

**FINAL
ENVIRONMENTAL ASSESSMENT
FOR THE
NORWICH COGENERATION
INITIATIVE,
NORWICH, CONNECTICUT**

**U.S. Department of Energy
National Energy Technology Laboratory
Morgantown, West Virginia**



March 2011

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COVER SHEET

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Title: *Final Environmental Assessment for the Norwich Cogeneration Initiative, Norwich, Connecticut (DOE/EA-1836)*

Contact: For additional copies or more information about this environmental assessment (EA), please contact:

Joseph Zambelli
National Energy Technology Laboratory
U.S. Department of Energy
3610 Collins Ferry Road
P.O. Box 880, Mail Stop B07
Morgantown, West Virginia 26507-0880
Email: joseph.zambelli@netl.doe.gov
Fax: (304) 285-4403

Abstract: The DOE National Energy Technology Laboratory (NETL) prepared this Environmental Assessment (EA) to analyze the potential environmental impacts of providing funding to Norwich Public Utilities (NPU) for its proposed Norwich Cogeneration Initiative in Norwich, New London County, Connecticut. DOE's proposed action is to provide a financial assistance grant of about \$718,000. The total project cost would be about \$1.47 million, with NPU providing the balance of the funding. The proposed funding is based on a Congressional earmark. DOE's Office of Energy Efficiency and Renewable Energy believes this project will advance research and development and demonstrate energy efficiency technology.

NPU would construct and operate a high-efficiency natural-gas-fired reciprocating engine cogeneration facility on property leased from and adjoining Atlantic City Linen Supply New England (ACLS). ACLS operates an industrial laundry service at this location. The proposed project would install a natural-gas-fired reciprocating engine to generate 540 kilowatts of electricity and use the thermal energy, in the form of a closed-loop hot water heat exchanger, to produce hot water for ACLS's operations. The electricity generated by the unit would be transmitted to NPU's distribution system and offset electricity purchases, potentially reducing costs to all customers.

Availability: This EA is available on the DOE NETL website at <http://www.netl.doe.gov/publications/others/nepa/index.html> and on the DOE National Environmental Policy Act website at http://nepa.energy.gov/DOE_NEPA_documents.htm.

ACRONYMS AND ABBREVIATIONS

ACLS	Atlantic City Linen Supply New England
CDEP	Connecticut Department of Environmental Protection
CFR	<i>Code of Federal Regulations</i>
dB(A)	A-weighted decibel
DOE	U.S. Department of Energy
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
FWS	U.S. Fish and Wildlife Service
ITP	Industrial Technologies Program
NEPA	<i>National Environmental Policy Act of 1969, as amended</i>
NETL	National Energy Technology Laboratory
NPU	Norwich Public Utilities
PM ₁₀	particulate matter with aerodynamic diameter of 10 micrometers or less
PM _{2.5}	particulate matter with aerodynamic diameter of 2.5 micrometers or less
SHPO	State Historic Preservation Officer
U.S.C.	<i>United States Code</i>

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SUMMARY

The U.S. Department of Energy (DOE or the Department) proposes to award a financial assistance grant of about \$718,000 to Norwich Public Utilities (NPU). The grant would fund in part NPU's proposed project, in which NPU would construct and operate a high-efficiency natural-gas-fired cogeneration facility on property leased from and adjoining Atlantic City Linen Supply New England (ACLS). The facility would generate 540 kilowatts of electricity and provide thermal energy to ACLS to produce hot water. The total cost of the proposed project would be about \$1.47 million. NPU would construct the cogeneration facility on 3 acres of ACLS property in the Norwich Business Park in New London County, Connecticut. The proposed project would occupy almost 1,100 square feet of previously disturbed land.

In this environmental assessment (EA), DOE evaluated the potential impacts of (1) the proposed action of providing a financial assistance grant to NPU in a cost-sharing arrangement, (2) NPU's proposed project, and (3) the No-Action Alternative.

The analyses for this EA considered all the environmental resource areas DOE typically includes in National Environmental Policy Act documents. Some of the resource areas were not carried forward for additional analysis because DOE determined there would be no impacts or the potential impacts would be small or temporary in nature, or both (Table 1-1). Therefore, DOE focused its analyses on those resource areas that could require new or amended permits, have the potential for significant impacts or controversy, or typically interest the public, such as socioeconomics. These resource areas are:

- Air quality;
- Water resources;
- Noise;
- Socioeconomics; and
- Environmental justice.

DOE consulted with the Connecticut State Historic Preservation Office about its determination that the proposed project would have no impact on historic properties. The Office concurred with DOE's determination. DOE also consulted with the Mashantucket Pequot Tribe of Connecticut and the Mohegan Indian Tribe of Connecticut. The tribes did not identify any potential for impacts to cultural resources.

DOE consulted with the U.S. Fish and Wildlife Service and the Connecticut Department of Environmental Protection. DOE also reviewed the lists and maps of federal and state threatened and endangered species and their habitat requirements and, finding no such habitats at the site in New London County, Connecticut, determined there would be no impacts to protected species.

The proposed project would have the beneficial impacts of providing about 4,000 megawatt-hours per year of baseload electricity for local distribution by NPU and of providing thermal energy to

ACLS through a closed-loop water system for its hot water needs. The operating efficiency of the system would be about 60 percent, and the facility would allow ACLS to reduce the use of their steam boilers.

Air emissions from construction would include combustion emissions from construction equipment and fugitive dust from site preparation activities. These would have a short-term adverse impact that NPU could mitigate through best management practices. During operations, the proposed project would be a minor source of emissions that would be insignificant by statutory definition.

The remotely operated proposed cogeneration facility would not use groundwater; only minor amounts of potable water purchased from the Norwich municipal water system would be necessary for routine maintenance and cleaning. The proposed project would not generate waste other than a limited amount of construction debris such as wood, metal, and concrete that NPU would send to the City of Norwich's Rogers Road municipal landfill. The proposed project would not generate hazardous waste.

During construction and operation, storm water runoff would feed into the existing permitted ACLS storm water management and treatment system. The increase in storm water runoff on the ACLS property (less than 2 percent) would be a minor addition to the existing system, which would adequately treat this water before it reached nearby wetlands.

Some noise impacts from construction equipment would occur during the short construction phase. Noise levels during operations would not be audible at the nearest receptor. Actual noise levels would be lower than those analyzed in this EA because of the cogeneration system's enclosure, which would attenuate noise.

The project would create six to eight temporary jobs during approximately 2 months of construction. Operation of the cogeneration plant would be unlikely to create any long-term direct jobs, but it could help to preserve existing jobs and community resources by improving the cost efficiency of ACLS operations. DOE determined there would be no adverse impacts to socioeconomics or environmental justice. The project may result in a small, one-time boost to the local economy from the expenditures to construct and operate the plant.

None of the proposed construction activities would occur in a 100-year floodplain, and the proposed project would not disturb the nearby existing wetlands other than the occasional discharge of an additional small amount of treated storm water runoff.

Cumulative impact considerations included the periodic operations of NPU's two diesel generators at the Norwich Business Park that provide power during peak demand periods. These generators operate for about 300 hours per year in average periods of about 4 hours and would have minimal cumulative air quality impacts in combination with the emissions of the proposed project. There are no other identified projects that would contribute to cumulative impacts with the proposed project.

Under the No-Action Alternative, DOE assumed NPU would not proceed with the project without DOE assistance. Therefore, there would be no impacts to any resource category. However, the above-described potential for positive impacts to air quality and the local economy would also not occur. In addition, DOE's ability to achieve its objectives under the Industrial Technologies Program would be impaired, and NPU and ACLS would not experience the ongoing cost savings.

1. INTRODUCTION

The U.S. Department of Energy (DOE or the Department) National Energy Technology Laboratory (NETL) prepared this *Final Environmental Assessment for the Norwich Cogeneration Initiative, Norwich, Connecticut* (EA; DOE/EA-1836D) to analyze the potential environmental impacts of providing financial assistance to Norwich Public Utilities (NPU) for the proposed Norwich Cogeneration Initiative in Norwich, Connecticut. DOE prepared this EA in accordance with the *National Environmental Policy Act of 1969* (NEPA; 42 U.S.C. 4321 et seq.), Council of Environmental Quality regulations (40 CFR Parts 1500 to 1508), and DOE NEPA implementing procedures (10 CFR Part 1021).

This proposed grant is based on a Congressional earmark. NPU would design, construct, and operate a 540-kilowatt cogeneration facility in partnership with one of NPU's largest consumers, Atlantic City Linen Supply New England (ACLS). The plant would be constructed on the ACLS site at 5 Consumers Avenue in the Norwich Business Park in Norwich, New London County, Connecticut (Figure 1-1). The cogeneration plant would consist of a 540-kilowatt natural-gas-fired reciprocating engine and supporting equipment that would transmit power directly to the NPU's local distribution system as well as provide thermal energy through a closed-loop system directly to ACLS (Alsup 2010).

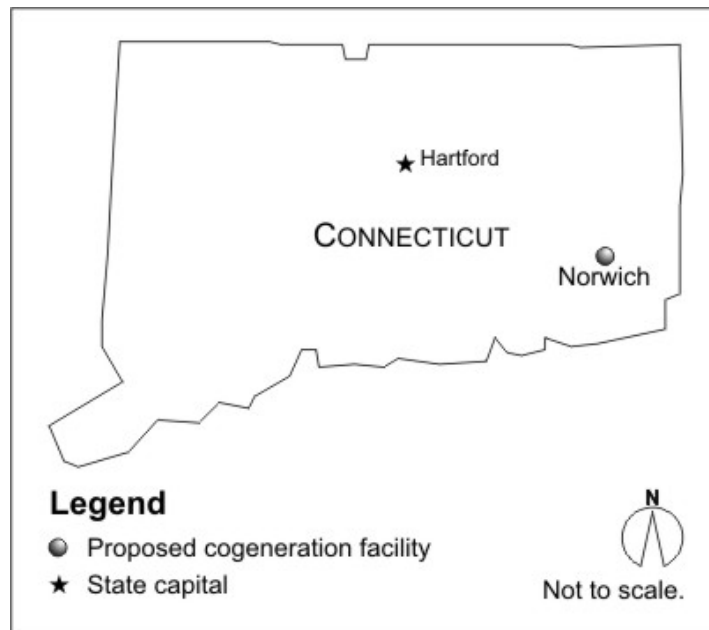


Figure 1-1. General location of Norwich, Connecticut.

This chapter explains NEPA and related regulations (Section 1.1), the background of the Industrial Technologies Program and the Department's purpose and need for action (Section 1.2), the scope of the EA (Section 1.3), the environmental resources DOE did not carry forward to detailed analysis (Section 1.4), and the consultation and public participation process (Section 1.5). Chapter 2 discusses DOE's proposed action, NPU's proposed project, the

No-Action Alternative, and alternative actions. Chapter 3 details the affected environment and the potential environmental consequences of the proposed project and the No-Action Alternative and considers resource commitments. Chapter 4 addresses cumulative impacts, and Chapter 5 provides DOE's conclusions from the analyses. Chapter 6 lists the references for this document. Appendix A contains the distribution list, and Appendix B contains correspondence between DOE, the Connecticut State Historic Preservation Officer (SHPO), the U.S. Fish and Wildlife Service (FWS), the Mashantucket Pequot Tribe of Connecticut, and the Mohegan Indian Tribe of Connecticut. Appendix B also contains the two comments DOE received on the draft EA.

1.1 National Environmental Policy Act and Related Regulations

NEPA requires federal agencies to evaluate the potential environmental impacts of their proposed actions, including funding decisions, that could have a significant impact on human health or the environment as part of their planning and decision-making processes. For this project, DOE is the federal agency for evaluating potential impacts under NEPA and must determine whether to provide funding. DOE is the only federal agency with responsibility to approve or deny the partial funding for the Norwich Cogeneration Initiative and, therefore, is the lead agency responsible for the preparation of this EA. DOE prepared this EA, in compliance with NEPA and the DOE NEPA implementing procedures, to provide the public and responsible agencies with information about the Norwich Cogeneration Initiative and its potential effects on the environment. This EA fulfills DOE's obligations under NEPA and provides DOE with the information necessary to make an informed decision about helping to finance the final design, construction, and startup of the Norwich Cogeneration Initiative.

In addition to NEPA and related regulations, this EA complies with all applicable laws and regulations, including but not limited to the *National Historic Preservation Act* (16 U.S.C. 470 et seq.); the *Archeological Resources Protection Act of 1979* (16 U.S.C. 470aa et seq.); the *Native American Graves Protection and Repatriation Act* (25 U.S.C. 3001 et seq.); the *Noise Control Act of 1972* (42 U.S.C. 4901 et seq.); the *Clean Air Act* (42 U.S.C. 7401 et seq.); the *Clean Water Act of 1977* (33 U.S.C. 1251 et seq.); (16 U.S.C. 1451 et seq.); the *Endangered Species Act of 1973* (16 U.S.C. 1531 et seq.); the *Pollution Prevention Act of 1990* (42 U.S.C. 13101 et seq.); Executive Order 12898, "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations"; Executive Order 11990, "Protection of Wetlands"; and Executive Order 11988, "Floodplain Management."

1.2 Purpose of and Need for the Proposed Action

The DOE NETL manages the research and development portfolio of the Industrial Technologies Program (ITP) for the Office of Energy Efficiency and Renewable Energy. The mission of the ITP is to establish U.S. industry as a world leader in energy efficiency and productivity. The program leads the national effort to reduce industrial energy intensity and carbon emissions, and strives to transform the way U.S. industry uses energy by supporting cost-shared research and development that addresses the top energy challenges facing industry. In addition, the ITP

fosters the adoption of advanced technologies and energy management best practices to produce meaningful progress in reducing industrial energy intensity.

The ITP's three-part strategy pursues this mission by:

- Sponsoring research, development, and demonstration of industry-specific and crosscutting technologies to reduce energy and carbon intensity;
- Conducting technology delivery activities to help plants access today's technology and management practices; and
- Promoting a corporate culture of energy efficiency and carbon management within industry.

The overall purpose of this grant is to support the mission of the ITP through advancing the research, development, and demonstration of industrial energy-efficient technologies that reduce fossil fuel requirements. The proposed project would send thermal energy to the adjoining ACLS facility, substantially raising the efficiency of the generating process and matching the generation with the needs of the customer, thereby reducing the costs to both partners. The project also would demonstrate the use of the cogeneration technology for a specific customer and promote a corporate culture of energy efficiency.

1.3 Scope

The focus of the more detailed analyses in Chapter 3 is on those resources that could require new or amended permits, have the potential for significant impacts or controversy, or typically interest the public, such as socioeconomics and environmental justice. DOE identified the following resource areas for more detailed study:

- Air quality;
- Water resources (including surface water and wetlands);
- Noise;
- Socioeconomic resources; and
- Environmental justice.

Section 1.4 discusses resource areas DOE considered but dismissed from further analysis.

1.4 Resource Topics Not Carried Forward to Detailed Analysis

DOE EAs commonly address the environmental resource areas listed in Table 1-1. However, in an effort to streamline the NEPA process and enable a timely award to the proposed project, DOE did not examine the resource areas in the table at the same level of detail as those in Chapter 3. Table 1-1 describes the Department's evaluation of these resource areas. In each case, there would be no impacts or the impacts would be small, temporary in nature, or both.

Therefore, DOE determined that further analysis was unnecessary. In terms of the No-Action Alternative, the impacts in Table 1-1 would not occur because DOE assumes the proposed project would not proceed.

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

Environmental resource area	Impact consideration and conclusions
Geology and soils	<p>The Norwich Business Park has been operating since the 1960s and currently includes over 50 companies. The National Cooperative Soil Survey mapped the soils on the ACLS site as Canton and Charlton Series soils. Canton and Charlton soils form in glacial till, which is an unsorted mixture of clay, silt, sand, pebble, stone, and boulders deposited during the Wisconsin Glaciations 12,000 to 14,000 years ago. The soil texture is typically loamy sand and the soils are typically well drained. These soils typically occur on side slopes and crests of upland hills and ridges.</p> <p>The soil on the specific site of the proposed facility is consistent with that shown in National Cooperative Soil Survey mapping, but has been previously disturbed and graded for the development of the ACLS property. The soils on the site are not prime farmland soils and do not pose any limitations for the proposed development. Therefore, DOE determined there would be no impact to prime farmlands.</p> <p>According to the U.S. Geological Survey, Connecticut is a region of very low seismic activity. Minor earthquakes have occurred near Moodus, Connecticut, about 13 miles from Norwich. The nearest fault line is about 5 miles south of the proposed project site. Due to the low level of activity and the minor impacts of the recorded seismic events, no seismic impacts are expected (USGS 2010).</p>
Land use	<p>Construction and operation of the proposed project would occur on existing ACLS property at the Norwich Business Park. The site occupies about 3 acres (131,000 square feet), of which the proposed facility would occupy almost 1,100 square feet. There would be no changes to or effect on adjacent land uses, and the proposed land use would be consistent with ongoing operations. DOE determined there would be no impact to land use at the site or in the local area.</p>
Wild and scenic rivers	<p>The <i>National Wild and Scenic Rivers Act</i> is administered by four federal agencies—the Bureau of Land Management, the National Park Service, the FWS, and the Forest Service. The Act protects selected rivers and their immediate environments that possess outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. In Connecticut, two designated National Wild and Scenic Rivers occur: (1) 14 miles of the Farmington River’s West Branch and segments of the main stem and (2) specified tributaries of the Eightmile River (IWSRC 2010). The Eightmile River is closest to the site at a distance of about 12 miles. Because the site is not in the watershed of the Eightmile River, DOE determined there would be no impacts to wild and scenic rivers.</p>

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

Environmental resource area	Impact consideration and conclusions
Floodplains	The nearest Federal Emergency Management Agency mapped 100-year floodplain is approximately 200 feet from the site. The proposed building and parking spaces would not require construction in or have any impacts on the floodplain (FEMA 1994).
Aesthetics and visual resources	The proposed project would be similar in appearance to existing industrial facilities including the adjacent ACLS building and would not alter or result in major changes or variations to the types of views seen from on the site or at locations adjacent to the site.
Biological resources	<p>There would be small but temporary impacts to wildlife on or near the proposed project site during the expected 2-month construction period. Wildlife could be displaced from the area due to the presence of people, vehicles, and operating equipment and, in some circumstances, could be killed by cars and construction equipment. No impacts would occur during the operations phase.</p> <p>After discussions with the FWS New England Field Office, DOE followed the Service's protocol and reviewed the list of federally threatened and endangered species and their habitat requirements using the FWS website. While there are eight listed species for New London County, none occurs in the Norwich area. Appendix B contains a copy of the FWS letter indicating compliance with the process and that no species of concern appear to occur at the site of the proposed project.</p> <p>DOE also consulted with the Connecticut Department of Environmental Protection (CDEP) (Zyko 2010). DOE followed CDEP protocol and used its Natural Diversity Data Base to review the species map for the Norwich area. The review concluded that no federal or state listed species occur on or near the proposed project site. The nearest such habitat is over 2.3 miles away (CDEP 2010).</p> <p>DOE determined that there would be no effect on federal or state threatened or endangered species.</p>
Historic and cultural resources	<p>The <i>National Register of Historic Places</i> lists 28 properties in Norwich, New London County, Connecticut. DOE determined that there would be no effects on historic properties or districts because construction would occur on previously disturbed land at the 450-acre Norwich Business Park. The business park is more than 1.6 miles from the nearest listed property (the Bean Hill Historic District) (CLA 2010). DOE consulted with the Connecticut SHPO, who indicated there would be no effect on historic properties, and the Mohegan and Mashantucket Pequot Tribes, who did not identify potential adverse impacts from the proposed project.</p> <p>If construction activities unearthed potential historically or culturally significant materials or artifacts, NPU would immediately halt such activities, notify the Connecticut SHPO and the Mohegan and Mashantucket tribes, and consult with the SHPO and tribes before resuming activity, in accordance with 36 CFR 800.13. Based on the previously disturbed nature of the site, and the distance to</p>

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

Environmental resource area	Impact consideration and conclusions
Historic and cultural resources (continued)	the nearest historic property, DOE determined impacts to historic or cultural resources would be unlikely. If any artifacts are found during construction, appropriate measures would be taken in consultation with the SHPO and tribes.
Occupational and public health and safety	<p>Initial construction activities would involve clearing vegetation and grading the site. Construction of the foundation and parking spaces, installation of the 540-kilowatt cogeneration system and utility connections would be of short duration (about 2 months) and would involve about six to eight temporary jobs.</p> <p>The total recordable cases incidence rate in 2008 for nonresidential building construction jobs was 4.4 injuries per 100 full-time employees, and the incidence rate for days away from work, days of restricted work activity, or job transfer was 2.2 injuries per 100 full-time employees (BLS 2009). DOE expects workplace accident rates would be typical of industry averages. To be conservative, DOE assumed eight workers would work full time for 2 months. The estimated number of injuries resulting from construction would be about 0.35 on-duty injuries and 0.18 off-duty or restricted duty injuries.</p> <p>NPU would operate the cogeneration system remotely, so there would be no full-time workers for operations. Workers would be at the site only for short periods to perform scheduled maintenance. Planned maintenance would involve one worker to inspect the facility visually for basic safety and security about 0.5 hour each week; two workers for about 1 hour of routine testing once a month; and two workers for preventive maintenance on the system for about 4 hours every 3 months. The expected injury rate for such short-duration, routine operations would be minimal.</p> <p>The public would not have access to the facility, so no risks of impacts to public health and safety are expected.</p>
Waste	Construction for the proposed project would generate some construction waste such as wood, metal, and concrete. NPU would transport this waste to the City of Norwich's Rogers Road municipal landfill. Operations would not generate solid wastes. Neither construction nor operations would generate hazardous waste.
Transportation	Small temporary increases in daily traffic to and from the proposed project site would occur during construction for the proposed project. The only traffic to the proposed facility during operations would be for periodic maintenance. Existing public roads are sufficient for accessing the ACLS property; existing onsite roads are sufficient for accessing the proposed project site during maintenance. Therefore, DOE determined there would be no impacts to transportation from the proposed project.
Utilities, energy, and materials	The proposed facility would generate electricity for local distribution, have minimal use of water and sewer, only for periodic maintenance and cleaning, and its use of natural gas would be partially offset by a reduction of natural gas use by the ACLS boilers, which would operate at a reduced level. DOE reviewed the local capacity for natural gas and found it to be sufficient to support the operational needs the proposed system. There would be no unique materials necessary to manufacture, install, or operate the proposed project.

1.5 Consultations and Public Participation

1.5.1 Consultations

State Historic Preservation Office

On October 27, 2010, DOE sent a formal consultation letter to the Connecticut SHPO in accordance with the review requirements of Section 106 of the *National Historic Preservation Act* (16 U.S.C. 470 et seq.) and its implementing regulations at 36 CFR Part 800. The letter detailed DOE's investigation of nearby historic properties and concluded that no historic properties would be affected by the proposed project (Appendix B). The Connecticut SHPO responded on November 9, 2010, and concurred that the proposed project would have no effect on cultural resources.

U.S. Fish and Wildlife Service

DOE consulted with the FWS New England Field Office and followed its instructions for examining whether any federally threatened or endangered species existed at the site. Based on that review, no impacts to federally listed threatened or endangered species are likely to occur at the proposed project site. DOE also consulted with the Connecticut Department of Environmental Protection and determined in accordance with its procedures that no species of concern to the state occur at the site (Zyko 2010; CDEP 2010).

Federally Recognized Tribes

DOE sent consultation letters on October 27, 2010, to the Tribal leaders and Tribal Historic Preservation Officers of the Mashantucket Pequot Tribe of Connecticut and the Mohegan Indian Tribe of Connecticut to determine if there could be properties of traditional religious and cultural significance near the proposed facility.

The Tribal Historic Preservation Officers of both tribes asked for additional information, which DOE provided. This information included the depth and type of previous property disturbance, which was 2 to 4 feet for construction of the ACLS facility.

1.5.2 Public Participation

DOE provided copies of the draft EA to federal, tribal, state, and local officials and announced its availability in public notices in *The Day* of New London County. In addition, DOE sent copies to the Otis Library in Norwich. The Department invited comments about the proposed project for a period of 30 days from January 21 to February 19, 2011, after publication of the public notice. DOE received two comments: one support letter from the local development corporation and one Tribal Historic Preservation Officer letter indicating agreement with the draft EA's recommendations and conclusions. Appendix B contains copies of the comments.

2. PROPOSED ACTION AND ALTERNATIVES

2.1 DOE's Proposed Action

DOE's proposed action is to provide a grant to the project proponent, NPU, for its proposed Norwich Cogeneration Initiative in New London County, Connecticut. Figure 2-1 shows the proposed project location north of Norwich. This grant would advance research and development and demonstrate energy efficiency in a manner consistent with DOE's goal to increase the efficient use of energy by American industry. The proposed grant is based on a Congressional earmark.

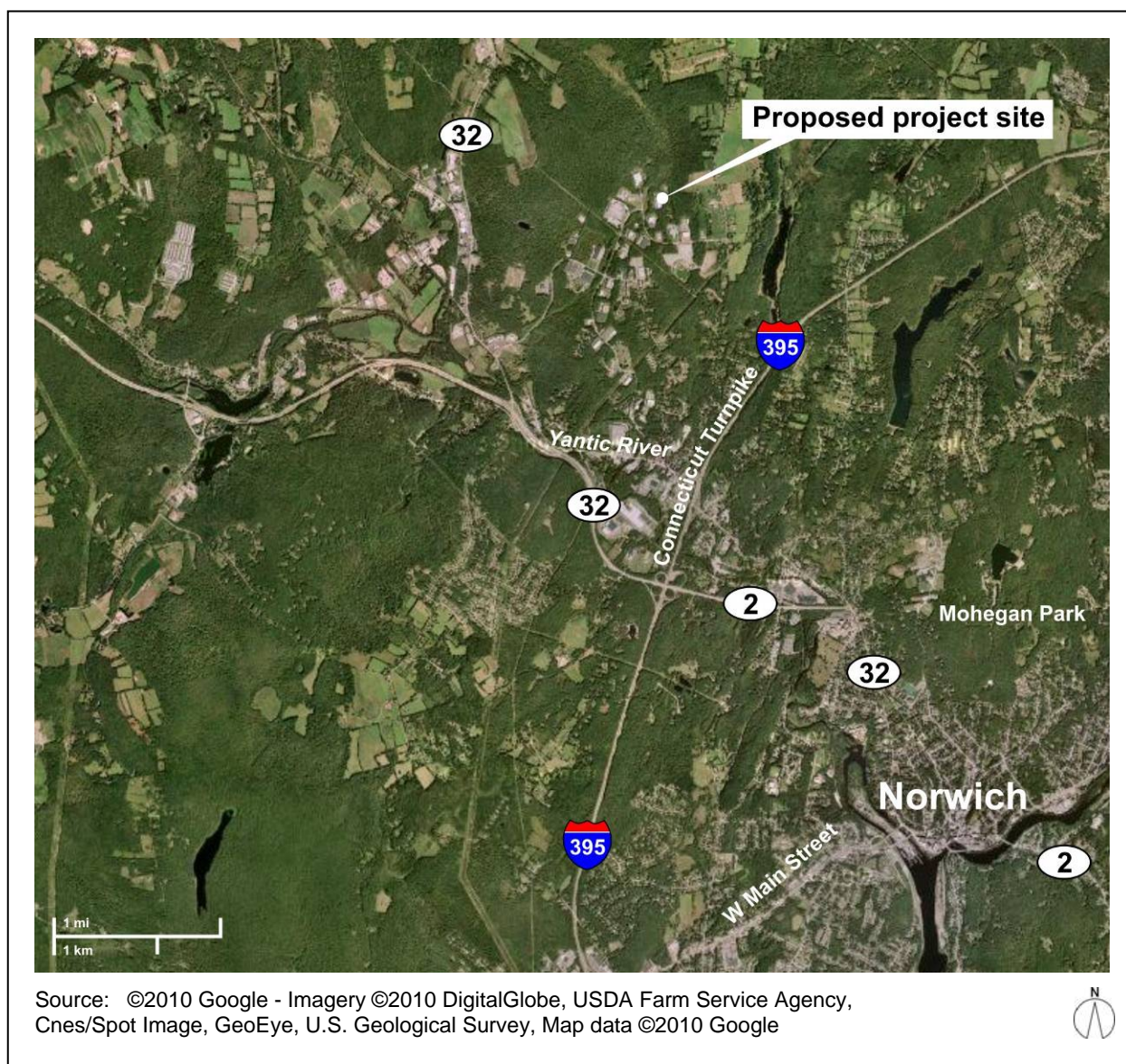


Figure 2-1. Location of proposed project.

The DOE's Office of Energy Efficiency and Renewable Energy would provide funding for almost 50 percent of the overall total project cost, or about \$718,000 of the projected total project cost of \$1.47 million. NPU would provide the remaining funding and be responsible for project implementation. The proposed project would be a permanent installation with a minimum operating life of 25 years.

2.2 Proposed Project – Norwich Cogeneration Initiative

NPU would design, construct, and operate a 540-kilowatt cogeneration facility in partnership with one of its largest consumers, ACLS. NPU would construct the plant on the ACLS site adjacent to a parking lot at 5 Consumers Avenue in the Norwich Business Park in Norwich, Connecticut (Alsup 2010).

The cogeneration plant would consist of a closed-loop 540-kilowatt natural gas reciprocating engine that would provide electricity directly to NPU's local distribution system and supply thermal energy in the form of a closed-loop hot water heat exchanger directly to ACLS.

ACLS would use the thermal energy to heat water for its laundry operations. The partly heated water would then return to the cogeneration facility, pass the engine to pick up more heat, and repeat the process. NPU expects the cogeneration facility would operate, on average, at about 60-percent efficiency in comparison with the current operating efficiency of about 35 percent without cogeneration (Warn 2010a).

Construction would include clearing and leveling the proposed project area; installing a concrete pad for the proposed unit and parking spaces for personnel use during periodic maintenance; and connections of the proposed facility to water, natural gas, and communications lines on the ACLS property and electrical lines along Consumers Avenue. NPU would install these connections at depths of 4.5 to 6 feet although, depending on the nature of the subsoil, some excavations could be at depths of not more than 8 feet.

NPU, owned by its customers and the City of Norwich, has operated since 1904 and contributes to the City's general fund. It has a peak distribution of 65 to 70 megawatts. ACLS provides laundry service to customers in the Norwich area, including two local casinos.

NPU would construct the proposed facility adjacent to the almost 32,000-square-foot ACLS New England plant, which is on 3 acres of property in the 450-acre Norwich Business Park.

Figure 2-2 shows a closer view of the project area, and Figure 2-3 shows the character of the site. The business park is home to more than 50 companies that occupy about 1.5 million square feet of space, three condominium developments, a physical fitness center, a State of Connecticut National Guard Armory, and the 6,250-seat Thomas J. Dodd baseball stadium. The closest nonindustrial land use is a dairy farm about 1,400 feet (one-quarter mile) to the east. The farm includes barns, outbuildings, and a residence. There are additional rural residential properties slightly further away.

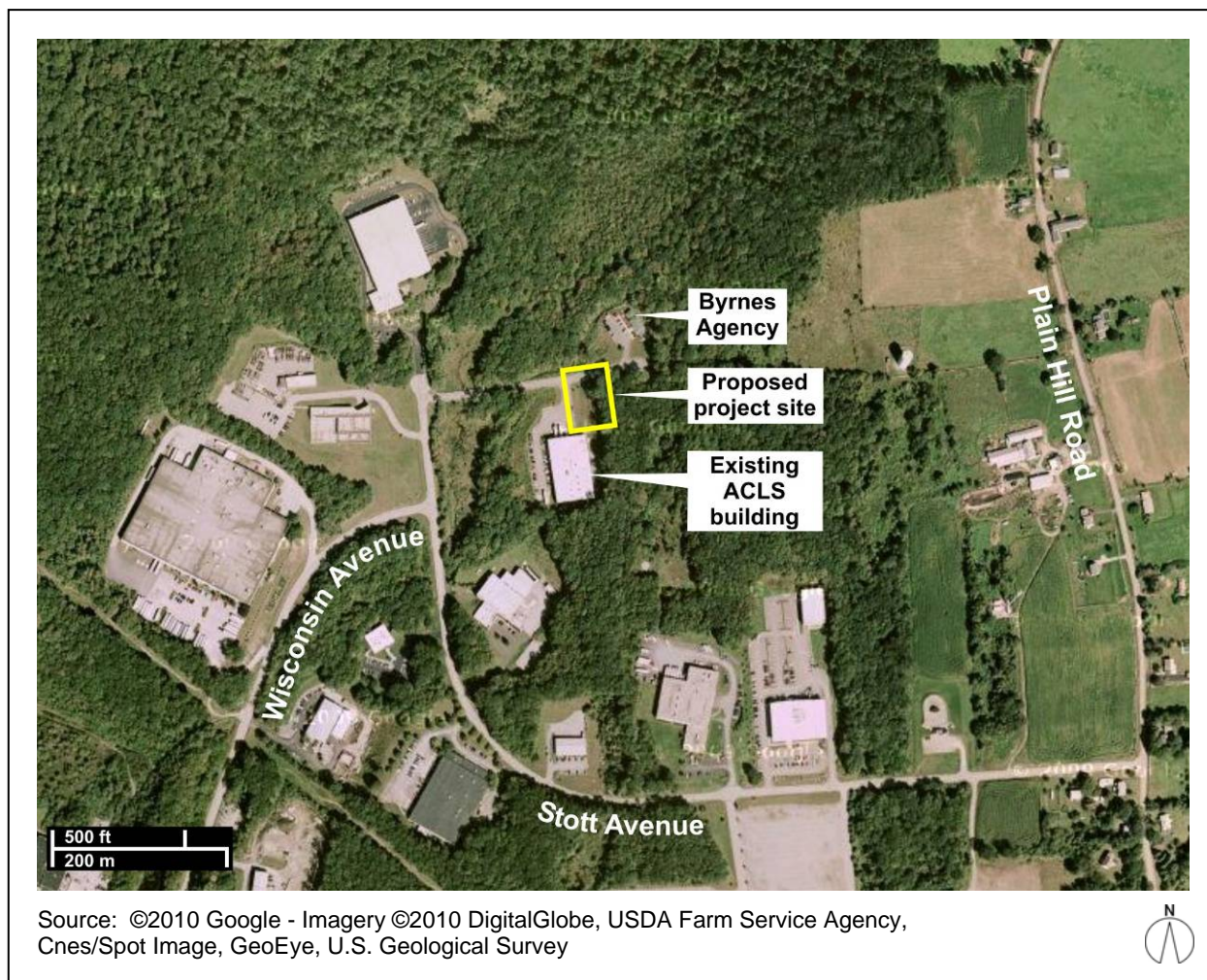


Figure 2-2. Proposed cogeneration facility site.

The proposed project would install a single natural gas reciprocating engine to generate electricity, which would be transmitted to NPU's electricity distribution system, providing base load capacity and reducing NPU's electricity purchases. NPU designed the system with a capacity to meet the steam needs for ACLS while producing electricity. The location of the cogeneration system, adjoining the ACLS facility, would allow the thermal energy from the facility to flow directly to ACLS for heating hot water for its operational requirements. ACLS's large and consistent hot water load of 130,000 to 160,000 gallons of hot water each day makes it a candidate for cogeneration. Figure 2-4 shows the preliminary site plan for the cogeneration facility, and Figure 2-5 provides a schematic of the cogeneration process.

Cogeneration is much more efficient than conventional electricity generation, in which up to 65 percent of the energy potential is waste heat, not including energy that is lost during the transmission and generation processes. The benefits of cogeneration include increased efficiency; reduced emissions to the environment, especially carbon dioxide, a primary



Figure 2-3. Current character of proposed project site.

greenhouse gas; cost savings that enable additional competitiveness; and possible relief of transmission congestion. NPU expects the efficiency of the proposed system would average about 60 percent. Figure 2-4 shows a schematic of the proposed project configuration including utility connections, and Figure 2-5 depicts the cogeneration process.

2.3 No-Action Alternative

Pursuant to 40 CFR 1502.14(d), DOE must analyze a No-Action Alternative for this project. *No action* means the proposed project would not take place. The No-Action Alternative provides a benchmark for decision makers to compare the magnitude of potential environmental consequences of the proposed project or alternatives with the conditions that would occur if the action did not take place. Under the No-Action Alternative, DOE would not provide funding for the cogeneration facility. Without the cogeneration facility, ACLS would continue to use its existing natural-gas-fired boilers to heat about 130,000 to 160,000 gallons of water each day with no improvement in efficiencies or other benefits.

Although this project might proceed if DOE decided not to provide financial assistance, the Department assumes for this environmental analysis that the project would not proceed without assistance. If, however, NPU did proceed without DOE's financial assistance, and assuming the

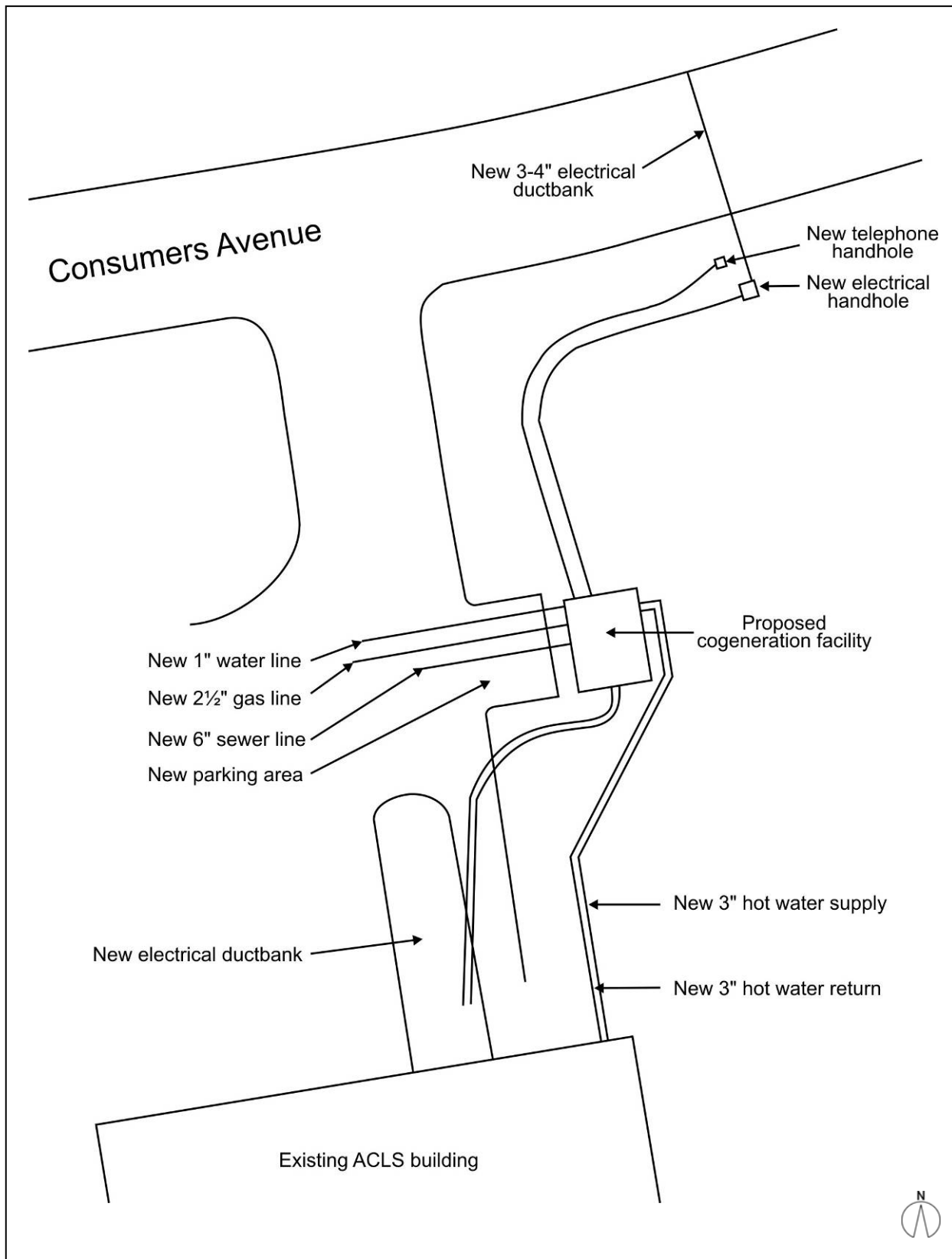


Figure 2-4. Preliminary site plan.

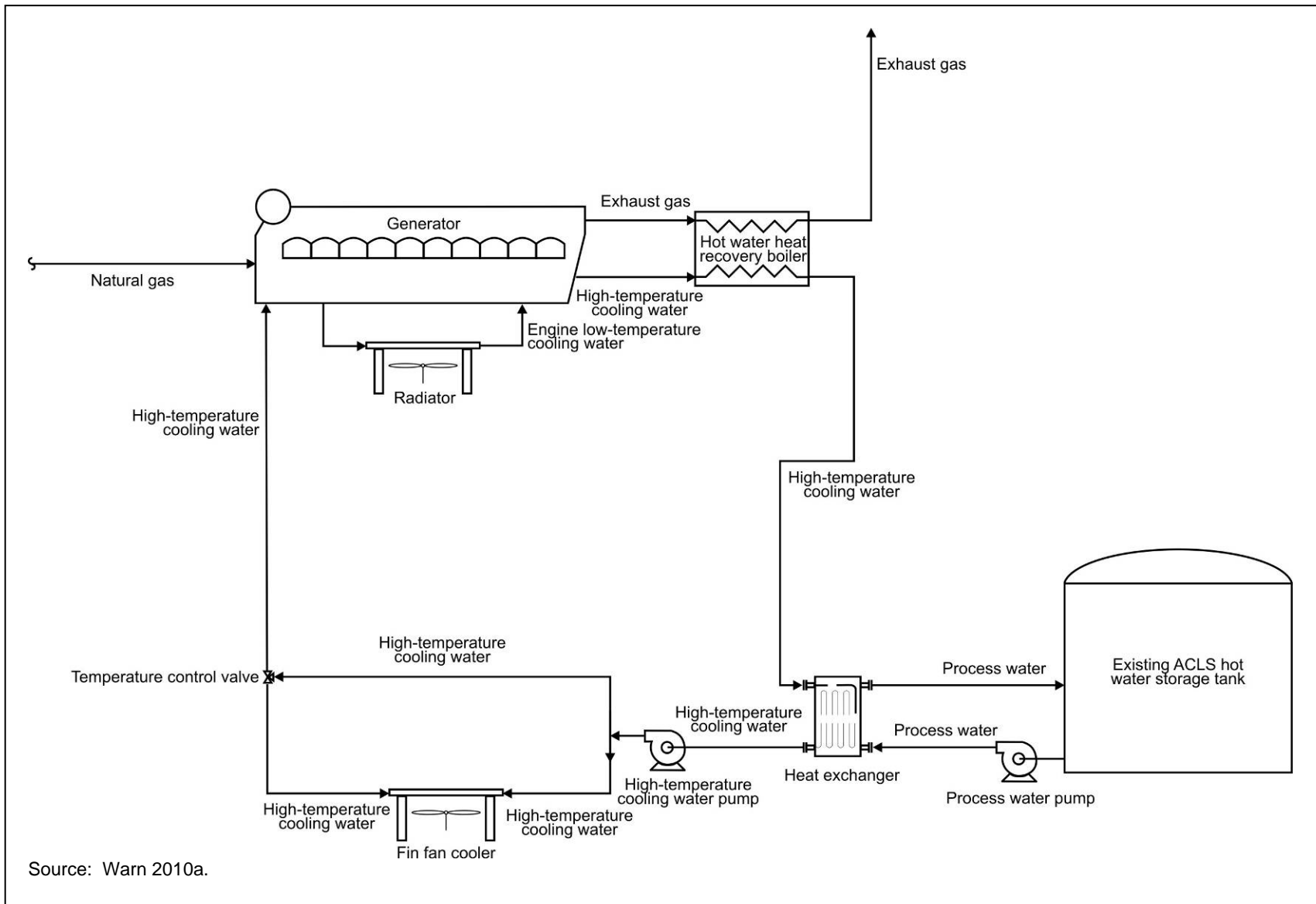


Figure 2-5. Schematic of cogeneration process.

project parameters did not change, the potential impacts would be essentially identical to those that would occur if the Department provided the funding. 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 were to decide to withhold assistance from a project, the project would not proceed.

2.4 Alternative Actions

The Council on Environmental Quality regulations for implementing NEPA require that federal agencies explore and objectively evaluate all reasonable alternatives to a proposed project and to briefly discuss the rationale for eliminating alternatives from detailed consideration. For this proposed grant based on a Congressional earmark, DOE is not considering other projects because other alternatives would not be consistent with the terms of the funding.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter details the affected environment and potential environmental consequences for the detailed analyses of the impacts of the proposed project and the No-Action Alternative:

- Air quality (Section 3.1);
- Water resources including groundwater, surface water, and wetlands (Section 3.2);
- Noise (Section 3.3);
- Socioeconomics (Section 3.4); and
- Environmental justice (Section 3.5).

Section 3.6 discusses resource commitments.

3.1 Air Quality

Section 3.1.1 discusses the affected environment in terms of regional air quality. Section 3.1.2 evaluates impacts to air quality from the proposed project and the No-Action Alternative using a comparison of existing emissions with those for NPU's proposed project.

3.1.1 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 U.S. Environmental Protection Agency (EPA) to set national standards for pollutants 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 aerodynamic diameter of less than or equal to 10 micrometers (PM₁₀) 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 3-1 lists the primary National Ambient Air Quality Standards for each criteria pollutant and the 2008 values for New London County. EPA designates regions that do not meet the standards as nonattainment areas. New London County is in nonattainment for ozone (EPA 2010a).

The climate in the Norwich region is warm during summer when temperatures tend to be around 70 degrees Fahrenheit and very cold during winter when temperatures tend to be around 20 degrees Fahrenheit. The annual average precipitation at Norwich is about 53 inches.

Table 3-1. Primary National Ambient Air Quality Standards and 2008 New London County air quality data.

Pollutant	Averaging period	Primary standard	New London County ^a
Carbon monoxide	8 hours	9 ppm	Not available
	1 hour	35 ppm	Not available
Lead	Quarterly	1.5 µg/m ³	Not available
Nitrogen dioxide	Annual	0.053 ppm	Not available
	1 hour	0.1 ppm	Not available
Ozone	8 hours	0.075 ppm	0.08 ppm
PM ₁₀	24 hours	150 µg/m ³	Not available
PM _{2.5}	Annual	15 µg/m ³	Not available
	24 hours	35 µg/m ³	10.4 µg/m ³
Sulfur dioxide	Annual	0.03 ppm	Not available
	24 hours	0.14 ppm	Not available
	1 hour	0.075 ppm	Not available

Source: EPA 2010a.

a. Only ozone and 24-hour PM₁₀ data were available from the EPA for New London County.

ppm = parts per million; µg/m³ = micrograms per cubic meter.

Rainfall is evenly distributed throughout the year. The wettest month of the year is March with an average rainfall of nearly 5 inches.

ACLS consumes an average of 6.5 million cubic feet of natural gas a month, which is 78 million cubic feet a year. Table 3-2 provides existing emissions levels from the boilers based on annual fuel use.

Table 3-2. Current ACLS air emissions.

Pollutant	Emission factor (pounds per million cubic feet)	Total emissions (tons per year)
PM ₁₀ /PM _{2.5}	7.6	0.3
Nitrogen oxides	32	1.26
Carbon monoxide	84	3.3
Sulfur dioxide	0.6	0.23
Volatile organic compounds	5.5	0.22

Source: Warn 2010b.

3.1.2 Environmental Consequences

3.1.2.1 Proposed Project

3.1.2.1.1 Construction Impacts

Air emissions from construction activities for NPU’s proposed project would include combustion emissions from vehicles and heavy-duty equipment used during construction of the new concrete pad and parking spaces, and fugitive dust from site preparation activities. These emissions would have short-term adverse impacts that NPU could mitigate through best management

practices such as soil stabilization and watering of exposed soils. Fugitive dust emissions would end after completion of construction, so long-term impacts would be negligible.

3.1.2.1.2 Operations Impacts

The proposed project would operate the 540-kilowatt cogeneration system for about 20 hours per day with it shut down for the remaining 4 hours. NPU would use the electricity in its local distribution grid and provide the thermal energy to ACLS for the heating of process hot water. The proposed project would allow the ACLS to reduce the use of less efficient boilers that currently provide heat to the facility. On an average basis, the proposed generator would provide enough thermal energy so the ACLS laundry facility would not be required to operate its boilers. The amount of gas ACLS uses to heat hot water would be reduced to zero. The company would continue to use some natural gas to produce steam for its dryers.

The cogeneration system would send heat in a closed-loop water system to ACLS, which would use the heat energy to heat water for laundry operations. The partly heated water would then return to the cogeneration facility, pass the engine to pick up more heat, and repeat the process.

The proposed project location is in New London County, which is designated as a nonattainment area for the National Ambient Air Quality Standard for ozone (moderate for the current 8-hour average standard). The proposed project would be a minor source of the precursor air pollutants (i.e., nitrogen oxides and volatile organic compounds) that produce ozone by photochemical reactions in the atmosphere. For all other criteria air pollutants, New London County is in the portion of Connecticut that is designated attainment, unclassifiable, or unclassifiable/attainment area.

Based on the currently available information, DOE estimated emissions using emission factors for the combustion of natural gas. Table 3-3 lists current emissions estimates from the existing boilers at ACLS and projected emissions from the cogeneration system.

Table 3-3. Existing ACLS emissions and proposed project emissions estimates (tons per year).

Pollutant	Current emissions	Emissions from proposed project	Maximum total emissions
PM ₁₀ /PM _{2.5}	0.3	0.074	0.37
Nitrogen oxides	1.3	4.40	5.7
Carbon monoxide	3.3	1.1	4.4
Sulfur dioxide	0.23	0.057	0.29
Volatile organic compounds	0.22	0.48	0.7

Source: Warn 2010b,c.

The maximum total emissions figures in Table 3-3 do not account for the reduction of ACLS natural gas use for hot water heating; actual emissions would therefore be lower. Based on its potential to emit, the proposed project would be a minor source whose emissions would be insignificant by definition, and whose effects on air quality would be negligible. As such, its emissions and air quality impacts would be insignificant or negligible with respect to the

regulatory requirements for Class I Prevention of Significant Deterioration areas, the closest of which is the Lye Brook Wilderness about 112 miles to the north-northwest in Bennington and Windham counties, Vermont.

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 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 Norwich cogeneration facility would operate as an emissions source in accordance with State of Connecticut regulations for individual point-source emissions. NPU would be required to obtain a permit before beginning construction to operate the engine from the Connecticut Department of Environmental Protection per Section 22a-174-3a of the *Regulations of Connecticut State Agencies*. NPU expects the cogeneration system would readily meet those requirements.

The proposed project would not exceed the threshold emission rate for criteria pollutants and would not represent 10 percent or more of the area's emissions inventory for those pollutants. Therefore, no conformity determination under the Clean Air Act would be necessary (DOE 2000).

Greenhouse Gas Emissions

The burning of fossil fuels such as natural gas 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 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). Greenhouse gases are well mixed throughout the lower atmosphere, such that any emissions would add to cumulative regional and global concentrations of carbon dioxide.

Because the proposed project would displace much of the energy currently supplied via the boilers, the effect of the proposed cogeneration facility would be to reduce carbon dioxide emissions from the ACLS plant on average by 110 pounds per megawatt-hour of engine generation (Warn 2010a). Based on the normal operating rate, this would result in an annual reduction of 238 tons of carbon dioxide emissions from what would otherwise be released to the atmosphere.

3.1.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to NPU for the proposed cogeneration facility, and DOE has assumed for this EA that the project would not proceed without this assistance. There would be no increase in emissions of pollutants from the system. However, there would be no beneficial decrease in regional emissions of pollutants from the use of the energy-efficient power generation plant.

3.2 Water Resources

Section 3.2.1 describes the affected environment for groundwater, surface water, and wetlands. Section 3.2.2 discusses potential impacts of construction and operation for the proposed project, and Section 3.2.3 discusses potential impacts under the No-Action Alternative. Table 1-1 in Chapter 1 discusses wild and scenic rivers and floodplains.

3.2.1 Affected Environment

3.2.1.1 Surface Water

ACLS, at the Norwich Business Park, is located within the Thames River Basin. The tidal Thames River begins at the confluence of the Shetucket River and the Yantic River in Norwich. The Thames River flows about 16 miles from Norwich Harbor to Long Island Sound. The Thames estuary, from Norwich Harbor to Poquetanuck Cove, is on the Connecticut's Section 303(d) list under the Clean Water Act (33 U.S.C. 1251 et seq.) because of a seasonal low dissolved oxygen problem. Several water bodies or stream reaches in the Thames River Basin, including portions of the Yantic River, are on the Section 303(d) list because of nutrient-related water quality impairments. Total maximum daily loads for known causes of water quality impairment have been developed for some Thames watershed areas (Trench 2005).

The proposed project site is more than a mile away from the Yantic River and about 4,000 feet from the nearest water body, the Bog Meadow Reservoir.

ACLS processes about 500,000 pieces of laundry a week at the site and uses approximately 130,000 to 160,000 gallons of municipally drawn water per day. Municipal water in the region comes from two possible surface water sources, the Deep River Reservoir in Colchester, Connecticut, and the Stony Brook Reservoir in Montville, Connecticut (NPU 2010).

The Norwich Inland Wetlands and Watercourses Commission reviewed and approved the ACLS site in its current configuration. As part of the permitting process, the Commission and its staff reviewed and approved the storm water management and treatment system design for the site. The system includes a water quality basin on the east side of the parking lot, while the west side has catch basins (which remove floatables and some coarse particulates) with hoods and sumps. After passing through the catch basins, the storm water is piped to a discharge in a vegetated

swale that provides uptake of pollutants by vegetation and minor levels of infiltration of storm water. The treated storm water filters through the soil to the wetlands area.

3.2.1.2 Groundwater

An unnamed aquifer that consists of till and shallow rock with low potential yields underlies the proposed project area (Russo 2010a). This aquifer is not used as a potable water supply. ACLS does not currently use groundwater for its operations, and NPU does not use groundwater as a source of municipal water. In addition, the City of Norwich is not in an EPA-designated Aquifer Protection Area (CDEP 2010b).

3.2.1.3 Wetlands

Wetlands are areas where the frequent and prolonged presence of water at or near the soil surface drives the natural system. Wetlands generally include swamps, marshes, bogs, and similar areas” (EPA 2010b).

Wetlands have unique characteristics that set them apart from other ecosystems. These include a substrate that is saturated or inundated with water for part of the growing season, soils that contain little or no oxygen, and plants adapted to wet or seasonally saturated conditions. Except for wetlands flooded by ocean tides, the amount of water present in wetlands fluctuates as a result of rainfall patterns, snowmelt, dry seasons, and drought.

Wetlands serve many functions, including the storage and slow release of surface water, rain, and seasonal floodwaters to surface waters. In addition, wetlands provide wildlife habitat (including habitat for many threatened and endangered species) and sediment stabilization and retention functions, and perform an important role in the nitrogen cycle. Wetlands help to maintain stream flow during dry periods and provide groundwater recharge functions.

There are wetlands of about 80,000 square feet at the ACLS site, about 130 feet east of the proposed project site and down slope of the ACLS parking lot (Russo 2010b). These wetlands have three different habitat types. The first is wooded swamp, with a seasonally flooded or seasonally saturated hydrology. The dominant vegetation in the canopy is red maple (*Acer rubrum*). Typical shrubs include spicebush (*Lindera benzoin*), barberry (*Berberis thunbergii*), and highbush blueberry (*Vaccinium corymbosum*). The second habitat type is scrub or shrub swamp. The vegetation there includes highbush blueberry and button bush (*Cephalanthus occidentalis*). The third habitat type is emergent marsh, which contains cattail (*Typha latifolia*), tussock sedge (*Carex stricta*), woolgrass (*Scirpus cyperinus*), and a fringe of common reed (*Phragmites communis*). The U.S. Department of Agriculture’s National Resource Conservation Service has mapped the soils as Ridgebury, Leicester, and Whitman series that formed in glacial till. These soils include somewhat poorly drained to very poorly drained areas, which is consistent with the wetlands near the project site.

3.2.2 Environmental Consequences

3.2.2.1 Proposed Project

3.2.2.1.1 Construction Impacts

Surface Water

The two primary water resource concerns in relation to construction at ACLS for the proposed project would be soil erosion and storm water runoff. Because exposed soils are subject to erosion, increased runoff could carry sediment into local waterways during precipitation events. Increased sedimentation in culverts, drainage systems, and waterways could impede surface water drainage from the site and increase the risk of flooding. However, ACLS would use appropriate erosion control and storm water management and treatment measures to reduce the impacts of erosion and increased runoff under its general construction storm water permit. Construction would require minimal potable water purchased from the municipal water system. Therefore, DOE determined that impacts to surface water would be unlikely.

Groundwater

Construction for the proposed project would not use groundwater, so there would be no impact to groundwater availability. Storm water runoff from the temporary construction at the site would feed into the existing ACLS approved storm water management and treatment system.

Wetlands

Construction of the proposed project would not disturb the existing wetlands near ACLS. Initial construction activities would involve preparing the area for construction work, including clearing vegetation and grading the site and parking area. The exposure of soils and leveling could result in short-term modified surface water runoff patterns from the site and lead to some temporary increased runoff and sedimentation, but this is not expected to affect the nearby wetlands.

Storm water runoff from the temporary construction at the site would feed into the existing approved ACLS storm water management and treatment system. NPU would mitigate the potential for runoff and sedimentation using best management practices during construction. Therefore, no impacts on wetlands are expected from construction of the proposed project.

3.2.2.1.2 Operations Impacts

Surface Water

The cogeneration system would use a closed-loop water system and need only a minimal amount of water for makeup and periodic maintenance on the system. The increase in annual municipal water consumption in comparison with existing ACLS operations would be minimal. Storm water management and treatment is further discussed below in the wetlands section.

Groundwater

The proposed project would not use groundwater for operations and would not use underground storage tanks. NPU would develop a spill prevention and mitigation plan to prevent or mitigate the potential for and effects from accidental spills of contaminants under 40 CFR Part 112. The only potential spills would be lubrication oil for the engine. Therefore, impacts to groundwater availability and quality would be unlikely from normal operations.

Wetlands

The proposed project would create almost 1,100 square feet of impervious surface at the site. During operations, storm water runoff from the site's impervious surfaces would feed into the existing ACLS storm water management and treatment system, which the Norwich Inland Wetlands and Watercourses Commission has reviewed and approved. This system includes a water quality basin on the east side of the parking lot, while the west side has catch basins that remove flotsam and some coarse particulates with hoods and sumps. After passing through the catch basins, the storm water is piped to a discharge in a vegetated swale that provides uptake of pollutants by vegetation and minor levels of infiltration of storm water.

At present, the ACLS site has about 31,000 square feet of pavement and 32,000 square feet of roofed area. Under the proposed project, there would be an additional 500 square feet of roofed area and 570 square feet of new pavement, adding almost 1,100 square feet of impervious surface to the existing 63,000 square feet. The increase in impervious surface area would be less than 2 percent, which would be a minimal addition to the existing storm water system that adequately treats the storm water before it reaches the wetlands.

3.2.2.2 No-Action Alternative

Under the No-Action Alternative, water use, wastewater generation, and storm water would not increase. Therefore, there would be no impacts to surface water, groundwater, or wetlands.

3.3 Noise

Noise is any unwanted, undesirable sound. It has the potential to interfere with communication, damage hearing and can be viewed as an annoyance. Noise can occur in different volumes and pitches dependent on the type of source and the distance from a receptor. Based on such, it is important to consider the amount of noise from both construction and operations for a proposed project to ensure minimal disturbance to people working or living in the surrounding areas.

Section 3.3.1 discusses the regional noise environment. Section 3.3.2 provides an analysis of potential noise impacts from the proposed project and the No-Action Alternative.

3.3.1 Affected Environment

Sound is a result of fluctuating air pressure. The standard unit for measuring sound pressure levels is the decibel, which is a unit that describes the amplitude (or difference between extremes) of sound. Environmental and occupational sound pressure levels are typically expressed in A-weighted decibels (dBA). The A-weighted scale deemphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear [i.e., using the A-weighting scale adjusts certain frequency ranges (those that humans detect poorly)] (Colby et al. 2009). On average, each A-weighted sound level increase of 10 decibels corresponds to an approximate doubling of subjective loudness.

Table 3-4 lists common outdoor and indoor sound sources and typical associated sound levels at specific distances from the source.

Table 3-4. Typical measured sound pressure levels in the environment and industry.

Noise source at a given distance	A-weighted sound level in decibels	Qualitative description
Carrier deck jet operation	140	
	130	Pain threshold
Jet takeoff (200 feet)	120	
Auto horn (3 feet)	110	Maximum vocal effort
Jet takeoff (1,000 feet)	100	
N.Y. subway station	90	Very annoying
Heavy truck (50 feet)		Hearing damage (8-hour, continuous exposure)
Pneumatic drill (50 feet)	80	Annoying
Freight train (50 feet)	70 to 80	
Freeway traffic (50 feet)		
	70	Intrusive (Telephone use difficult)
Air conditioning unit (20 feet)	60	
Light auto traffic (50 feet)	50	Quiet
Living room	40	
Bedroom		
Library	30	Very quiet
Soft whisper (5 feet)		
Broadcasting/recording studio	20	
	10	Just audible

Source: Colby et al. 2009.

The EPA identifies noise levels necessary to protect the public against hearing loss, annoyance, and activity interference in *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (EPA 1974). These noise levels are in terms of 24-hour exposure levels or an average of acoustic energy over short periods such as 8 hours or 24 hours and over long periods such as years. A cumulative 24-hour measure of noise accounts for the moment-to-moment fluctuations in A-weighted decibel levels due to all sound sources combined over 24 hours. For example, occasional higher noise levels would be consistent with a 24-hour energy average of 70 decibels, as long as a sufficient amount of relative quiet is experienced for the remaining time.

EPA indicates a 24-hour exposure level of 70 decibels as the level of environmental noise at which there is no measurable hearing loss over a lifetime, and levels of 55 decibels outdoors and 45 decibels indoors are defined as preventing activity interference and annoyance to human receptors, respectively. These levels of noise are those at which spoken conversation and other daily activities such as sleeping, working, and recreation can readily occur.

The proposed project location is currently designated as Class B under Sec. 22a-69-2.4 of the Connecticut Noise Regulations. The standard for a Class B noise emitter to Class B property is 62 dBA. The City of Norwich does not have its own noise ordinance.

The ACLS site is in the Norwich Business Park. The business park itself has predominantly industrial uses but also has a residential use component in the form of condominiums. There are no residences on Consumers Avenue where the project would be located; the nearest condominiums are more than 1,800 feet to the south. The nearest other residences are 1,400 to 1,600 feet away to the east on Plain Hill Road. The closest nonindustrial land use is a dairy farm about 1,400 feet to the east. The farm includes barns, outbuildings, and a residence. The remainder of this portion of Plain Hill Road has rural residential land use that consists of mid-sized housing. The nearest building to the ACLS site is the Byrnes Agency insurance company, at 6 Consumers Avenue, about 300 feet away.

Existing sources of noise near the ACLS facility include local road traffic, boiler operation, and natural noises such as rustling leaves and birdcalls. Noise in areas around the facility and from the facility itself are comparable to a typical quiet commercial or industrial area and are considered compatible with existing noise receptors. The facility is not near any major airports, major traffic areas, or rail facilities. The nearest major road is Interstate Highway 395, over a mile away.

3.3.2 Environmental Consequences

3.3.2.1 Proposed Project

The proposed project would construct and operate a cogeneration unit that would have both short-term and long-term minor adverse effects on the noise environment. Minor increases in noise would primarily be due to the temporary use of heavy equipment during construction and

the addition of noise-generating equipment associated with operation of the cogeneration unit. The unit would be in a building that would attenuate the noise.

3.3.2.1.1 Construction Impacts

Individual pieces of heavy equipment typically generate noise levels of 75 to 95 dBA at a distance of 50 feet (Table 3-5). With multiple items of equipment operating concurrently, noise levels can be relatively high during daytime periods at locations within several hundred feet of active construction sites. The zone of relatively high construction noise levels typically extends to distances of 400 to 800 feet from the site of major equipment operations. Given the temporary nature of proposed construction activities, and the distance to the nearby receptors, this impact would be minor.

Table 3-5. Construction-related noise.

Activity	Noise at 50 feet (dBA)
Ground clearing	75–95
Excavation and grading	60–95

Source: EPA 1980.

Construction noise would dominate the soundscape for all persons on the site. Construction personnel, and particularly equipment operators, would use adequate personal hearing protection to limit exposure and ensure compliance with federal health and safety regulations. Therefore, noise impacts from construction would be minor and temporary.

3.3.2.1.2 Operations Impacts

The cogeneration facility would be about 300 feet from the nearest receptor, which is the Byrnes Agency; the nearest residence is 1,400 feet away. According to the manufacturer, the sound level from the system during operations is about 86 dBA at the source. However, the system would be located inside the building, which, together with its acoustic insulation, would reduce the noise level outside the building.

Operation of the proposed cogeneration facility would not generate disruptive noise outside the ACLS property. At the nearest building to the ACLS site, the Byrnes Agency insurance company at 6 Consumers Avenue (about 300 feet away), the estimated noise level would be about 38 dBA without considering the benefits of the building or its noise attenuation features or other atmospheric dampening considerations. This calculation is based on the reduction of sound by 6 dB for every doubling of the distance away from the source. Based on this analysis, the cogeneration system would not be audible at the nearest residential receptor, which is about 1,400 feet away. The overall impacts of noise from operations would be below the level of significance.

3.3.2.2 No-Action Alternative

The No-Action Alternative would result in no impact to the ambient noise environment because there would be no construction or changes in facility operations. Ambient noise conditions would remain as described in Section 3.3.1.

3.4 Socioeconomics

Socioeconomics is the study of the interrelation between social and economic factors. For NEPA analysis, these factors include demographics, employment, and income. Section 3.4.1 describes the socioeconomic environment for the proposed project. Section 3.4.2 discusses the potential impacts of the proposed project and the No-Action Alternative.

3.4.1 Affected Environment

The socioeconomic impact area for the proposed project is New London County, Connecticut. New London County is a part of the U.S. Census Bureau metropolitan statistical area Norwich-New London CT (USCB 2010a). The county has a labor force of about 153,000 (BLS 2010a) and there are about 177,000 jobs in the county (BEA 2010a). The diversified employment base includes five industrial sectors that each account for at least 5 percent of the jobs: manufacturing; retail trade; professional, scientific, and technical services; health care and social assistance; and local government (BEA 2010a). The majority of the county workforce (79 percent) resides in New London County (USCB 2003a). An additional 6 percent of the New London jobs are held by residents in neighboring Windham County and about 5 percent of the jobs are held by residents of Washington County Rhode Island. People who lived outside those areas held the remainder (USCB 2003a). About 83 percent of New London workers travel to a work site in the county (USCB 2003b). Therefore, the area most likely to experience socioeconomic impacts from the proposed project is New London County, Connecticut.

Norwich is one of about 30 towns and cities in New London County. Table 3-6 compares population and employment figures for New London County and the State of Connecticut. The county's estimated population of about 267,000 persons in 2009 reflects a 3-percent growth since 2000 (USCB 2010a). The town of Norwich had a 2009 population of about 36,600 people (USCB 2010b).

The county's employment and unemployment figures reflect the nature of the community; the county had about 175,500 nonfarming jobs in 2008, of which almost 17,500 were in retail trade and 16,000 were in manufacturing (BEA 2010a). Table 3-7 lists the major industrial sectors and percentage of the workforce employed in each.

The New London County unemployment rate was 8.8 percent in August 2010, down from 9.2 percent in February 2010 (BLS 2010a). The August unemployment rate represents about 13,400 people out of work in the county (BLS 2010a). For comparison, the national unemployment rate was 9.6 percent in August 2010 (BLS 2010b).

Table 3-6. Estimated population and employment demographics for New London County and Connecticut.

Demographic	New London County	Connecticut
Population (2009) ^a	267,000	3.5 million
Nonfarming jobs (2008) ^b	175,500	2.3 million
Unemployment (August 2010) ^c	8.8 percent	9.3 percent
Per capita income (2008) ^d	\$46,400	\$56,200
Living in poverty (2008) ^a	6.9 percent	9.1 percent

Sources:

- a. USCB 2010a.
- b. BEA 2010a,b.
- c. BLS 2010a.
- d. BEA 2010c.

Table 3-7. New London County workforce, 2008.

Employment sector	Percent
Manufacturing	8.9
Retail trade	9.9
Professional, scientific, and technical services	5.7
Health care and social assistance	10.4
Local government	18.6

Source: BEA 2010a.

In 2008, the total personal income in New London County was about \$197 billion (BEA 2010c). The 2008 per capita income in New London County was about \$46,400 or about 82 percent of the average per capita income of \$56,200 across the state (BEA 2010c). In 2008, about 6.9 percent of New London County residents and 9.1 percent of Connecticut residents were living in poverty (USCB 2010a).

3.4.2 Environmental Consequences

3.4.2.1 Proposed Project

3.4.2.1.1 Construction Impacts

Employment impacts include the loss or gain of two kinds of jobs, direct and indirect. Direct jobs result from a project when new workers are hired. Indirect jobs result from the multiplier effect in which new, directly employed workers spend their earnings and thereby create a greater demand for goods and services than existed before the new direct jobs. The number of jobs a project creates, including the original job, is called the *direct effect employment multiplier*. Indirect jobs include professional, skilled, and unskilled positions; they occur among suppliers of goods and services and for the vendors of materials those suppliers use to fashion goods and services. Under the earnings multiplier, each dollar spent on goods and services by workers in a newly created position becomes income to the recipient, who saves a portion, pays taxes with a portion, and spends the rest. In turn, this spending generates income for someone else who, in turn, saves a portion, pays taxes with a portion, and spends the balance. The number of times the

final increase in consumption exceeds the initial dollar spent is called the *direct effect earnings multiplier*. Earnings by workers in these direct and indirect jobs generate wages taxable by the local, state, and Federal governments. In addition, these wages lead to an increase in banking deposits, which increases the community lending base, and promotes additional spending on consumable and durable goods and services.

DOE uses standard multipliers to estimate how much a one-time or sustained increase in economic activity, such as the purchase and installation of the equipment needed for the cogeneration plant, in a particular region such as New London County would affect a defined region. These employment multipliers provide estimates of the number of indirect jobs a project would create in a region. It is unlikely that construction of the foundation and installation of the cogeneration equipment would create direct jobs, but it would provide short-term work to one or more local construction companies.

The construction of the foundation and installation of the 540-kilowatt cogeneration facility would be of short duration (about 2 months) and would be unlikely to result in new permanent jobs. The construction of the facility could generate six to eight temporary jobs. The vendor would manufacture the cogeneration components outside New London County. Therefore, new permanent direct or indirect jobs would be unlikely.

There would be no discernable impacts to socioeconomic resources from construction because new jobs would be unlikely and there would therefore be no increase in the region's population. Because there would be no project-related change in the population in the area, there would be no meaningful impact to population, employment and income, community infrastructure, or public services. There could be a small, one-time boost in the economy from the construction for and installation of the facility equipment. The projected total project cost of about \$1.47 million would have a final earnings effect, because of the multiplier effect, of about \$2 million.

3.4.2.1.2 Operations Impacts

Operation of the cogeneration plant would be unlikely to create direct jobs, but it could help to preserve jobs or community resources, especially by lowering operating costs and making ACLS more competitive. Impacts to population, employment and income, and adverse impacts to the current level of public services and community infrastructure would be unlikely.

3.4.2.2 No-Action Alternative

The No-Action Alternative would result in no grant, and the potential environmental impacts from the construction and operation of a cogeneration facility in New London County would not occur. In addition, the potential positive benefits of the proposed project, including the infusion of about \$1.47 million into the local economy, would not occur.

3.5 Environmental Justice

The evaluation of impacts to environmental justice is dependent on determining if high and adverse impacts from the proposed project would disproportionately affect low-income or minority populations in the affected community.

Section 3.5.1 describes the minority and low-income makeup of the populations in the region of influence. Section 3.5.2 discusses potential impacts from the proposed project and the No-Action Alternative.

3.5.1 Affected Environment

Table 3-8 compares racial and ethnic data for New London County and the State of Connecticut. In 2009, 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 13.6 percent in New London County and about 16 percent in the State of Connecticut (USCB 2010a). Persons of Hispanic or Latino origin made up about 7 percent of the population in New London County and about 12.3 percent of the population in Connecticut (USCB 2010a). The proposed project site is in Norwich, an incorporated town with a 2008 population that was 70-percent white and 12-percent black (USCB 2010c). About 8.6 percent of the Norwich population was of Hispanic or Latino origin (USCB 2010c). Hispanics may be of any race, so are included in applicable race categories. Neither racial nor ethnic minority persons would experience adverse socioeconomic impacts from the proposed project.

Table 3-8. Racial and ethnic characteristics in New London County and Connecticut, 2009.

Race or ethnicity	New London County (percent)	Connecticut (percent)
White	86.4	84
Black	6.4	10.4
American Indian/Alaska Native	0.9	0.4
Asian	3.7	3.6
Hawaiian/Other Native Islander	0.1	0.1
Reporting two or more races	2.4	1.5
Aggregate minority races	19.3	26.8
Hispanic or Latino origin ^a	7	12.3

Source: USCB 2010a,c.

a. Persons of Hispanic or Latino origin may be of any race and are included in racial categories.

In 2008, about 6.9 percent of the residents in New London County lived below the poverty level, and the statewide rate was about 9.1 percent (USCB 2010a).

The proposed project site is part of an existing industrial and administrative business park. There are no residences in the immediate vicinity. The nearest residence is more than one-quarter mile away.

3.5.2 Environmental Consequences

3.5.2.1 Proposed Project

3.5.2.1.1 Construction Impacts

Construction for the proposed project would be unlikely to result in workers and families moving to New London County. There would be a very small impact of about \$1.5 million in terms of final earnings effect from the expenditure on construction and installation of the cogeneration facility. Because there would be no project-related change in the population in the area, there would be no meaningful impact to population, employment and income, community infrastructure, or public services. Because impacts to these resources would be unlikely, there are no plans to mitigate impacts. In addition, and as noted in the other sections, there would be no notable impacts to any population group in any resource category from construction from the proposed project. Therefore, there would be no adverse and disproportionate impacts to low-income or minority populations.

3.5.2.1.2 Operations Impacts

The operation of the proposed cogeneration plant would be unlikely to create jobs. As noted above, there would be no notable impacts to any population group in any socioeconomic resource category. In addition, and as indicated in the other sections, there would be no notable impacts to any population group in any resource category from operation of the proposed facility. Therefore, there would be no adverse and disproportionate impacts to low-income or minority populations.

There is a potential that reduced costs at ACLS could result in additional laundry contracts, which could increase low- and moderate-income employment, but this is uncertain.

3.5.2.2 No-Action Alternative

The No-Action Alternative would result in no grant, and the potential environmental impacts from the establishment of a cogeneration facility in New London County would not occur. There would be no impacts to any population group, and therefore no adverse and disproportionate impacts to low-income or minority populations.

3.6 Resource Commitments

3.6.1 Relationship Between Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

The construction and operation of the cogeneration facility next to the ACLS facility would result in short-term uses of land. In this context, short-term use of resources means the operating life of the plant and long-term productivity refers to the period after the plant has ceased operation and undergone decommissioning and demolition. At that time, the land could be

occupied and used for other industrial purposes, or it could be reclaimed and revegetated to resemble predisturbance conditions.

3.6.2 Irreversible and Irretrievable Commitments of Resources

The use of land as a resource to support the construction and operation of the proposed facility would be irretrievable in the short term. Some unrecyclable construction materials and the fuel for the construction and operation would be irreversible and irretrievable commitments of resources.

3.6.3 Unavoidable Adverse Impacts

The proposed plant would result in the unavoidable small adverse impacts of generating air pollutants. The small unavoidable impacts would be offset by the positive impacts of eliminating natural gas consumption and emissions from the less efficient ACLS boilers and the substantial increase in thermal efficiency. The electricity fed into the distribution system could result in reduced emissions from less efficient conventional fossil-fuel generating facilities.

4. CUMULATIVE IMPACTS

Council on Environmental Quality NEPA regulations (40 CFR 1508.7) require an analysis of the cumulative impacts that could result from “the incremental impact of a proposed project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions.” While the impacts of a single project might not be significant, combining those impacts with those of other projects can result in significant impacts. For example, a wastewater treatment demand from a project might not be significant by itself, but in combination with other approved or proposed projects the combination could exceed the wastewater processing capabilities of local treatment facilities.

This chapter addresses the cumulative effects that could arise when considering the proposed project in combination with other actions near the proposed NPU cogeneration facility. Potential cumulative contributors would be activities that took place at the 450-acre Norwich Business Park because the area around the business park is primarily residential.

In early 2010, NPU installed two diesel generators, each rated at 2.5 megawatts, at 10 Wisconsin Avenue in the Norwich Business Park. The site is less than a mile from the proposed NPU cogeneration facility. The Connecticut Department of Environmental Protection permitted and tested these generators. The generators have selective catalytic reduction emissions control systems and their emissions are well below applicable standards.

There could be cumulative effects on air quality from the combination of these diesel generators with the proposed project. However, these generators provide power only during peak demand periods, mostly on hot summer and cold winter days. The typical operating period is about 4 hours, with the generators running less than 300 hours per year. Therefore, the contribution of these generators to overall air emissions is extremely limited. Because the emissions from the proposed project would also be minor, DOE determined that cumulative impacts on local air quality would be minimal.

The proposed project would add an additional 500 square feet of roofed area and 570 square feet of new pavement, totaling about 1,100 square feet of impervious surface over ACLS’s existing 63,000 square feet. The increase in impervious surface area would be less than 2 percent. This would be a minimal addition to the existing storm water management and treatment system that adequately renovates storm water before it reaches the wetlands. Therefore, the potential for cumulative impacts to the nearby wetlands would be minimal.

The City of Norwich and NPU have indicated that there are no expected expansions or new constructions in the area of the proposed project (Davis 2010). Any expansion or new construction would need approvals from both of these organizations. Other expansion or new construction possibilities would require environmental review and permitting at that time, including analysis of the potential cumulative impacts. Therefore, it is expected that there would be minimal potential for cumulative impacts with facilities in the area.

Because the proposed cogeneration facility would have minimal air quality impacts, and no impacts on water, waste, or socioeconomics even if an expansion or new construction occurred, the potential cumulative impacts of the proposed cogeneration facility would be minimal and have no significant impact on the environment.

5. CONCLUSIONS

NPU proposes to construct and operate a natural-gas-fired reciprocating engine cogeneration facility on the 3-acre ACLS property in Norwich Business Park in New London County, Connecticut. The facility would generate 540 kilowatts of electricity and provide thermal energy to produce hot water for ACLS operations. The proposed project would occupy almost 1,100 square feet of previously disturbed land on ACLS property, which NPU would lease.

In this environmental assessment (EA), DOE evaluated the potential impacts of (1) the proposed action of providing a financial assistance grant to NPU in a cost-sharing arrangement, (2) NPU's proposed project, and (3) the No-Action Alternative.

The analyses for this EA considered all the environmental resource areas DOE typically includes in NEPA documents. Some of the resource areas were not carried forward for additional analysis because DOE determined there would be no impacts or the potential impacts would be small or temporary in nature, or both (Table 1-1). Therefore, DOE focused its analyses on those resource areas that could require new or amended permits, have the potential for significant impacts or controversy, or typically interest the public, such as socioeconomics. These resource areas are:

- Air quality;
- Water resources;
- Noise;
- Socioeconomics; and
- Environmental justice.

DOE consulted with the Connecticut State Historic Preservation Office about its determination that the proposed project would have no impact on historic properties. The Office concurred with DOE's determination. DOE also consulted with the Mashantucket Pequot Tribe of Connecticut and the Mohegan Indian Tribe of Connecticut. The tribes did not identify any potential for impacts to cultural resources.

DOE consulted with the U.S. Fish and Wildlife Service and the Connecticut Department of Environmental Protection. DOE also reviewed the lists and maps of federal and state threatened and endangered species and their habitat requirements and, finding no such habitats at the site in New London County, Connecticut, determined there would be no impacts to protected species.

The proposed project would have the beneficial impacts of providing about 4,000 megawatt-hours per year of baseload electricity for local distribution by NPU and of providing thermal energy to ACLS through a closed-loop water system for its hot water needs. The operating efficiency of the system would be about 60 percent, and the facility would allow ACLS to reduce the use of their steam boilers.

Air emissions from construction would include combustion emissions from construction equipment and fugitive dust from site preparation activities. These would have a short-term adverse impact that NPU could mitigate through best management practices. During operations, the proposed project would be a minor source of emissions that would be insignificant by statutory definition.

The remotely operated proposed cogeneration facility would not use groundwater; only minor amounts of potable water purchased from the Norwich municipal water system would be necessary for routine maintenance and cleaning. The proposed project would not generate waste other than a limited amount of construction debris such as wood, metal, and concrete that NPU would send to the City of Norwich's Rogers Road municipal landfill. The proposed project would not generate hazardous waste.

During construction and operation, storm water runoff would feed into the existing permitted ACLS storm water management and treatment system. The increase in storm water runoff on the ACLS property (less than 2 percent) would be a minor addition to the existing system, which would adequately treat this water before it reached nearby wetlands.

Some noise impacts from construction equipment would occur during the short construction phase. Noise levels during operations would not be audible at the nearest receptor. Actual noise levels would be lower than those analyzed in this EA because of the cogeneration system's enclosure, which would attenuate noise.

The project would create six to eight temporary jobs during approximately 2 months of construction. Operation of the cogeneration plant would be unlikely to create any long-term direct jobs, but it could help to preserve existing jobs and community resources by improving the cost efficiency of ACLS operations. DOE determined there would be no adverse impacts to socioeconomics or environmental justice. The project may result in a small, one-time boost to the local economy from the expenditures to construct and operate the plant.

None of the proposed construction activities would occur in a 100-year floodplain, and the proposed project would not disturb the nearby existing wetlands other than the occasional discharge of an additional small amount of treated storm water runoff.

Cumulative impact considerations included the periodic operations of NPU's two diesel generators at the Norwich Business Park that provide power during peak demand periods. These generators operate for about 300 hours per year in average periods of about 4 hours and would have minimal cumulative air quality impacts in combination with the emissions of the proposed project. There are no other identified projects that would contribute to cumulative impacts with the proposed project.

Under the No-Action Alternative, DOE assumed NPU would not proceed with the project without DOE assistance. Therefore, there would be no impacts to any resource category. However, the above-described potential for positive impacts to air quality and the local economy

would also not occur. In addition, DOE's ability to achieve its objectives under the ITP would be impaired, and NPU and ACLS would not experience the ongoing cost savings.

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APPENDIX A DISTRIBUTION LIST

David Bahlman, Director
Connecticut Commission on Culture and Tourism
Historic Preservation and Museum Division
One Constitution Plaza, Second Floor
Hartford, Connecticut 06103

Kent S. Baker, President
Norwich Community Development Corporation
77 Main Street
Norwich, Connecticut 06360

Alan Bergen
Norwich City Manager
100 Broadway, Second Floor
Norwich, Connecticut 06360-4431

The Honorable Richard Blumenthal
U.S. Senate
448 Russell Building
Washington, DC 20510

The Honorable Bruce Bozsum
Tribal Council Chairman
Mohegan Indian Tribe
5 Crow Hill Road
Uncasville, Connecticut 06382-1118

The Honorable Rodney Butler
Chairman, Mashantucket Pequot Tribe of Connecticut
2 Matts Paths,
P.O. Box 3060
Mashantucket, Connecticut 06338-3060

Tom Chapman, Director
U.S. Fish and Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, New Hampshire 03301-5087

The Honorable Joe Courtney
U.S. House of Representatives
215 Cannon House Office Building
Washington, D.C. 20515

Peter Davis
Norwich Office of Planning and Development
23 Union Street
Norwich, Connecticut 065360

Daniel Goldberg
Atlantic City Linen Supply
18 North New Jersey Avenue
Atlantic City, New Jersey 08401-5236

Kevin Haggerty
U.S. Department of Energy
Freedom of Information Act Reading Room
1000 Independence Avenue, SW, 1-G-033
Washington, D.C. 20585

Elizabeth Higgins, Director
Office of Environmental Review
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

Kathleen Knowles
Tribal Historic Preservation Officer
Mashantucket Pequot Tribe
110 Pequot Trail
P.O. Box 3180
Mashantucket, Connecticut 06338-3180

The Honorable Dan Malloy
Governor of Connecticut
210 Capitol Avenue
Hartford, Connecticut 06106

Amy Marrella, Commissioner
Connecticut Department of Environmental Protection
70 Elm Street
Hartford, Connecticut 06106-5127

The Honorable Joseph Lieberman
U.S. Senate
706 Hart Office Building
Washington, D.C. 20510

The Honorable Peter Nystrom
Mayor of Norwich
100 Broadway, 3rd Floor
Norwich, Connecticut 06360

James Quinn
Archeological Field Supervisor
Mohegan Indian Tribe
5 Crow Hill Road
Uncasville, Connecticut 06382-1118

Timothy L. Timmermann
Office of Environmental Review
Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

APPENDIX B CONSULTATIONS AND COMMENTS

This appendix contains copies of the following consultation letters:

- DOE's letter to the Connecticut Historic Preservation and Museum Division (page B-2) and the Division's response to DOE (page B-7).
- DOE's letter to the Chairman (page B-8) and Tribal Historic Preservation Officer (page B-10) of the Mashantucket Pequot Tribe of Connecticut, the Tribe's response (page B-12), DOE's reply to that response (page B-13), and the Tribe's acknowledgement (page B-15).
- DOE's letter to the Tribal Council Chairman (page B-16) and Archeological Field Supervisor (page B-18) of the Mohegan Indian Tribe, the Mohegan Indian Tribe response (page B-20), and DOE's reply to that response (page B-21).
- DOE e-mail correspondence with FWS (page B-22) and a letter from the FWS indicating DOE has properly ascertained from the FWS online system that no federally proposed or listed threatened or endangered species occur in the proposed project area (page B-25).

DOE sent the same three figures with the original letters, so they are reproduced only after the first letter.

This appendix also contains copies of the comments on the draft EA from the Mashantucket Pequot Tribe (page B-26) and the Norwich Community Development Corporation (page B-27).



NATIONAL ENERGY TECHNOLOGY LABORATORY
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October 27, 2010

Mr. David Bahlman, Director
Connecticut Commission on Culture and Tourism
Historic Preservation and Museum Division
One Constitution Plaza
Second Floor
Hartford, CT 06103

Dear Mr. Bahlman,

The U.S. Department of Energy (DOE) is proposing to provide Federal funding to the Norwich Public Utilities (NPU) to design, construct and operate a 540 kilowatt (kW) co-generation facility for NPU in partnership with one of its largest customers, Atlantic City Linen Supply (ACLS or ACLS New England, Inc.). This Congressionally Directed Project would assist the DOE Office of Energy Efficiency and Renewable Energy's (EERE) Industrial Technologies Program to advance industry-specific research and the development, and promote and demonstrate a corporate culture of energy efficiency.

The proposed project would have a single natural gas reciprocating engine, specifically designed for co-generation projects, to generate electricity which would be fed directly into NPU's local electricity distribution system. The thermal heat from the engine and its operation would flow through a closed water system directly to ACLS, providing thermal energy to help heat water for the facility's operational hot water requirements. ACLS's large and consistent hot water use makes it an excellent candidate for co-generation.

The proposed co-generation facility would be built adjacent to the ACLS plant parking lot in a previously disturbed area. The reciprocating engine would set on a ground level 20' x 25' concrete pad, which would be located approximately 100 feet to the north-northeast of the existing ACLS plant. A metal cover/shed would enclose the engine and protect it from exposure to the weather. The height of the engine and shed will be lower than the existing ACLS plant/building. This arrangement, along with the site being mostly surrounded with trees, should result in no visual impact. The ACLS plant is located at 5 Consumers Avenue, Norwich, Connecticut in the Stanley Israelite Norwich Business Park, which is home to over 50 companies.

The expected Area of Potential Effects (APE) would be the 3.0 acre ACLS property on which the co-generation facility would be located. The National Register of Historic Places (NRHP) lists 28 NRHP sites and historic districts in Norwich, CT. There are no known historic properties within the proposed project's APE. The nearest NRHP listed resource is the Bean Hill Historic District, approximately 1.6 miles from the proposed site. Based on the industrially developed nature of the locale and distance to the nearest NRHP resource, DOE concludes that there are no

3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507
joseph.zambelli@netl.doe.gov • Voice (304) 285-4913 • Fax (304) 285-4403 • www.netl.doe.gov

known or proposed historic properties within or immediately proximate to the proposed project's APE and the proposed project would not have any impact on NRHP listed sites.

In compliance with 36 CFR Part 800.4(d) (1), DOE asks the Connecticut Commission on Culture and Tourism, Historic Preservation and Museum Division, for its concurrence of this finding. Attached to facilitate your review are Figures 1, 2 and 3 showing the location of the proposed project at the Norwich Business Park.

An environmental assessment (EA) is currently being prepared for the proposed project by DOE's National Energy Technology Laboratory (NETL) to meet the requirements of the *National Environmental Policy Act* (NEPA). DOE will provide you a copy of the draft EA in several weeks where you can again respond to any specific concerns you may have. All correspondence with your office will be included in an appendix to the EA. At this time, DOE is anticipating a 15-day public comment period.

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

Joseph Zambelli
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
P.O. Box 880
M/S: B07
Morgantown, WV 26507-0880
Email: joseph.zambelli@netl.doe.gov
Phone: (304) 285-4913
Fax: (304) 285-4403

Thank you in advance for your consideration.

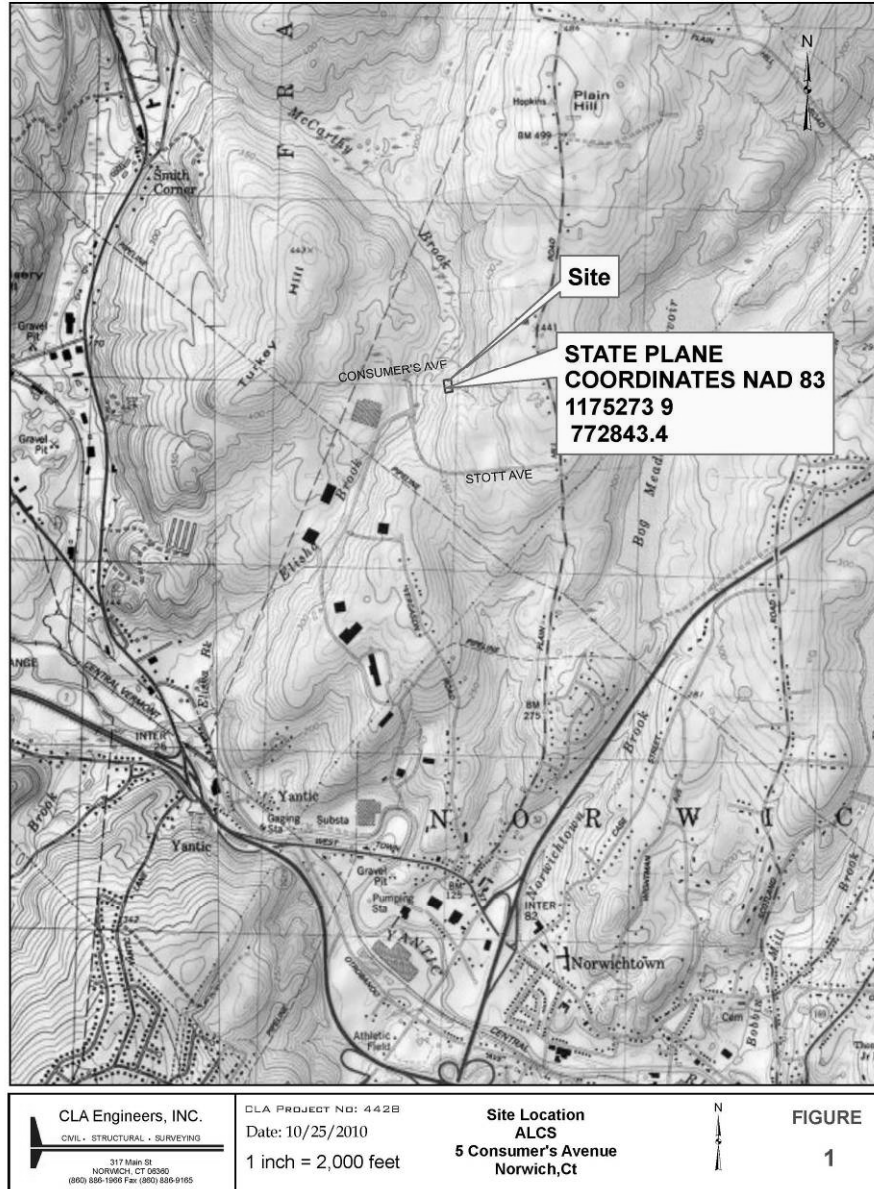
Sincerely,



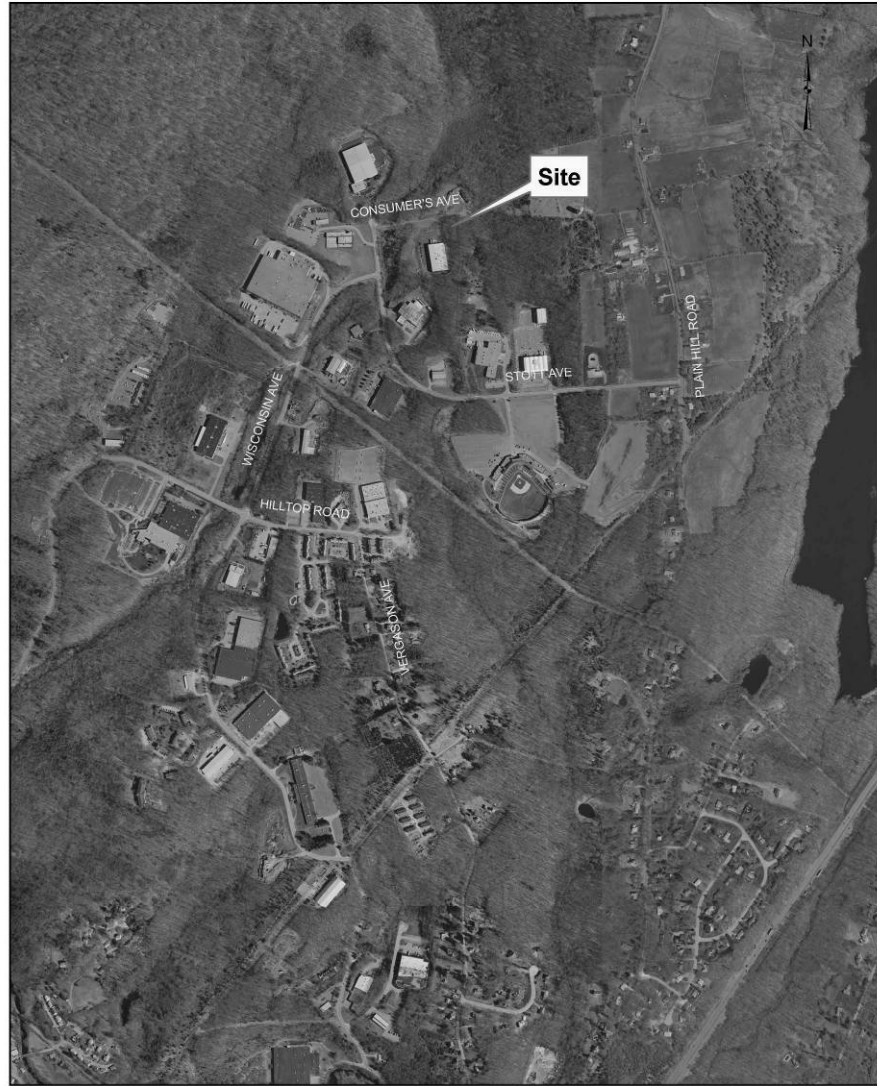
Joseph Zambelli
NEPA Document Manager



Attachments:

- Figure 1. USGS topographic map with the site location identified.
- Figure 2. Wide aerial photo showing site location.
- Figure 3. Close-up aerial photo showing site location.







 <p>CLA Engineers, INC. CIVIL • STRUCTURAL • SURVEYING 317 Main St NORWICH, CT 06360 (800) 886-1909 Fax (800) 886-9155</p>	<p>CLA PROJECT NO: 442B Date: 10/25/2010 1 inch = 1,000 feet</p>	<p>Site Location ALCS 5 Consumer's Avenue Norwich, Ct</p>	 <p>FIGURE 3</p>
--	--	--	---



Connecticut Commission on Culture & Tourism

November 9, 2010

**Historic Preservation
and Museum Division**

One Constitution Plaza
Second Floor
Hartford, Connecticut
06103

860.256.2800
860.256.2763 (f)

State Museums

Henry Whitfield Museum
248 Old Whitfield Street
Guilford, Connecticut
06437

203.453.2457
203.453.7544 (f)

Old New-Gate Prison &
Copper Mine
115 Newgate Road, P.O.B. 254
East Granby, Connecticut
06026

860.653.3563
860.844.2142 (f)

Prudence Crandall Museum
1 South Canterbury Road, P.O.B. 58
Canterbury, Connecticut
06331

860.546.7800
860.546-7803 (f)

Sloane Stanley Museum
31 Kent-Cornwall Road, P.O.B. 917
Kent, Connecticut
06757

860.927.3849
860.927.2152 (f)

Mr. Joseph Zambelli
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
Morgantown, WV 26507-0880

RE: Co-generation Facility
5 Consumers Avenue
Norwich, Connecticut

Dear Mr. Zambelli:

The State Historic Preservation Office (SHPO) has reviewed the above-named project. In the opinion of the SHPO, the proposed undertaking will have no effect upon the state's cultural resources.

This office appreciates the opportunity to have reviewed and commented upon the project.

We recommend that the responsible federal agency provide concerned citizens with the opportunity to review and comment upon the proposed undertaking in accordance with the National Historic Preservation Act of 1966.

For further information, please contact Ms. Cora Murray, Review and Compliance Associate.

Sincerely:

David Bahlman
Deputy Historic Preservation Officer

DB/cm

CONNECTICUT

www.cultureandtourism.org

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Albany, OR • Morgantown, WV • Pittsburgh, PA



October 27, 2010

Rodney Butler, Chairman
Mashantucket Pequot Tribe of Connecticut
2 Matts Paths,
P.O. Box 3060
Mashantucket, CT 06338-03060

Dear Mr. Butler,

The U.S. Department of Energy (DOE) is proposing to provide Federal funding to the Norwich Public Utilities (NPU) to design, construct and operate a 540 kilowatt (kW) co-generation facility for NPU in partnership with one of its largest customers, Atlantic City Linen Supply (ACLS or ACLS New England, Inc.). This Congressionally Directed Project would assist the DOE Office of Energy Efficiency and Renewable Energy's (EERE) Industrial Technologies Program to advance industry-specific research and development, and promote and demonstrate a corporate culture of energy efficiency.

The proposed project would have a single natural gas reciprocating engine, specifically designed for co-generation projects, to generate electricity which would be fed directly into NPU's local electricity distribution system. The thermal heat from the engine and its operation would flow through a closed water system directly to ACLS, providing thermal energy to help heat water for the facility's operational hot water requirements. ACLS's large and consistent hot water use makes it an excellent candidate for co-generation.

The proposed co-generation facility would be built adjacent to the ACLS plant parking lot in a previously disturbed area. The reciprocating engine would set on a ground level 20' x 25' concrete pad, which would be located approximately 100 feet to the north-northeast of the existing ACLS plant. A metal cover/shed would enclose the engine and protect it from exposure to the weather. The height of the engine and shed will be lower than the existing ACLS plant/building. This arrangement, along with the site being mostly surrounded with trees, should result in no visual impact. The ACLS plant is located at 5 Consumers Avenue, Norwich, Connecticut in the Stanley Israelite Norwich Business Park, which is home to over 50 companies. Attached are figures 1, 2, and 3 showing the location of the proposed project at the Norwich Business Park.

An environmental assessment (EA) is currently being prepared for the proposed project by DOE's National Energy Technology Laboratory (NETL) to meet the requirements of the *National Environmental Policy Act* (NEPA). DOE will provide to you a copy of the draft EA in several weeks where you can again respond to any specific concerns you may have. All correspondence with your office will be included in an appendix to the EA. At this time, DOE is anticipating a 15-day public comment period.

3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507
joseph.zambelli@netl.doe.gov • Voice (304) 285-4913 • Fax (304) 285-4403 • www.netl.doe.gov

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the proposed facility and any comments or concerns you have on the potential for this proposed project to affect those properties. This information is being requested 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 this project, please contact Joseph Zambelli of DOE's NETL at the following:

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National Energy Technology Laboratory
3610 Collins Ferry Road
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M/S: B07
Morgantown, WV 26507-0880
Email: joseph.zambelli@netl.doe.gov
Phone: (304) 285-4913
Fax: (304) 285-4403

Thank you in advance for your consideration.

Sincerely,



Joseph Zambelli
NEPA Document Manager

Attachments:

- Figure 1. USGS topographic map with the site location identified.
- Figure 2. Wide aerial photo showing site location.
- Figure 3. Close-up aerial photo showing site location.



NATIONAL ENERGY TECHNOLOGY LABORATORY
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October 27, 2010

Lori Potten
Tribal Historic Preservation Officer
Mashantucket Pequot Tribe of Connecticut
2 Matts Paths, P.O. Box 3060
Mashantucket, CT 06338-03060

Dear Ms. Potten,

The U.S. Department of Energy (DOE) is proposing to provide Federal funding to the Norwich Public Utilities (NPU) to design, construct and operate a 540 kilowatt (kW) co-generation facility for NPU in partnership with one of its largest customers, Atlantic City Linen Supply (ACLS or ACLS New England, Inc.). This Congressionally Directed Project would assist the DOE Office of Energy Efficiency and Renewable Energy's (EERE) Industrial Technologies Program to advance industry-specific research and development, and promote and demonstrate a corporate culture of energy efficiency.

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joseph.zambelli@netl.doe.gov • Voice (304) 285-4913 • Fax (304) 285-4403 • www.netl.doe.gov

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the proposed facility and any comments or concerns you have on the potential for this proposed project to affect those properties. This information is being requested 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 this project, please contact Joseph Zambelli of DOE's NETL at the following:

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Phone: (304) 285-4913
Fax: (304) 285-4403

Thank you in advance for your consideration.

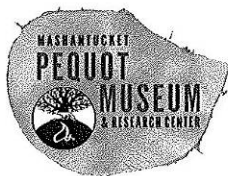
Sincerely,



Joseph Zambelli
NEPA Document Manager

Attachments:

- Figure 1. USGS topographic map with the site location identified.
- Figure 2. Wide aerial photo showing site location.
- Figure 3. Close-up aerial photo showing site location.



11-6-10

Mr. Joseph Zambelli
U.S. Dept. of Energy
National Energy Technology Laboratory
3610 Collins Ferry Rd.
P.O. Box 880
M/S: B07
Morgantown, WV 26507-0880

RE: NORWICH PUBLIC UTILITIES (NPU)
CONSTRUCTION & OPERATION OF A 540 KILOWATT (Kw)
CO-GENERATION FACILITY FOR NPU

Dear Mr. Zambelli,

Your correspondence was forwarded to me, and I have a couple of questions regarding this proposed project.
What is your basis for identifying this site as previously disturbed; and to what depth? Was there a Phase I Archaeological Reconnaissance Survey completed, or documentation on the disturbance? If so, I would appreciate a copy of any work performed on this project.

Sincerely,

Kathleen Knowles

Kathleen Knowles,
Tribal Historic Preservation Officer
Mashantucket Pequot Tribe

MASHANTUCKET PEQUOT MUSEUM
& RESEARCH CENTER

110 Pequot Trail, PO Box 3180
Mashantucket, CT 06338
Phone: 860 396 6800
Fax: 860 396 6850
www.pequotmuseum.org



NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR • Morgantown, WV • Pittsburgh, PA



November 16, 2010

Ms. Kathleen Knowles
Tribal Historic Preservation Officer
Mashantucket Pequot Tribe
110 Pequot Trail
P.O. Box 3180
Mashantucket, CT 06338

Dear Ms. Knowles,

Thank you for your letter of November 6, 2010 which included several questions about the Norwich Co-generation Initiative; to build a 540 kW co-generation facility on the property of Atlantic City Linen Supply New England (ACLS), in the Norwich Business Park.

Please see my responses below to your two questions:

Q1: What is your basis for identifying this site as previously disturbed and to what depth?

A1: We have been working with the consulting engineers who were involved with the construction of the ACLS facility and know the work that was done to prepare the ground and construct that facility. The site was previously graded for construction of the ACLS facility. In the particular location of the proposed new building and parking spaces, the soil was excavated by approximately 2-4 feet and smoothed to create the existing slope. This work was done approximately 8 years ago.

Q2: Was there a Phase 1 Archaeological Reconnaissance Survey completed, or documentation on the disturbance?

A2: The consulting engineers indicate that no Phase 1 Archaeological Reconnaissance Survey was conducted for site preparation and construction of the ACLS facility. Discussion with a person involved in the original funding of the roadway and land sale to ACLS indicates that no archeological survey was done for the either of those actions.

If you have any questions about these responses or if I can be of further assistance, please let me know.

Sincerely,

A handwritten signature in black ink that reads "Joseph Zambelli". The signature is written in a cursive style with a large initial "J" and a long, sweeping underline.

Joseph Zambelli
NEPA Document Manager

From: 'Knowles, Kathleen'
To: "joseph.zambelli@netl.doe.gov"
Sent: Fri Nov 19 16:04
Subject: Fwd: NORWICH PUBLIC UTILITIES (NPU), CONSTRUCTION & OPERATION OF A 540 KILOWATT (KW) CO-GENERATION FACILITY

Re: ENVIRONMENTAL ASSESSMENT FOR NORWICH PUBLIC UTILITIES (NPU)
CONSTRUCTION & OPERATION OF A 540 KILOWATT (KW)
CO-GENERATION FACILITY FOR NPU

Thank you for answering my questions regarding the above named proposed project Mr. Zambelli.

When complete, yes I would like a copy of the Environmental Assessment that is being prepared.

Thank you,

Kathleen Knowles,
Tribal Historic Preservation Officer
Mashantucket Pequot Tribe



NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR • Morgantown, WV • Pittsburgh, PA



October 27, 2010

Bruce Bozsum
Tribal Council Chairman
Mohegan Indian Tribe
5 Crow Hill Road
Uncasville, CT 06382-1118

Dear Mr. Bozsum,

The U.S. Department of Energy (DOE) is proposing to provide Federal funding to the Norwich Public Utilities (NPU) to design, construct and operate a 540 kilowatt (kW) co-generation facility for NPU in partnership with one of its largest customers, Atlantic City Linen Supply (ACLS or ACLS New England, Inc.). This Congressionally Directed Project would assist the DOE Office of Energy Efficiency and Renewable Energy's (EERE) Industrial Technologies Program to advance industry-specific research and development, and promote and demonstrate a corporate culture of energy efficiency.

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3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507
joseph.zambelli@netl.doe.gov • Voice (304) 285-4913 • Fax (304) 285-4403 • www.netl.doe.gov

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the proposed facility and any comments or concerns you have on the potential for this proposed project to affect those properties. This information is being requested 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 this project, please contact Joseph Zambelli of DOE's NETL at the following:

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National Energy Technology Laboratory
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Morgantown, WV 26507-0880
Email: joseph.zambelli@netl.doe.gov
Phone: (304) 285-4913
Fax: (304) 285-4403

Thank you in advance for your consideration.

Sincerely,



Joseph Zambelli
NEPA Document Manager

Attachments:

- Figure 1. USGS topographic map with the site location identified.
- Figure 2. Wide aerial photo showing site location.
- Figure 3. Close-up aerial photo showing site location.



NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR • Morgantown, WV • Pittsburgh, PA



October 27, 2010

James Quinn
Archeological Field Supervisor
Mohegan Indian Tribe
5 Crow Hill Road
Uncasville, CT 06382-1118

Dear Mr. Quinn,

The U.S. Department of Energy (DOE) is proposing to provide Federal funding to the Norwich Public Utilities (NPU) to design, construct and operate a 540 kilowatt (kW) co-generation facility for NPU in partnership with one of its largest customers, Atlantic City Linen Supply (ACLS or ACLS New England, Inc.). This Congressionally Directed Project would assist the DOE Office of Energy Efficiency and Renewable Energy's (EERE) Industrial Technologies Program to advance industry-specific research and development, and promote and demonstrate a corporate culture of energy efficiency.

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Thank you in advance for your consideration.

Sincerely,



Joseph Zambelli
NEPA Document Manager

Attachments:

- Figure 1. USGS topographic map with the site location identified.
- Figure 2. Wide aerial photo showing site location.
- Figure 3. Close-up aerial photo showing site location.



Hello,

Thank You for the information regarding the DOE proposed co-generation facility at 5 Consumers Avenue, Norwich, Connecticut. The Mohegan people have lived in and around Norwich for centuries, so this project is located within lands that the Mohegan people once called their own. As is the case for all construction projects within the region/state, the Mohegan Tribe has concerns regarding the possible disturbance of burials and/or archaeological resources. I have a couple questions in regards to the amount/extent of subsurface disturbance associated with this project. In the information packet I received it states that the project will “be built adjacent to the ACLS plant parking lot in a previously disturbed area”.

- Do you know the origin/nature of that previous disturbance?
- Did it result from the original construction of the plant?
- Is the proposed project area topped with fill? If so, how much?
- I know that the information states that the facility will be constructed atop a concrete pad. Is there any anticipated subsurface disturbance that will precede the construction of the concrete pad?

Thank you for your consideration in this process. I look forward to corresponding further with you on this project.

Best Regards,
James

James Quinn
The Mohegan Tribe
Archaeological Field Supervisor
5 Crow Hill Rd.
Uncasville, Ct. 06382
Office# (860)862-6893
Fax# (860)862-6395

From: 'Joseph Zambelli'
To: jquinn@moheganmail.com
Sent: Wed Nov 10 14:52
Subject: Fwd: Requested information on subsurface disturbance associated with the Norwich Co-Generation project

Hi James,

In response to your 11/05/2010 request for additional information regarding the subsurface disturbance associated with the Norwich Co-Generation project, please see my responses, in **bold blue text**, following each of your questions.

1. Do you know the origin/nature of that previous disturbance?
The site was previously graded for construction of the Atlantic City Linen Supply New England (ACLS) facility. In the particular location of the proposed new building and parking spaces, the soil was excavated by approximately 2-4 feet and smoothed to create the existing slope. This work was done approximately 8 years ago.

2. Is it result from the original construction of the plant? **Yes, it was for the ACLS plant construction.**

3. Is the proposed project area topped with fill? If so, how much? **No, it is not topped with fill.**

4. I know that the information states that the facility will be constructed atop a concrete pad. Is there any anticipated subsurface disturbance that will precede the construction of the concrete pad?

In order to construct the building, excavation of up to 8 feet below the current elevation will be necessary to establish a new local ground elevation of + 323 feet. Additional excavation below 323 feet will occur to provide for the depth of the slab. The finished floor elevation of the proposed building is currently set at 323.5 ft.

Bob Russo of CLA Engineers indicated that when the ACLS site was cleared of vegetation, the project engineer observed the area. This observation indicated that the bared land had an irregular surface strewn with large embedded boulders, which were dislodged by a bulldozer and rolled to the lower portion of the site.

As a result of this removal of boulders and grading of the site, at least 2-4 feet of native, glacially deposited soil was removed from the site of the proposed new co-generation building and parking spaces. In the case of embedded boulders, the removal depth may have been greater than 4 feet. In any case, development of the site will require excavation of up to approximately 8 feet more of the native, on-site material.

In summary, the entire area where new disturbance is proposed was previously disturbed via excavation and smoothing, and for the new building and parking spaces, will be further excavated and smoothed.

Again, please remember that you will have further opportunity for comment when you receive a copy of the draft environmental assessment.

If you have any questions on these responses or you require additional information, please let me know.

Sincerely,

Joe Zambelli

NEPA Document Manager

DOE-NETL
3610 Collins Ferry Road
P.O. Box 880
Morgantown, WV 26507-0880

Phone: 304.285.4913
Email: joseph.zambelli@netl.doe.gov

From: [Steven Frank](#)
To: joseph.zambelli@netl.doe.gov
Cc: dcrowl@moellerinc.com
Subject: Fwd: Re: Fw: Consultation On Norwich Cogeneration project
Date: Monday, November 22, 2010 8:53:52 AM

Joe,

Thanks for all the consultation letters and emails. The only one that I think may be missing is below, from FWS saying they do not consult if there are no protected species and to print the letter.

----- Original Message -----

From: Anthony_Tur@fws.gov
To: steven.frank@moellerinc.com
Sent: Tue Oct 19 14:14
Subject: Fwd: Re: Fw: Consultation On Norwich Cogeneration project

Steven,

We have gotten away from writing correspondences for projects where our online species information indicates that none are present. Instead, we provide a .pdf letter for that purpose that can be downloaded and printed to fulfill your requirement. Please see step 1 E.

In addition, my earlier message indicated that the mail in information could be found at the link provided (Step 2 D).

Please read and follow the Step wise process completely.

Tony

Anthony Tur
Endangered Species Biologist
U.S. Fish and Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, New Hampshire 03301

Phone (603) 223-2541 x.24
Anthony_Tur@fws.gov

<http://www.fws.gov/newengland/>

Steven Frank

10/19/2010 01:43 PM

Please respond to

To Anthony_Tur@fws.gov

cc Jeannine_Dube@fws.gov

Subject Re: Fw: Consultation On Norwich Cogeneration project

||steven.frank@moellerinc.com||

Tony,

My thanks for your reply and help. The website was most useful and confirms that there are no Federal T&E species in Norwich. I also contacted the State and reviewed their NDDB database which confirmed there are neither Federal nor State T&E species at the site for the proposed project. However, the Department of Energy wishes to send a consultation letter to confirm this information for the record. Could you kindly provide the name and address of the person to whom the consultation letter should be sent.

Thanks again for your assistance.

Warm regards,
Steve

On Fri Oct 15 14:17 , Anthony_Tur@fws.gov sent:

Mr. Frank,

Prior to sending your request, please visit the link below. You will find this office's species lists, along with specific directions for mailing your request.

http://www.fws.gov/newengland/EndangeredSpec-Consultation_Project_Review.htm

Thanks
Tony

Anthony Tur
Endangered Species Biologist
U.S. Fish and Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, New Hampshire 03301

Phone (603) 223-2541 x.24
Anthony_Tur@fws.gov

<http://www.fws.gov/newengland/>

----- Forwarded by Anthony Tur/R5/FWS/DOI on 10/15/2010 01:54 PM -----

Michael Amaral/R5/FWS/DOI

10/14/2010 03:41 PM

To Anthony Tur/R5/FWS/DOI@FWS
cc

Subject Fw: Consultation On Norwich Cogeneration project

Tony - Pls forward our website link to Mr. Frank - hopefully, no additional T/E review will be necessary.

Michael

----- Forwarded by Michael Amaral/R5/FWS/DOI on 10/14/2010 03:40 PM -----

Steven Frank

10/14/2010 01:13 PM

Please respond to
steven.frank@moellerinc.com

To michael_amaral@fws.gov

cc

Subject Consultation On Norwich Cogeneration project

Michael,

I'm supporting the U.S. Department of Energy in preparing an environmental assessment for a co-generation project proposed by Norwich Public Utilities at the Norwich Business Park. I will be preparing a consultation letter about Threatened and Endangered Species consultation and want to make sure it is sent to the correct person. Should that letter go to yourself or to Tom Chapman?

The USFWS website indicates there are seven listed species (Piping Plover, Small Whorled Pogonia, Sandplain Gerardia, and four sea turtles—plus the Arctic Peregrine Falcon). We believe that these species are not on-site nor is there any critical habitat at the industrial park where the proposed facility is planned for.

Please let me know to whom we should be sending the request for consultation. Thanks in advance for your assistance.

Warm regards,
Steve Frank
301-530-6564



United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
<http://www.fws.gov/newengland>



January 4, 2010

To Whom It May Concern:

This project was reviewed for the presence of federally-listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

<http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm>

Based on the information currently available, no federally-listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service (Service) are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under Section 7 of the Endangered Species Act is not required.

This concludes the review of listed species and critical habitat in the project location(s) and environs referenced above. No further Endangered Species Act coordination of this type is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact Mr. Anthony Tur at 603-223-2541 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

**Joseph Zambelli - DRAFT ENVIRONMENTAL ASSESSMENT - NORWICH
COGENERATIONINITIATIVE, NORWICH, CT**

From: "Knowles, Kathleen" <KKnowles@mptn-nsn.gov>
To: "Joseph Zambelli" <Joseph.Zambelli@NETL.DOE.GOV>
Date: 2/3/2011 5:20 PM
Subject: DRAFT ENVIRONMENTAL ASSESSMENT - NORWICH
COGENERATIONINITIATIVE, NORWICH, CT

RE: DRAFT ENVIRONMENTAL ASSESSMENT
FOR THE NORWICH COGENERATION INITIATIVE,
NORWICH, CONNECTICUT (DOE/EA-1836D)

I have reviewed the Draft Environmental Assessment For The Norwich Cogeneration Initiative (DOE/EA1836D), submitted by U.S. Department of Energy, National Energy Technology Laboratory.

The research design and testing strategy meets acceptable professional standards, and I agree with the recommendations and conclusions.

As stated in the report, "If construction activities for this project unearthed potential religious or culturally significant resources for the Mashantucket Pequot Tribe, I appreciate that NPU would immediately halt such activities and notify me, along with the CT SHPO and the Mohegan Tribe."

Kathleen Knowles,
Tribal Historic Preservation Officer
Mashantucket Pequot Tribe

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JACKIE ROY, Program Manager

February 10, 2011

Mr. Joseph Zambelli
US Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
Morgantown, WV 26507-0880

RE: Co-generation Facility
5 Consumers Avenue
Norwich, Connecticut

Dear Mr. Zambelli:

Norwich Community Development Corporation (NCDC) is the organization responsible for managing the Norwich Business Park, including those parcels located on Consumers Avenue. NCDC has reviewed the Draft Environmental Assessment for the Norwich Cogeneration Initiative and is of the opinion that this construction will be a benefit to Atlantic City Linen Supply, the Norwich Business Park, and the City of Norwich.

NCDC is committed to promoting initiatives that support NCDC's core mission; specifically business retention. The efficiencies afforded by co-generation at that site will make ACLS more competitive and will help them remain doing business in our community.

NCDC supports the ACLS/NPU/DOE partnership and its proposed use of sustainable energy sources to meet the energy needs of this business. Reduction of harmful emissions and responsible use of natural resource is a benefit to us all.

Respectfully,

A handwritten signature in black ink, appearing to read "K. Baker", is written over a horizontal line. Below the signature, the name "Kent S. Baker" and the title "President" are printed in a standard font.

Kent S. Baker
President

► askncdc.com

77 MAIN STREET, NORWICH, CT 06360 PHONE ► 860.887.6964 FAX ► 860.887.3438

