia National Park. We believe the EA should also describe how the project is being coordinated with the National Park Service during project design to avoid and minimize visual impacts to Acadia National Park. In addition, the EA should describe how operation of the proposed project might affect park property and the visitor experience due to noise and emissions (including particulates) caused by the steam boiler and associated fuel deliveries.

Thank you for the opportunity to offer scoping comments. Please contact me at 617-918-1025 with any comments or questions.

Sincerely,

Timothy Timmermann
Office of Environmental Review

2

United States Department of the Interior

NATIONAL PARK SERVICE
Acadia National Park
P.O. Box 177
Bar Harbor, Maine 04609

IN REPLY REFER TO:

November 15, 2010

L7619(ACAD)

Ms. Melissa Rossiter
NEPA Document Manager
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401

Re: Notice of Scoping – Jackson Laboratory Wood-Pellet-Fired Steam Boiler, Bar Harbor, Maine

Dear Ms. Rossiter:

We are writing in response to the Department of Energy's public notice dated October 14, 2010, which invites Federal agencies and others to identify issues that should be considered in the Environment Assessment for the above-referenced project pursuant to the National Environmental Policy Act. The National Park Service has discussed the project with The Jackson Laboratory, and we understand that it is committed to avoiding or minimizing adverse environmental impacts to park resources and values. We appreciate this cooperative relationship and look forward to completing the environmental compliance process in a timely manner. Please consider the following information in preparing the Environmental Assessment.

The mission of Acadia National Park is to protect and preserve outstanding scenic, natural, scientific, and cultural values for present and future generations through programs, facilities, and services (*General Management Plan, Acadia National Park*, 1992). The proposed facility would be located within approximately 300 feet of the park's boundary and in close proximity to the park's historic hiking trail system (Champlain North Ridge Trail and Beachcroft Path) and motor road system (Park Loop Road), which are eligible for listing in the National Register of Historic Places. The section of the historic motor road system closest to the project is also a part of the Acadia All American Road, which is a Federal Highway Administration designation that recognizes the most scenic roads in the National Scenic Byway program. Acadia National Park is also designated as a Class I area under the Clean Air Act, and the National Park Service, as the Federal Land Manager, shares responsibility with the Environmental Protection Agency for preventing significant air quality deterioration and protecting the air quality related values of the park, including visibility.

Acadia National Park receives approximately 2.5 million visits annually. The National Park Service strives to provide visitors with a high-quality experience, which is largely affected by park resources/attributes and facilities. According to a visitor survey conducted in 2009, the park resources/attributes receiving the highest combined proportions of "extremely important" and "very important" ratings included clean air/visibility (98%), scenic views (96%), natural quiet/sounds of nature (92%), and dark/starry night sky (77%). The park facilities receiving the highest combined proportions of "extremely important" and "very important" ratings included hiking trails (95%) and the Park Loop Road (91%).

Based on this information, we request that the Department of Energy describe and analyze potential impacts on the following resources/values of Acadia National Park in preparation of the Environmental Assessment:

- air quality (Class I Area designation)
- scenic views (visual qualities of the landscape)
- natural lightscape (quality of the dark night sky)
- natural soundscape (absence of human-caused noise)
- historic properties (motor road and hiking trail systems)

We anticipate working with The Jackson Laboratory to develop and implement mitigation measures to reduce or eliminate any impacts.

Please contact me at 207-288-8703 or john_t_kelly@nps.gov if you have any questions. Thank you for considering our comments.

Sincerely,

John T. Kelly

John T. Kelly
Park Planner

Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

October 20, 2010

Ms. Shay White
U.S. Fish and Wildlife Service
17 Godfrey Dr., Suite 2
Orono, Maine 04473

Dear Ms. White,

The U. S. Department of Energy (DOE or the Department) is proposing to authorize the expenditure of federal funds by Maine's State Energy Office for a project at the Jackson Laboratory (Laboratory), Bar Harbor, Hancock County, Maine, and would authorize the Laboratory to continue to expend Federal funding to design, permit, and construct a new Biomass Energy Center that would use wood pellets, a renewable resource, as a fuel. The Laboratory would build the proposed project in an area of existing facilities within the developed area of its Bar Harbor campus and immediately adjacent to the existing Energy Center and Generator Building, which provides heating, chilling, and emergency power. Construction of the new wood-pellet-fired boiler plant would include facilities, boiler, air emissions equipment, fuel storage, conveyance equipment, and silos for pellet storage. The new boiler would tie into the existing Laboratory infrastructure.

The following Exhibits are attached: Exhibit 1 is a United States Geological Survey map that shows the location of the Laboratory and indicates the site of the proposed Biomass Energy Center. Exhibit 2 shows the approximate locations of the wood pellet manufacturers in Strong (Franklin County), Athens (Somerset County), and Corinth (Penobscot County), Maine and the route the pellet trucks will travel to the Laboratory. Exhibit 3 is the proposed plant site.

At present, the site of the proposed project is a mix of grassed area and paved parking. The project would bring the site to grade, install concrete foundations and structural floor slabs, and construct a 4,000-square-foot, steel-framed structure with roofing and siding systems that would complement the Laboratory's architecture and minimize visual impacts to visitors of Acadia National Park, which is adjacent to the Laboratory campus.

Five federally protected species – roseate tern (*Sterna dougallii dougallii*), Atlantic salmon (*Salmo salar*), shortnose sturgeon (*Acipenser brevirostrum*), Canada lynx (*Lynx Canadensis*) and Eastern cougar (*Felis concolor couguar*) – are possibly present in the project area. The National Marine Fisheries Service and the National Oceanic and Atmospheric Administration have designated critical habitat for the Atlantic salmon which runs throughout all four counties. Lynx critical habitat is present in northern Maine and includes parts of Franklin, Somerset and Penobscot Counties

Species	Hancock County	Franklin County	Somerset County	Penobscot County
Roseate tern *(Sterna dougallii dougalli)*	X			
Atlantic salmon (*Salmo salar*)	X	X	X	X
Shortnose sturgeon (*Acipenser brevirostrum*)	X	X	X	X
Canada lynx (*Lynx canadensis)*		X	X	X
Eastern cougar (*Felis concolor couguar*)	X	X	X	X

The 43-acre Laboratory campus is not on the coastline and would be unlikely to affect the Atlantic salmon. The shortnose sturgeon lives mainly in slower moving riverine waters or nearshore marine waters. They have been documented in the Penobscot River and occasionally in some of the other rivers along the Main coastline. The proposed project would not affect riverine or coastal habitat and would be unlikely to affect the shortnose sturgeon. The roseate tern is strictly a coastal species preferring open sandy beaches isolated from human activity for optimal nesting activity. In the northeastern United States, roseate terns nest on beaches, barrier islands, and offshore islands, which do not occur at the site of the proposed project.

The eastern cougar once occupied a wide variety of habitats including swamps, riparian woodlands, and mountainous country with good cover of brush or woodland. The species is presumed extinct or nearly extinct and the proposed project would be unlikely to affect the eastern cougar.

The Canada lynx is associated with moist boreal forests that have cold, snowy winters and an abundant source of showshoe hare, their primary source of food. Lynx require large forest landscapes that support a mosaic of differing successional forest states with abundant coarse woody debris to ensure sufficient high quality snowshoe hare habitat is available. They may travel as much as 60 miles in search of food. The boundary of Lynx critical habitat appears to be 60 or more miles north of the three wood pellet suppliers and more than 100 miles north of the proposed project construction area.

DOE compared habitat at the site of the proposed project with the habitat needs of the five listed species to determine if the project could affect the species or their habitat. Based on the lack of suitable habitat in the project footprint and construction and operation areas, DOE does not anticipate adverse effects to federally threatened or endangered species. On August 2, 2010, Woodward & Curran, the Laboratory's engineering and science contractor requested the Maine Department of Inland Fisheries and Wildlife to provide comments on the proposed project. On August 17, 2010, the Department responded that it has "no records of any Essential or Significant Wildlife Habitats on Jackson Lab Project Site."

The DOE Golden Field Office is preparing a draft environmental assessment (EA) for the proposed project to meet the requirements of the *National Environmental Policy Act*.

Based on the above information, DOE determined that there would be no adverse effects to federally threatened or endangered species. If you have related information, require additional information, or have questions or comments about the project, please contact Melissa Rossiter of the Golden Field Office as soon as possible at the following address:

Melissa Rossiter
NEPA Document Manager
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401
melissa.rossiter@go.doe.gov
Phone: 720-356-1566

DOE will include correspondence with the U.S. Fish and Wildlife Service in an appendix to the EA. The Department will send a Notice of Availability for the draft EA, when available, to your office and respond to specific comments you might have. At this time, we anticipate a 15-day public comment period for this project.

Sincerely,

Melissa Rossiter
NEPA Document Manager

Attachment
Exhibit 1. Location Plan
Exhibit 2. Proposed Site Plan.
Exhibt 3:Propose Plant Site

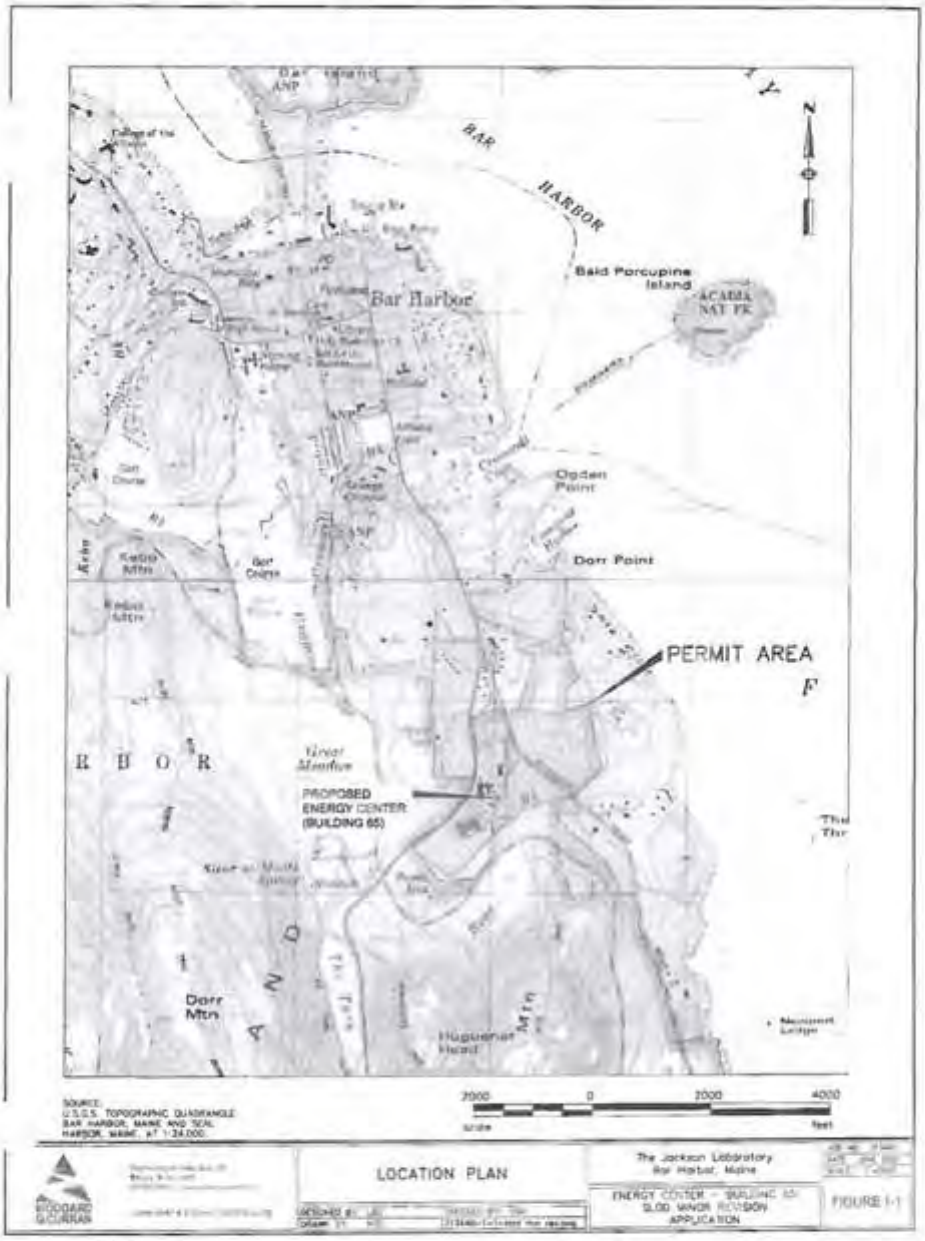


Exhibit 1. Bar Harbor, Maine, and Location of Proposed Biomass Energy Center.

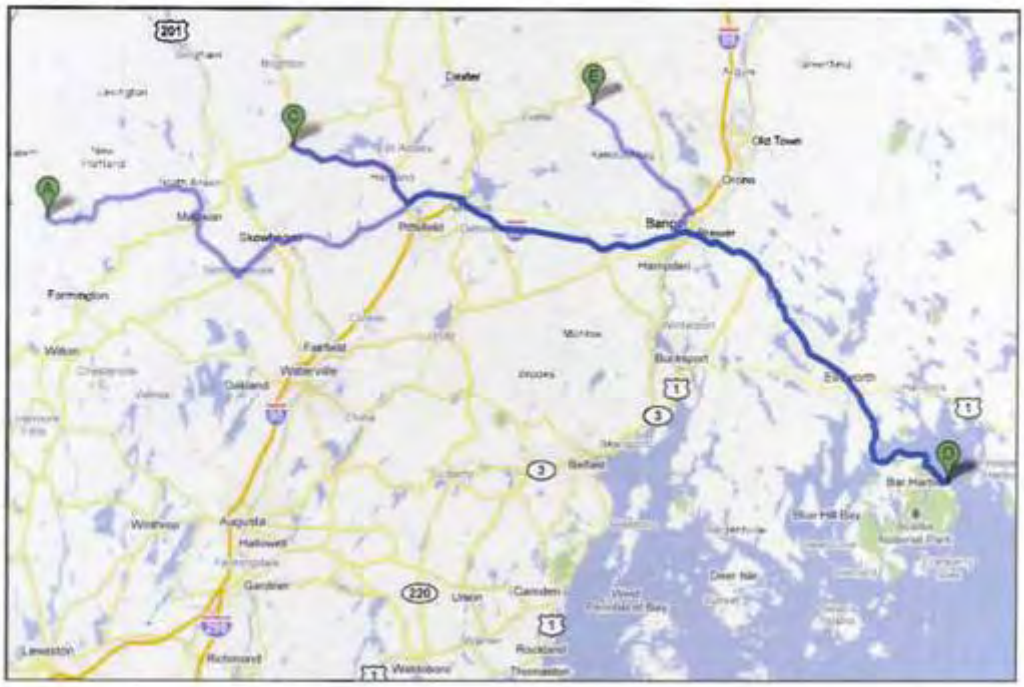


Exhibit 2. Location of Wood Pellet Suppliers and route to Jackson Laboratory.

Exhibit 3. Proposed Site Plan.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Maine Field Office – Ecological Services
17 Godfrey Drive, Suite #2
Orono, ME 04473
(207) 866-3344 Fax: (207) 866-3351

FWS/Region 5/ES/MEFO

October 28, 2010

Melissa Rossiter, NEPA Document Manager
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 90401

Dear Ms. Rossiter:

Thank you for your letter dated October 20, 2010, requesting information or recommendations from the U.S. Fish and Wildlife Service (Service). This letter provides the Service's response pursuant to Section 7 of the Endangered Species Act (ESA), as amended (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250), and the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667d).

Project Name/Location: Bar Harbor Jackson Laboratory biomass energy center

Log Number: 53411-2011-TA-0033

Federally Listed Species

Atlantic Salmon

This project occurs within the range of the Gulf of Maine Distinct Population Segment (GOM DPS) of Atlantic salmon (*Salmo salar*) in Maine, a federally-endangered species under the joint jurisdiction of the Service and the National Marine Fisheries Service (NMFS) (74 FR 29344; June 19, 2009). The Atlantic salmon GOM DPS encompasses all naturally spawned and conservation hatchery populations of anadromous Atlantic salmon whose freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River and wherever these fish occur in the estuarine and marine environment. Also included in the GOM DPS are all associated conservation hatchery populations used to supplement these natural populations. Excluded are landlocked Atlantic salmon and those salmon raised in commercial hatcheries for aquaculture.

The proposed project site, however, does **not** occur in a watershed that has been designated as critical habitat for Atlantic salmon by NMFS (74 FR 29300; June 19, 2009).

For Atlantic salmon and its critical habitat, NMFS and the Service share consultation responsibilities under Section 7 of the ESA. The Service generally handles projects in the freshwater component of the salmon's habitat and NMFS handles projects in the marine and estuarine environment (generally below the head of tide).

No other federally-listed species under the jurisdiction of the Service, including those listed in your October 20, 2010, letter are known to occur in the project area.

Please note that under Section 7 of the ESA, it is the federal action agency's responsibility to determine if a project may affect a federally listed species. For example, if the project receives federal funding or needs a federal permit, those actions may provide a "nexus" for Section 7 consultation under the ESA[1]. If the federal action agency determines that a project would have "no effect" on a listed species or critical habitat, they do not need to seek the concurrence of the Service and there is no need for Section 7 consultation. If the federal agency determines that a project "may affect" a listed species or its critical habitat, then consultation pursuant to Section 7 of the ESA should be initiated. Please note, however, that there is no provision under Section 7 for consultation after a project has already been completed.

Based on the project description provided in your October 20, 2010, letter, we concur that the proposed project would not affect species listed under the ESA.

Other Protected Species

The bald eagle was removed from the federal threatened list on August 9, 2007 and is now protected from take under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. "Take" means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. The term "disturb" under the Bald and Golden Eagle Protection Act was recently defined within a final rule published in the Federal Register on June 5, 2007 (72 FR 31332). "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle; 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

Further information on bald eagle delisting and their protection can be found at http://www.fws.gov/migratorybirds/baldeagle.htm.

Please consult with our new national bald eagle guidelines, which can found at http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf. These Guidelines are voluntary and were prepared to help landowners, land managers and others meet the intent of the Eagle Act and avoid disturbing bald eagles. If you believe this project will result in taking or disturbing bald or golden eagles, please contact our office for further guidance. We encourage early and frequent consultations to avoid take of eagles.

[1] Section 7 consultation, however, is only necessary when a federal agency takes a *discretionary* action (e.g., an agency has a choice of whether or not to fund or permit a particular project).

We have not reviewed this project for state-threatened and endangered wildlife, wildlife species of special concern, and significant wildlife habitats protected under the Maine Natural Resources Protection Act. We recommend that you contact the Maine Department of Inland Fisheries and Wildlife:

Steve Timpano
Maine Department of Inland Fisheries and Wildlife
284 State St.
State House Station 41
Augusta, ME 04333-0041
Phone: 207 287-5258

We also recommend that you contact the Maine Natural Areas Program for additional information on state-threatened and endangered plant species, plant species of special concern, and rare natural communities:

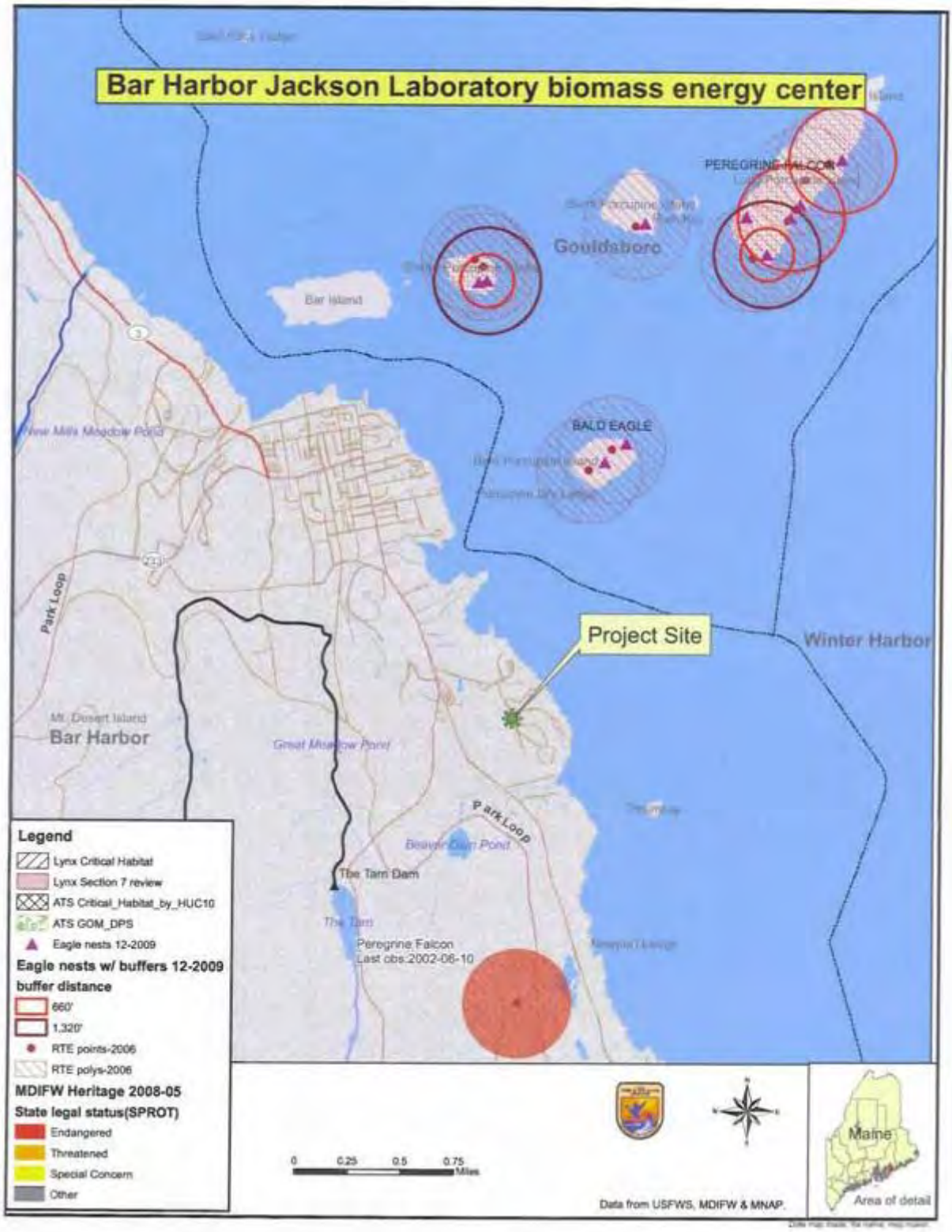
Lisa St. Hilaire
Maine Natural Areas Program
Department of Conservation
93 State House Station
Augusta, ME 04333
Phone: 207 287-8046

If you have any questions please call Mark McCollough, endangered species biologist, at (207) 866-3344 x115.

Sincerely,

Mark McCollough, Acting Field Supervisor
Maine Field Office

Enclosure


Bar Harbor Jackson Laboratory biomass energy center
PEREGRINE FALCON
Gouldsboro
Bar Island
BALD EAGLE
Project Site
Winter Harbor
Bar Harbor
Mt. Desert Island
Great Meadow Pond
Park Loop
Beaver Dam Pond
The Tarn Dam
The Tarn
Peregrine Falcon
Last obs:2002-06-10
Legend
Lynx Critical Habitat
Lynx Section 7 review
ATS Critical_Habitat_by_HUC10
ATS GOM_DPS
Eagle nests 12-2009
Eagle nests w/ buffers 12-2009
buffer distance
660'
1,320'
RTE points-2006
RTE polys-2006
MDIFW Heritage 2008-05
State legal status(SPROT)
Endangered
Threatened
Special Concern
Other
0 0.25 0.5 0.75
Miles
Data from USFWS, MDIFW & MNAP.
Maine
Area of detail

Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

October 14, 2010

Mr. Earle G. Shuttleworth, Jr.
Director
Maine Historic Preservation Commission
55 Capitol Street
65 State House Station
Augusta, Maine 04333-0065

Dear Mr. Shuttleworth:

The U. S. Department of Energy (DOE) has provided a grant to the Maine State Energy Office through the Energy Efficiency and Conservation Block Grant Program (EECBG), funded by the American Recovery and Reinvestment Act of 2009. Maine's State Energy Office proposed to pass through federal funding to the Jackson Laboratory (Laboratory), Bar Harbor, Hancock County, Maine, to design, permit, and construct a new Biomass Energy Center that would use wood pellets, a renewable resource, as a fuel (proposed project). Wood pellet manufacturers in Strong, Athens, and Corinth, Maine would provide the Lab 11,000 tons of pellets per year. The Laboratory is proposing to design, permit, and construct a new Biomass Energy Center covering more than 4,000 square feet that would use wood pellets, a renewable resource, as a fuel (Proposed Project). Wood pellet manufacturers in Strong, Athens, and Corinth, Maine would provide the Laboratory with 11,000 tons of pellets per year. The proposed project would reduce fossil fuel consumption by approximately 1,200,000 gallons of No. 2 fuel oil each year. The new boiler would tie into the existing Laboratory infrastructure. Exhibit 1 is a United States Geological Survey map that shows the location of the Laboratory and indicates the site of the proposed Biomass Energy Center. At present, the site of the proposed project is a mix of grassed area and paved parking. The project would bring the site to grade, install concrete foundations and structural floor slabs, and construct a 4,000-square-foot, steel-framed structure with roofing and siding systems that would complement Jackson Laboratory architecture and minimize visual impacts to visitors of Acadia National Park, which is adjacent to the Laboratory campus (see Exhibit 2). The project would reduce fossil fuel consumption by approximately 1,200,000 gallons of No. 2 fuel oil each year. Exhibit 3 shows the campus layout including the proposed facility; Exhibit 4 is a diagram of the Biomass Energy Center layout.

The expected Area of Potential Effects (APE) would be the construction site, as shown in Exhibit 3. The *National Register of Historic Places* (NRHP) includes 20 facilities and one historic district in Bar Harbor and three historic districts in Acadia National Park. The Laboratory has indicated that the project site is far from, and would have no impact on, any historical resources. On August 2, 2010, Woodward & Curran, the Laboratory's engineering and science contractor, requested the Maine Historic Preservation Commission to provide comments on the proposed project. On August 10, 2010, Kirk P. Mohney, Deputy State Historic Preservation Officer, stated: "I have concluded that there will be no historic properties affected by the proposed undertaking." Based on this information, DOE has concluded that there are no known or proposed historic properties within the project APE.

The DOE Golden Field Office is preparing a draft Environmental Assessment (EA) for this proposed project, which will include cultural and historic reviews in compliance with 36 CFR Part 800.4(d) (1).

DOE will include correspondence with your office in an appendix to the EA. The Department will post the draft EA in the DOE Golden Field Office online reading room: http://www.eere.energy.gov/golden/reading room.aspx. DOE will send a Notice of Availability for the draft EA, when available, to your office and respond to any specific comments you might have. Please contact DOE if you would like to receive a copy of the draft EA. At this time we anticipate a 15-day public comment period for this project.

Please forward the results of your review and any requests for additional information to the following address:

Melissa Rossiter
NEPA Document Manager
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401
melissa.rossiter@go.doe.gov
Phone: 720-356-1566

Thank you in advance for your consideration.

Sincerely,

Melissa Rossiter
NEPA Document Manager

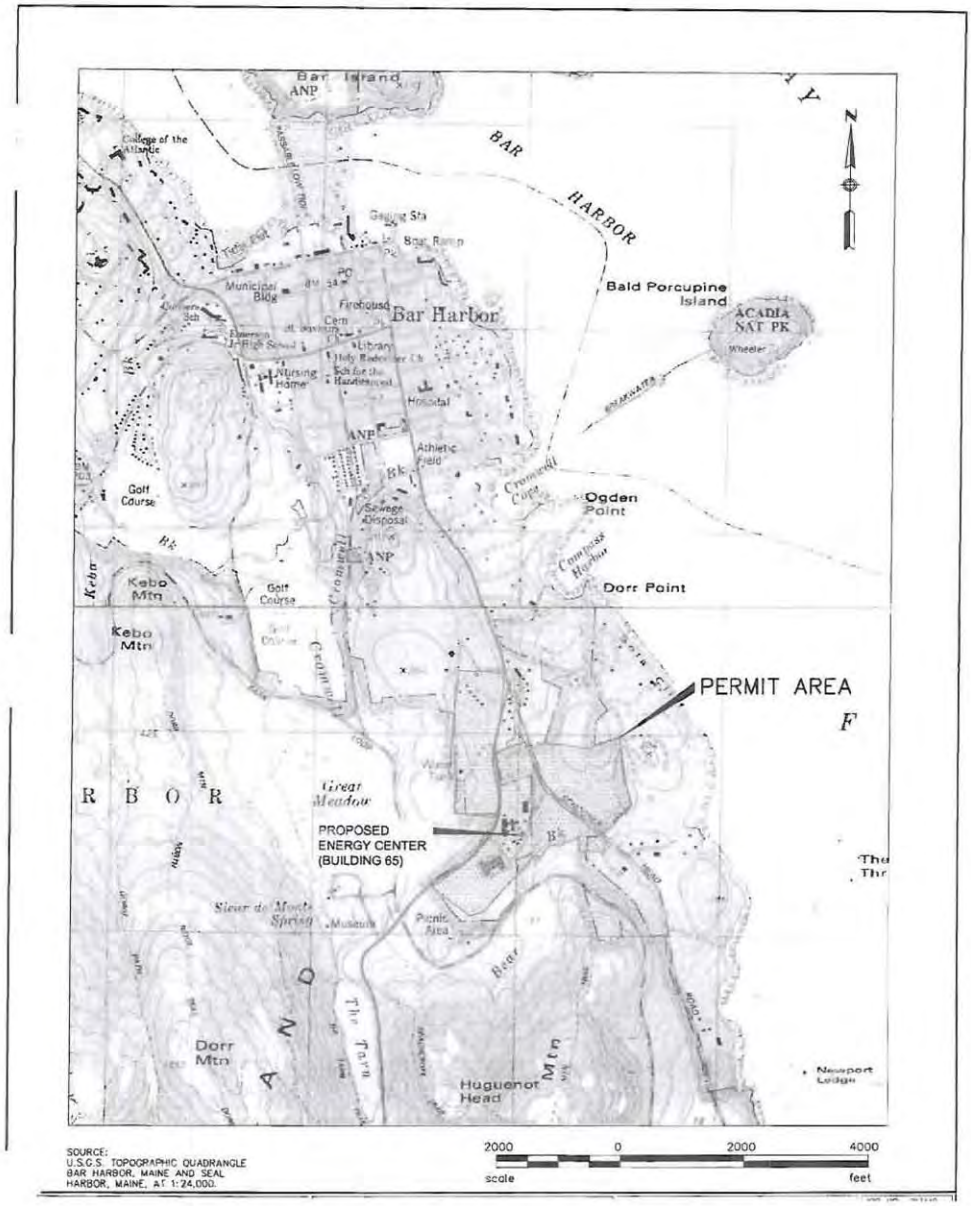


Exhibit 1. Bar Harbor, Maine, and Location of Proposed Biomass Energy Center.

Exhibit 2. View of Proposed Plant from Acadia national Park.

Exhibit 3. Proposed Site Plan.

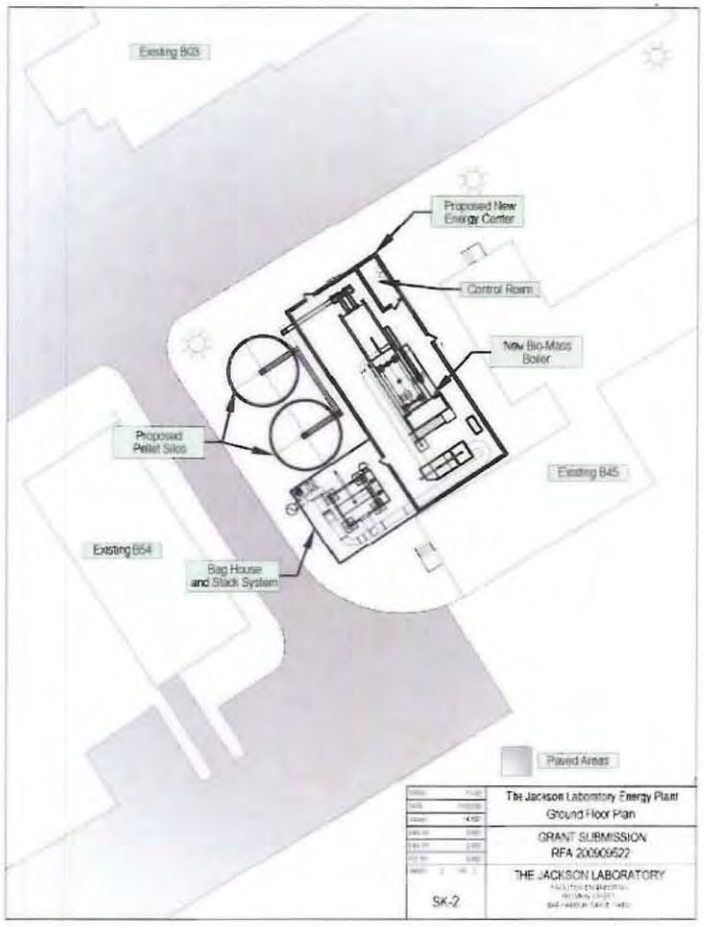


Exhibit 4. Proposed Building Plan.

COMMITMENT & INTEGRITY DRIVE RESULTS

One Merchants Plaza | Suite 501
Bangor, Maine 04401
www.woodardcurran.com

T 800.564.2333
T 207.945.5105
F 207.945.5492

August 2, 2010

Earle G. Shettleworth, Jr., Director
Maine Historic Preservation Commission
65 State House Station
Augusta, ME 04333

WOODARD &CURRAN

Re: Planning Permit Minor Amendment to the Site Location of Development Permit #L15327-26 for The Jackson Laboratory – Bar Harbor, Maine – Biomass Energy Center Project

Dear Mr. Shettleworth:

The Jackson Laboratory (the Lab, TJL) is planning to make an addition to their existing research facilities in Bar Harbor, Maine, in the area shown on the enclosed Location Plan. Woodard & Curran is working with the Lab to amend their Site Location of Development (SLOD) permit to reflect the planned project.

The proposed project is the construction of a new Energy Center at the Lab that will house a 49-MMBtu/hr, wood-fired boiler that will offset about 1.2 million gallons of #2 fuel oil per year with wood pellets, a 75% reduction in fossil fuel use for the facility. The wood pellets are produced in Maine from sustainably-harvested logs grown in Maine. The 5,200-square-foot (SF) project footprint (building to house the boiler and appurtenant equipment, as well as the adjacent pellet storage silo) will be built within the footprint of the existing developed campus on an area that is currently covered in pavement, building, and a small area of grass. This area is immediately adjacent to the existing generator building and energy center that houses the Lab's oil-fired boilers.

The purpose of the proposed project is to create the infrastructure that will allow The Jackson Laboratory to produce the majority of its steam using a Maine grown and produced renewable energy source that will reduce the CO_2 emissions from the Lab.

In 2002 and 2005, your office reviewed the Lab's overall recent projects area, illustrated as "permit area" on the enclosed figure. No resources of significance were noted for the permit area. Copies of the previous correspondence can be provided at your request. We would like to update the information for 2010 to use going forward; if you would please review the location of the Lab's proposed projects area and provide us with information regarding any known or suspected resources of significance in the area, we would be very grateful. We would appreciate your providing your comments as soon as possible so that the applications can be filed in a timely manner.

Please contact me at (207) 945-5105 or lgrosjean@woodardcurran.com if you have any questions regarding this information or the proposed project. Thank you for your assistance.

Sincerely,

WOODARD & CURRAN INC.

Laurel Grosjean
Engineer

LBG/jiv
213440.00 001

Enclosure: Location Map

cc: Norm Burdzel, The Jackson Laboratory

Based on the information submitted, I have concluded that there will be no historic properties affected by the proposed undertaking, as defined by Section 106 of the National Historic Preservation Act. Consequently, pursuant to 36 CFR 800.4(d)(1), no further Section 106 consultation is required unless additional resources are discovered during project implementation pursuant to 36 CFR 800.13.

Kirk F. Mohney,
Deputy State Historic Preservation Officer
Maine Historic Preservation Commission

8/10/10
Date

Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

February 1, 2011

Joseph Socobasin, Governor
Passamaquoddy Tribe-Indian Township Reservation
P.O. Box 301
Princeton, ME 04668-0301

Subject: The Jackson Laboratory Proposed Biomass Energy Center

Dear Joseph Socobasin,

The U. S. Department of Energy (DOE) is proposing to provide Federal funding to The Jackson Laboratory (the Laboratory) in Bar Harbor, Hancock County, Maine, to construct a Biomass Energy Center of approximately 4,000 square feet that would use renewable resource wood pellets as fuel. The Laboratory would build the proposed Energy Center on an area of existing facilities within the developed area of the Laboratory's 150-acre Bar Harbor campus (Figure 1) immediately adjacent to the existing Energy Center and Generator Building (Figure 2). The Laboratory is adjacent to portions of Acadia National Park.

The proposed project site is currently a mix of grassed area and paved parking. Construction of the new wood-fired boiler plant would include facilities, boiler, air emissions equipment, and fuel storage and conveyance equipment. The project would bring the site to grade, install concrete foundations and structural floor slabs, and construct a 4,000-square-foot steel-framed building. The proposed project would reduce fossil fuel consumption by about 1.2 million gallons of number 2 fuel oil each year and eliminate over 13,000 tons of carbon dioxide and 29 tons of sulfur dioxide emissions each year.

DOE is preparing an environmental assessment (EA) for the proposed project to meet the requirements of the National Environmental Policy Act of 1969 (NEPA).

DOE is requesting information your tribe might have on properties of traditional religious and cultural significance in the vicinity of the proposed facility and any comments or concerns you have on the potential for this proposed project to affect those properties. We request this information to aid in the preparation of the EA and to meet our obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about the proposed project, please contact:

Ms. Melissa Rossiter
NEPA Document Manager
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard,
Golden, Colorado 80401

melissa.rossiter@go.doe.gov
Phone: 720-356-1566

DOE will notify you of the online availability of the Draft EA through a postcard, when you can again respond to any specific concerns you might have. DOE will include all correspondence with your tribe in an appendix to the EA. At this time, DOE is anticipating a 30-day public comment period.

Thank you in advance for your consideration.

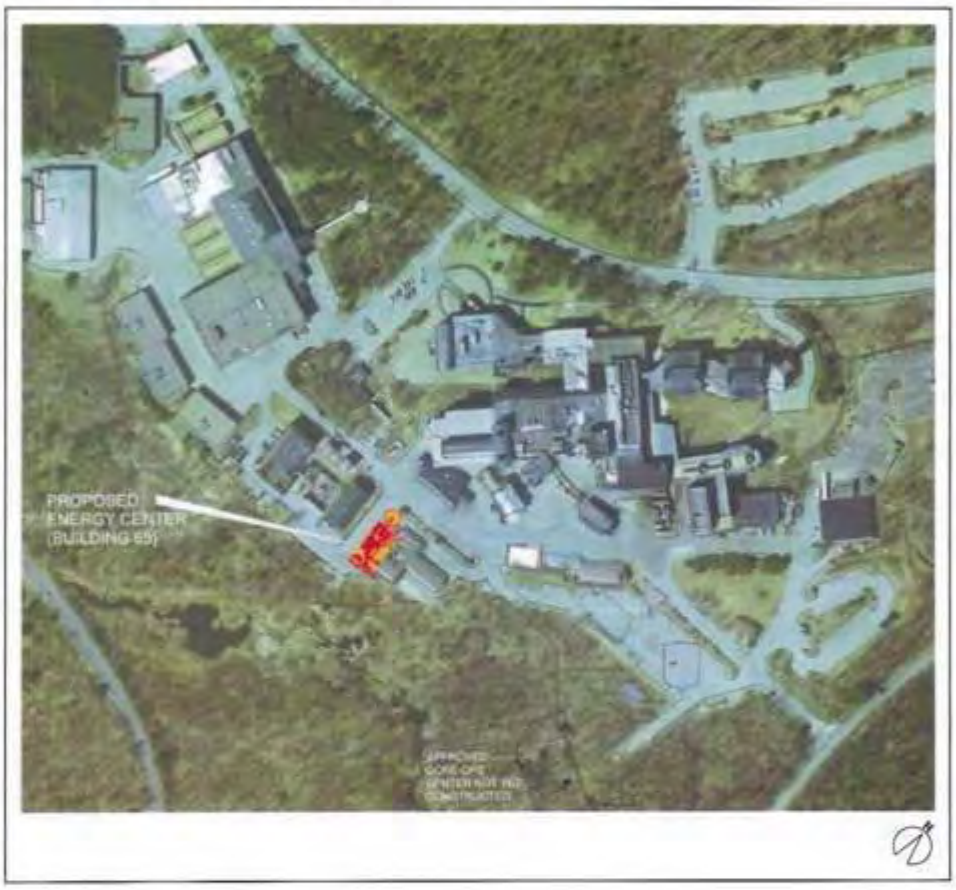
Sincerely,

Melissa Rossiter
NEPA Document Manager

Enclosures: Figures 1 and 2

Figure 1. The Jackson Laboratory.

Figure 2. Area of the proposed project.



PENOBSCOT INDIAN NATION
BONNIE NEWSOM - ARCHAEOLOGY DEPARTMENT
12 WABANAKI WAY, INDIAN ISLAND, ME 04468
E-MAIL: Bonnie.Newsom@penobscotnation.org Fax: 207-817-7463

NAME	Melissa Rossiter
ADDRESS	Department of Energy 1617 Cole Boulevard Golden, CO 80401-3393
OWNER'S NAME	The Jackson Laboratory
TELEPHONE	(720) 356-1566
FAX	
EMAIL	melissa.rossiter@go.doe.gov
PROJECT NAME	Biomass Energy
PROJECT SITE	Bar Harbor, ME
DATE OF REQUEST	February 1, 2011
DATE REVIEWED	February 24, 2011

Thank you for the opportunity to comment on the above referenced project. This project appears to have no impact on a structure or site of historic, architectural or archaeological significance to the Penobscot Nation as defined by the National Historic Preservation Act of 1966, and subsequent updates.

Also, if Native American cultural materials are encountered during the course of the project, please contact me at (207) 817-7332. Thank you.

BONNIE NEWSOM, THPO
Penobscot Nation

From: Donald Soctomah [mailto:soctomah@ainop.com]
Sent: Thursday, February 17, 2011 11:19 AM
To: Rossiter, Melissa
Subject: Jackson Lab - Maine

Tribal Historic Preservation Office
Passamaquoddy Tribe

Department of Energy
Golden Field Office
1617 Cole Bld
Golden, CO 80401

February 19, 2011

Re: Jackson Lab – Bar Harbor, Maine

Dear Ms. Rossiter:

The Passamaquoddy THPO has reviewed the following application regarding the historic properties and significant religious and cultural properties in accordance with NHPA, NEPA, AIRFA, NAGPRA, ARPA, Executive Order 13007 Indian Sacred Sites, Executive Order 13175 Consultation and Coordination with Indian Tribal Governments, and Executive Order 12898 Environmental Justice.

The proposed project listed above will not have any impact on cultural and historical concerns of the Passamaquoddy Tribe.

Sincerely

Donald Soctomah
THPO
Passamaquoddy Tribe

1

From: Will Schroeder [mailto:seekthirst@gmail.com]
Sent: Monday, May 16, 2011 2:23 PM
To: Rossiter, Melissa
Cc: Susan Boyer
Subject: Response to: ""Draft Environmental Assessment for The Jackson Laboratory Biomass Energy Center Project, Bar Harbor, Maine (DOE/EA-1875)"

Ms. Melissa Rossiter,
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, CO 80401

Dear Ms. Rossiter-

We would like to take the opportunity to respond to the "Draft Environmental Assessment for The Jackson Laboratory Biomass Energy Center Project, Bar Harbor, Maine (DOE/EA-1875)." As local Bar Harbor residents in close proximity to Jackson Lab, we will be immediately impacted by the proposed project.

We are particularly pleased to see that Jackson Lab is taking steps to help break our Nation's dependence on fossil fuel resources, and adopting sustainable alternatives. We also appreciate the great care that the Lab and the DOE has taken to assemble the information in the

Environmental Assessment. However, we would like to express a few concerns about the project.

First, the impact of noise on the neighborhood and on Acadia National Park is already significant, and there is concern that this project will affect the ambient levels in the long term. For example, noise can be heard well into the National Park especially on the flanks of Champlain Mountain, rather negatively impacting the Acadia National Park experience. Also, the report seems to minimize what it refers to as a "hum" in the surrounding area, this is actually quite disruptive to the neighbors who often cannot open their windows in the summer, or enjoy their decks and porches without discomfort. Also, the noise levels are continuous, it is not like traffic which at least dies off at night. We are actually surprised that the noise levels are as high as they are, since as a trained mechanical engineer I can say that excessive noise is an indication of process inefficiency, meaning that the Lab is incurring extra costs for its HVAC needs (it really should invest money to remedy this). Also, the report fails to mention the month that the sound study was completed. We can say from experience that the noise levels fluctuate during the seasons and it is important that the report state the month the study was conducted.

Second, and related to noise, the amount of truck traffic is increasing significantly which will not only damage an already rough secondary road (Schooner Head Road), it will add significantly to the noise levels and negatively impact the hiking experience along the Schooner Head Trail (including dangerous hiker/biker and truck interactions). It is surprising to us that the Lab is allowed to divert truck traffic onto a secondary road, when Route 3, clearly built for heavy travel, skirts the edge of the campus.

Third, no mention of odor was made in the EA. While emissions are probably similar to the oil burning process, some combustible materials can produce significant odors which can have dramatic impact on the immediate area. This should be addressed in the final EA.

Finally, the plan calls for planting seven 4' White Pines near the new building. It will take many years for these pines to effectively screen a 30' building. The Lab should spend the extra dollars to put in trees of respectable size (10' - 12') which will better survive heavy snows in the winter and screen the facility much quicker.

In order for this project to gain widespread acceptance by the community, it is important that the necessary steps be taken to demonstrate that the Lab is acting as a good neighbor. We recommend that the DOE funding be directed towards this end by 1) ensuring that noise levels do not increase (including even remediating some of the current noise sources), and exercising optional noise reduction approaches such as that referred to on Page 33 "insulate the silo fill pipe", 2) that traffic be reduced as much as possible, and better yet direct traffic from Route 3 in preference to Schooner Head Road, 3) ensure that no new environmental effects such as combustion odors be introduced into the community, and 4) additional resources are provided to better screen the facility (and its noise) from the surrounding area.

Sincerely,

Will Schroeder and Susan Boyer
128 Schooner Head Road
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May 9, 2011

Ms. Melissa Rossiter
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard,
Golden, CO 80401

Dear Ms. Rossiter,

We would like address a number of concerns we have regarding the Proposed Biomass Energy Center before the works starts and it becomes a reality. First let us say that we are not against finding ways to be more independent of the use of fuel oil, and we are not against our State of Maine being more "Green".

However, we have found some disturbing pieces of information in the Draft that lead us to believe that certain aspects of our lives and health will be compromised if discussion and possible changes to this project are not accomplished.

We feel, in reading the report, that certain subject matters have been treated from the standpoint of where the pellet factories are located and also Acadia National Park with little reference to us, the neighbors along Schooner Head Road. Therefore, we would like to present herewith our petitions on these matters.

In looking at Figure 3-8. Satellite view of the Laboratory facilities and surrounding area in Section 3.2.2.4.1, it seems to us that the proposed project site is far enough back from Schooner Head Road that it actually becomes closer to Rte 3 when looking directly across the Lab property. Therefore, we would suggest that using the Rte 3 entrance to the Lab property would be more appropriate than Schooner Head Road. In addition, the following paragraphs indicate even more so that this should be the case.

Appendix B. Section B.2 Analysis of Changes in Traffic Due to Operations states that it would take 2.45 wood pellet trucks to replace 1 fuel oil truck. 348 wood pellet deliveries per year compared to 142 fuel oil deliveries is a huge difference. Even more so, this difference is very disturbing because on Page 10 Section 2.2.2 Energy Center Operations, it is stated that the trucks would bring the wood pellets to the proposed Energy Center between 7 p.m. and 5 a.m. We feel this is not acceptable.

This means that these trucks would be coming during hours of sleep, if they arrived after 10 p.m., and go by homes that are located along Schooner Head Road. It is disturbing enough now when the delivery trucks for transporting of mice etc. come at odd hours like this (and not as often as this draft proposes), and those trucks are not as big as what you would be proposing to send this way. We feel this is a disturbance which is detrimental to our health in that we will not be able to get proper rest upon being disturbed in the night hours.

In addition, we are concerned about noise during those hours because of the fact that the trucks would connect to an air blower inside the mechanical room that would pressurize the truck tank and convey the pellets into the silo. We are also hoping that the sound-insulated hammermill room for crushing the pellets is DEFINITELY sound-insulated to protect us from noise pollution since sound can carry much more during night hours when things are generally more quiet.

Another issue we are concerned about is the combustion gases which will be given off into our atmosphere here on this part of Mt. Desert Island. As I am sure you know, there are many days when our weather presents large movements of fog through the area which lowers the ceiling and draws elements down closer to earth than on clear days. We would present to you that considerations should be made and explained clearly to the inhabitants of the area of what is being done to protect from this kind of pollution.

Considering where the proposed project site is, it is entirely possible that we will not receive any more light situations as in the past which have taken some of our dark skies away, but please consider this carefully in planning and construction. Years ago we could go out into our darkened and silent yards and see the Aurora Borealis and enjoy the cool quiet. Since the expansion of the Lab and the lighting in the additional parking lots, this is no longer an option for some of us who live nearby. We would hate to see even more taken away.

We have read in your document, also, that visual effects will be kept in such a way that the nearby borders of Acadia National Park will be protected from "visual wounds". We appreciate this effort on your part and do hope it will be as so stated. We would ask also that you do everything in your power to protect our wildlife on this island in your area. In our eyes, they are "residents" of this island and our neighbors as well as our human neighbors. We wish to protect them from harm and having to relocate outside of the natural habitat that they now enjoy.

In conclusion, we feel it would be best if Rte 3 entrances to Jackson Lab be used for delivery of the pellets and can see no reason why this could not be accomplished as (from Figure 3-8, page 35 of the draft) it appears that the proposed project site is actually closer to Rte 3 than it is to Schooner Head Road. We strongly suggest that this be the delivery route. In addition, these deliveries should be made during the day so as not to disturb the hours of sleep and, therefore, the health of the residents.

We also conclude that the Jackson Lab and US DOE be responsible for the condition of Schooner Head Road when used (perhaps in cooperation with the Town of Bar Harbor), as well as ensure that no further sound and light pollution reach this neighborhood.

We thank you in advance for "listening" to our concerns so that these positive conclusions can be reached.

Sincerely,

Alan F. Bartsch

Marie A Bartsch

Dean S. Read

Penny B. Read

CC: John Fitzpatrick, Jackson Lab

APPENDIX B
TRANSPORTATION TRAFFIC ANALYSIS

This appendix provides additional transportation and traffic information including current traffic flows and accident rates along the potential transportation routes (Section 3.2.2.2) from construction and operations for the proposed project and estimates of the additional workforce and its impact on traffic flows.

As Section 3.2.2.2.1 discusses, DOE assumed the proposed project would involve transportation of wood pellets by three representative vendors in Strong, Athens, and East Corinth, Maine, to the Laboratory. There would be three routes (one from each vendor site) to Bangor, Maine, and a common route from Bangor to the Laboratory.

B.1 EXISTING TRAFFIC CONDITIONS

B.1.1 Traffic Flow Temporal Variations

Maine State Road (SR)-3 is the primary entry point to Mount Desert Island, Acadia National Park, and the Laboratory. As the figures in Section 3.2.2.2 show, all vehicular traffic must enter and leave Mount Desert Island by crossing the Thompson Island Bridge. SR-3 is a two-lane highway with wide shoulders; it has a design capacity of 1,700 passenger cars per hour for each direction of travel, and 3,200 passenger cars per hour for both directions of travel combined (TRB 2000).

Hourly traffic is highest from 7 a.m. to 7 p.m. with peak traffic flows from 3 p.m. to 7 p.m. (Figure B-1). Even during peak hours, traffic flow does not exceed 60 percent of design capacity, which indicates an acceptable level of service. During a typical day, 84 percent of the average daily traffic occurs between 7 a.m. and 7 p.m., while 16 percent occurs from 7 p.m. to 7 a.m.

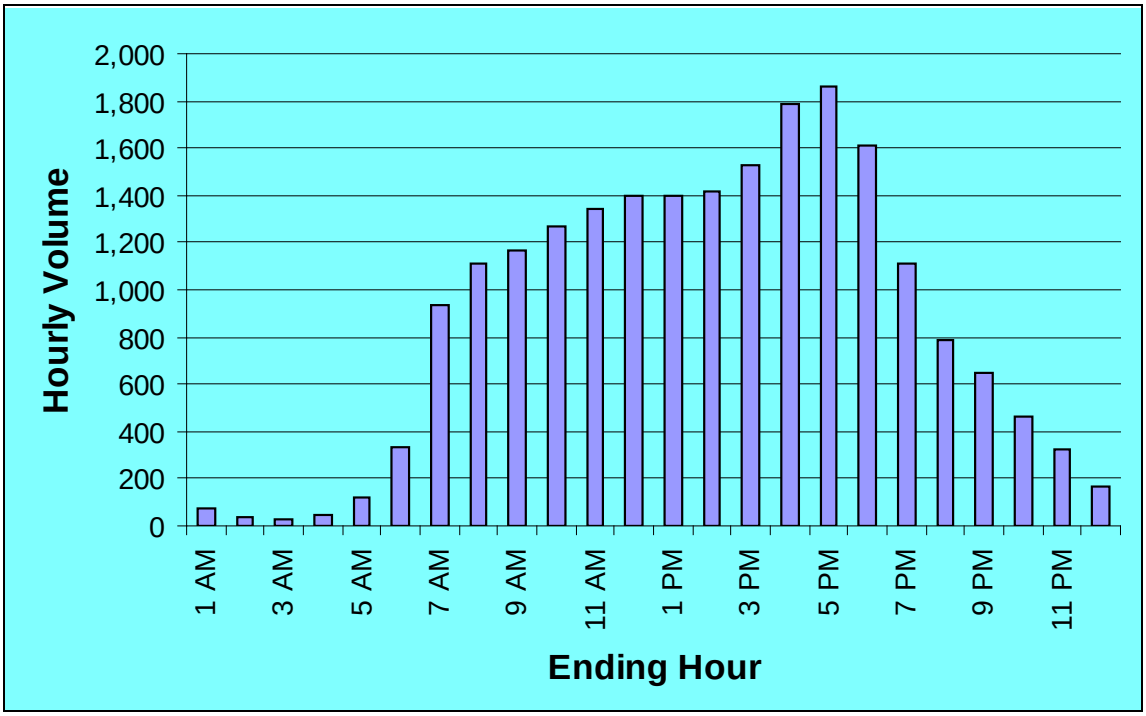

Figure B-1. Average hourly traffic volumes in July and August 2009 on SR-3 north of Thompson Island Bridge (Hanscom 2010).

Figure B-2 shows the seasonal variation in traffic flow near the Thompson Island Bridge on SR-3. The highest daily flow occurs during the tourist season – from May through September. As the figure shows, the average daily flow during the tourist season is almost twice the flow during the winter months.

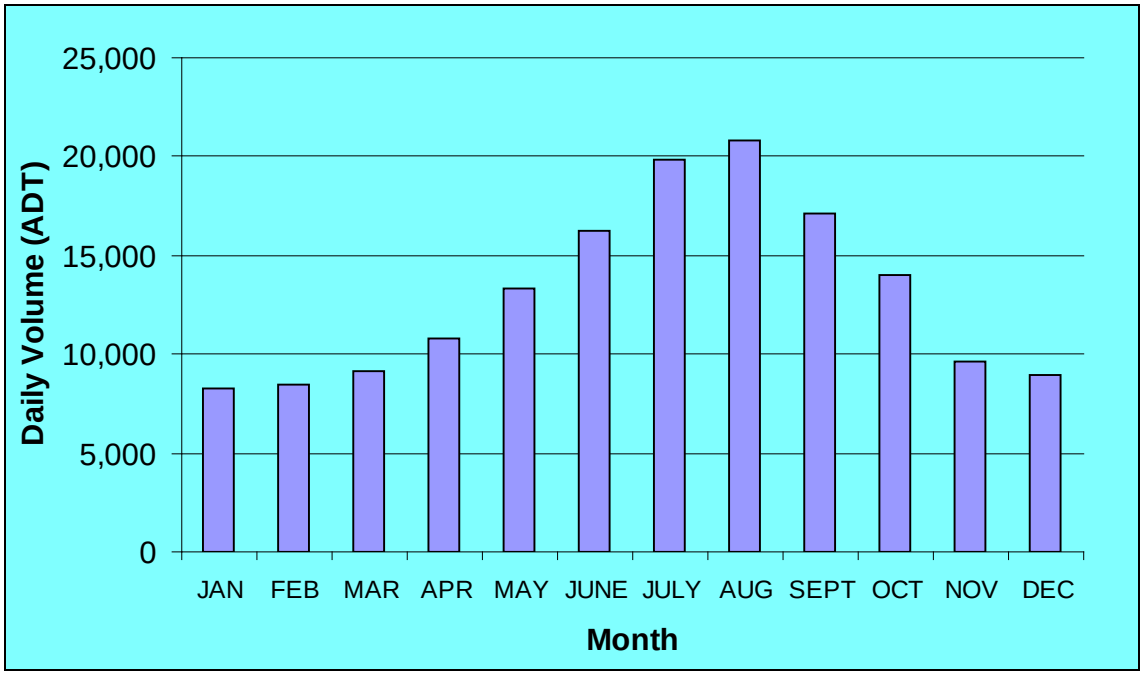

Figure B-2. Monthly average daily traffic volume in 2009 on SR-3 north of Thompson Island Bridge (Hanscom 2010).

B.1.2 Traffic Flow Trends and Level of Service

Traffic operations are evaluated in terms of level of service, which is a qualitative measure that designates operations by letter. The levels range from A (very little delay) to F (extreme delays). Level of service D is generally acceptable in urban locations, while level of service E is generally the capacity of a facility and the minimum tolerable level. The level of service for intersections without traffic signals is based on average control delay per vehicle for each minor opposed movement (such as left turns against oncoming traffic) (Table B-1).

Table B-1. Level of service at intersections without traffic signals.

Level of service	Delay range (seconds)
A	<= 10
B	>10 and <= 15
C	>15 and <= 25
D	>25 and <= 35
E	>35 and <= 50
F	>50

Source: TRB 2000.

Traffic studies in 2006 (MDOT 2006) and 2003 (CGE 2003) provided estimates for intersections on SR-3 near Trenton, Maine, and the Laboratory during periods of peak demand. Tables B-2 and B-3 list the results of these studies for Trenton; Table B-4 lists results for the SR-3 intersection near the Laboratory.

Table B-2. 2006 conditions level of service for intersection near Trenton, Maine, during evening peak hour.

Location	Delay (seconds)	Level of service
SR-3 and SR-204		
SR-3 southbound, left turn	12.0	B
SR-204 westbound	131.8	F
SR-3 and SR-230/Camp Ground Road		
SR-3 northbound, left turn	15.0	B
SR-3 southbound, left turn	12.5	B
SR-230 eastbound, left turn	>600	F
SR-230 eastbound, right turn	19.9	C
Camp Ground road westbound	>600	F

Source: MDOT 2006.

Table B-3. Historical average annual daily traffic data near Trenton, Maine.

Location	1991	1993	2000	2001	2002	2003	2004	2005	2006	2007	2008
SR-204, east of SR-3	2,080	2,100	---	2,740	---	3,260	---	2,970	3,260	---	3,320
SR-230, west of SR-3	1,610	1,670	---	2,510	---	3,390	---	2,970	2,800	---	2,590
SR-3, south of SR-204	10,200	10,040	---	12,920	---	12,930	---	---	11,760	---	12,130
SR-3, north of SR-230	---	10,370	---	13,030	---	13,670	---	---	12,370	---	12,110
SR-3, north of the Thompson Island Bridge	10,600	---	13,440	14,410	14,280	14,360	14,370	13,640	13,610	13,550	12,910

Sources: MDOT 2006, 2009.

The SR-3 northbound and southbound approach left-turn movements operate at level of service B at the intersection with SR-230. As mentioned above, the SR-230 approach at this intersection includes an exclusive right-turn lane and a shared through and left-turn lane. The right-turn movement operates at an acceptable level of service C, while the through and left-turn movement at this approach operates at level of service F, with long average delays of more than 10 minutes. Vehicles passing through and turning left at this approach need to find an acceptable gap in SR-3 northbound and southbound traffic, simultaneously, to move on. The heavy SR-3 traffic in both directions limits these gap opportunities and causes the long delays. Vehicles on Camp Ground Road, although few, experience the same delays as the SR-230 through and left-turning vehicles.

Table B-3 lists historical average annual daily traffic data for the roads near Trenton for years with available data. The data show a decline in traffic volumes since about 2001. Therefore, the current level of service has probably improved from those in Table B-2. However, the levels of service for SR-204 westbound, SR-230 eastbound left turn, and Camp Ground Road westbound probably remain at level of service F during the evening peak hour.

Table B-4 lists the existing level of services in 2003 and the predicted levels of service in 2008 for roads near the Laboratory in 2003. The predicted data for 2008 were based on increased average annual daily traffic of 1.3 percent and 2.2 percent from 1993 through 2001 for SR-3 and Schooner Head Road, respectively. In addition, traffic volumes along Cromwell Harbor Road increased 4.8 percent over the same period. Based on these historical data, the EA (CGE 2003) analysis applied a 2.5-percent annual

rate increase to SR-3 and Schooner Head Road and a 5-percent annual rate increase to Cromwell Harbor Road to project the 2008 levels of service.

Table B-4. Existing level of service in 2003 and predicted level of service in 2008 for the SR-3 intersection near the Laboratory during peak evening hours.

Location	Existing in 2003		Predicted for 2008	
	Delay (seconds)	Level of service	Delay (seconds)	Level of service
SR-3 and Schooner Head Road				
Schooner Head Road approach	17.6	C	25.9	D
Left turns onto Schooner Head Road	8.5	A	8.9	A
SR-3 and Cromwell Harbor Road				
Cromwell Harbor Road approach	41.8	E	107.9	F
Left turns onto Cromwell Harbor Road	8.3	A	8.6	A

Source: CGE 2003.

Table B-5 lists historical average annual daily traffic data through 2008. The data indicate a decrease in average annual daily traffic since 2001 for the roads near the Laboratory. Because the predicted levels of service in Table B-5 were based on the assumption that average annual daily traffic would increase after 2001, the current levels of service for the roads near the Laboratory have probably improved from those in Table B-4. Table B-5 shows the average annual daily traffic on Cromwell Harbor Road and SR-3 decreased by more than 10 percent from 2001 to 2008. Therefore, the Cromwell Harbor Road approach has probably improved from the level of service E existing in 2003.

Table B-5. Historical average annual daily traffic data near the Laboratory.

Location	1993	1996	1998	2001	2006	2008
SR-3, southwest of Cromwell Harbor Road	4,530	4,170	NA	5,000	4,560	4,470
SR-3, southwest of Schooner Head Road	3,450	3,360	3,600	4,060	3.360	3,470
Schooner Head Road, southeast of SR-3	910	800	800	1,060	NA	1,060
Cromwell Harbor Road, east and west of Ledgelawn	NA	NA	NA	1,260	1,120	990

Sources: CGE 2003; MDOT 2009.
NA = not readily available.

The Laboratory employs about 1,200 workers at the Bar Harbor campus. This level of employment is lower than that evaluated in the 2003 traffic impact report (CGE 2003), which evaluated potential impacts of the increased traffic from a proposed Laboratory expansion. The expansion was to include 148 employees in addition to the 1,250 employees in 2003 (Nicholson 2009) and would be higher than the employment level in 2010.

The area of study was SR-3 north of the Laboratory, including the Schooner Head Road and Cromwell Harbor Road intersections.

The analysis results in the traffic impact report indicated that the level of service for cars turning left onto Schooner Head Road was A and would continue at that level. The level of service for cars turning from Schooner Head Road onto SR-3 was C in 2003 and would drop to D after completion of the second phase of the proposed expansion when all projected new employees were in place (scheduled at that time for 2008). Level of service D is acceptable for urban areas under standard Maine traffic engineering standards. Left turns onto Cromwell Harbor Road would remain at level of service A after full buildout. The approach to SR-3 from Cromwell Harbor Road was E in 2003 and would drop to F with or without the proposed expansion. This assumed a 2.5-percent average annual daily traffic increase on SR-3 and a 5-percent annual increase on Cromwell Harbor Road from 2001 through 2005. However, the average

annual daily traffic on Cromwell Harbor Road and SR-3 actually decreased by more than 10 percent from 2001 to 2008. Therefore, the Cromwell Harbor Road approach level of service has probably improved from the predicted level of service F for 2005 in the 2003 traffic report (CGE 2003).

The Laboratory employs about 1,200 workers at the Bar Harbor campus. This level of employment is essentially the same as that projected under the expansion program and for which the 2003 traffic impact report concluded that changes to the level of service from the higher number of employees would meet acceptable standards (that is, no lower than D) or would occur regardless of Laboratory expansion.

B.2 ANALYSIS OF CHANGES IN TRAFFIC DUE TO OPERATIONS

During operations for the proposed project, there would not be an increase in the number of operations employees. Existing employees would oversee the operation of the wood pellet boiler and adjacent buildings (Nicholson 2010b).

In 2009, the Laboratory consumed about 1.5 million gallons of fuel oil per year (Nicholson 2011b). DOE calculated it takes about 178 truck deliveries per year or about 1 delivery every 2 days to deliver this amount of fuel oil. During operations, the wood pellet boiler would offset as much as 1.28 million gallons of fuel oil per year with wood pellets. Based on the information in Appendix B, DOE calculated it would take 2.45 wood pellet trucks to replace 1 fuel oil truck. Therefore, there would be about 348 wood pellet deliveries per year, which would displace 142 fuel oil deliveries.

Table B-6. Assumptions for calculating the number of oil and wood pellet trucks to equal 1.28 million gallons of fuel oil.

Oil	Gallons per year	1,280,000
	Btu per gallon	139,000
	Btu per year	177,920,000,000
	Gallons per truck	9,000
	Oil trucks per year	142
Wood Pellets	Btu per pound[a]	8,000[a]
	Pounds per year	22,240,000
	Tons per year	11,120
	Tons per delivery	32
	Wood pellet trucks per year	348

Source: Nicholson 2010f.

a. The specified Btu content of wood pellets ranges from 7,800 Btu per pound to 8,200 Btu per pound.

Table B-7 lists the number of wood pellet deliveries each month that would supply the energy needs of the Laboratory, the number of fuel oil deliveries offset by wood pellet deliveries, and the increased truck deliveries per day.

Table B-8 lists the maximum number of fuel delivery trucks under the proposed project and the No Action Alternative. With the understanding that partial deliveries would probably not occur and that nondaily deliveries could coincide, the table indicates that during winter months the maximum number of fuel delivery trucks could be as high as three under the Proposed Action, which compares with a single truck delivery per day under the No-Action Alternative. This would result in a maximum of six fuel

Table B-7. Change in fuel truck deliveries per day to the Laboratory for operations.

Month	Tons pellets	Days per month	Wood pellet deliveries		Replaced oil trucks per day	Increased deliveries per day
			Tons per day	Trucks per day		
January	1,382	31	45	1.4	0.6	0.8
February	1,249	28	45	1.4	0.6	0.8
March	1,165	31	38	1.2	0.5	0.7
April	887	30	30	0.9	0.4	0.5
May	700	31	23	0.7	0.3	0.4
June	704	30	23	0.7	0.3	0.4
July	657	31	21	0.7	0.3	0.4
August	645	31	21	0.7	0.3	0.4
September	673	30	22	0.7	0.3	0.4
October	777	31	25	0.8	0.3	0.5
November	1,026	30	34	1.1	0.4	0.6
December	1,254	31	40	1.3	0.5	0.7
Annual	11,120	365	30	1.0	0.4	205

Source: Nicholson 2010f.

Table B-8. Maximum wood pellet and fuel oil deliveries per day under the proposed project and No-Action Alternative.

Month	Wood pellet deliveries		Oil deliveries		Total maximum	
	Average	Maximum	Average	Maximum	Proposed project	No Action
January	1.4	2	0.4	1	3	1
February	1.4	2	0.2	1	3	1
March	1.2	2	0.1	1	3	1
April	0.9	1	0.0	1	2	1
May	0.7	1	0.0	0	1	1
June	0.7	1	0.0	0	1	1
July	0.7	1	0.0	0	1	1
August	0.7	1	0.0	0	1	1
September	0.7	1	0.0	0	1	1
October	0.8	1	0.0	1	2	1
November	1.1	2	0.1	1	3	1
December	1.3	2	0.1	1	3	1

Source: Nicholson 2010f.

delivery trucks passing a single point along the road per day under the proposed project in comparison with a maximum of two fuel delivery trucks per day under the No-Action Alternative. However, these trucks would be in addition to other trucks that normally use the affected roadways and the maximum numbers would occur only during the winter months.

The determination of the change in the average annual daily traffic under the proposed project along the affected routes used the assumptions that one-third of the additional 348 wood pellet shipments would originate from each vendor, that all wood pellet trucks would travel from Bangor to the Laboratory, and that all of the 142 displaced fuel oil trucks originated in Bangor. In addition, each additional or displaced truck per day would represent an average annual daily traffic count of two because each truck would make two trips per day (from the vendor to the Laboratory and then back to the vendor).

Table B-9 lists the percentage increase in the total and heavy truck average annual daily traffic counts under the proposed project for the affected roadways. As listed in the table, the increase in along the

affected roadways would range from a low of 0.003 percent along Interstate Highways 95 and 395 to a high of 0.05 percent on SR-151 near Athens, Maine. These minimal increases in the average annual daily traffic, together with the fact that the fuel delivery trucks would make deliveries only during off-peak hours (7 p.m. to 5 a.m., see Figure B-1), would result in very minimal impacts to the level of service along these roadways. Therefore, under the proposed project, all affected roadways near the Thompson Island Bridge and the Laboratory would remain at an acceptable level of service.

Table B-9. Change in average annual daily traffic under the proposed project for roads of interest.

Route	Additional heavy truck trips per year	Percent of current AADT[a] (all vehicles)	Percent of current AADT (heavy trucks)
Vendor routes			
Athens to Bangor			
SR-151 (includes SR-2 and -11 to I-95)	232	0.05	2.27
I-95 (Newport to Bangor – north- and southbound)	232	0.004	0.04
Strong to Bangor			
SR-4 (includes SR-145)	232	0.02	0.19
SR-2 (includes SR-139)	232	0.01	0.10
I-95 (Fairfield to Newport – north- and southbound)	232	0.01	0.04
I-95 (Newport to Bangor – north- and southbound)	232	0.004	0.04
East Corinth to Bangor			
SR-15	232	0.01	0.15
I-95 (Broadway to I-395)	232	0.003	0.04
Common route			
Bangor to the Laboratory			
I-395 (I-95 to US-1 – east- and westbound)	412	0.003	0.03
SR-1A (Brewer to Ellsworth)	412	0.01	0.11
SR-3 (Ellsworth to the Laboratory)[b]	412	0.01	0.28

a. Current AADT source: Hanscom 2010.
b. Traffic count data provided only for Trenton, Maine, and downtown Bar Harbor.
AADT = average annual daily traffic; I = Interstate Highway; US = U.S. Highway.