Department of Energy
Golden Field Office
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DOE/EA-1888
FINDING OF NO SIGNIFICANT IMPACT
CONSTRUCTION AND OPERATION OF OLD TOWN FUEL AND FIBER'S PROPOSED DEMONSTRATION-SCALE INTEGRATED BIOREFINERY, OLD TOWN, MAINE

AGENCY: U.S. Department of Energy, Golden Field Office

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: The U.S. Department of Energy (DOE) is proposing to authorize the expenditure of federal funding to Red Shield Associates, LLC (dba Old Town Fuel and Fiber; hereinafter referred to as OTFF), to design, construct, and operate a demonstration-scale biorefinery in Old Town, Maine. The biorefinery, which OTFF would install in the former tissue mill at their existing pulp mill in Old Town, Maine, would be used to complete a demonstration-scale clarified sugar process, followed by a limited-scale fermentation process between 1,500 liters and 100,000 liters (400 to 2,640 gallons) capacity, with which sugar conversion technologies can be tested and evaluated. OTFF is proposing to extract cellulosic sugars (C6) as a slipstream from its brownstock pulp washing process unit, followed by concentration and clarification of the sugars to remove acids and salts to place them in a potentially marketable condition for fermentation to biofuels and biochemicals by other technology suppliers (hereinafter referred to as the biorefinery). The biorefinery would produce n-butanol, algal-based green oil (hereinafter referred to as green oil) from lignocellulosic (wood) extract. The green oil would be sold to an off-site refinery for processing into a biobased fuel. When operating, the facility would annually produce 555,681 gallons of green oil. In addition to the green oil, the project would produce approximately 56,195,832 pounds per year of sugar, 36,190,000 pounds of which would be sold and shipped off the site for further processing.

All discussion, analysis, and findings related to the potential impacts of constructing and operating the proposed biorefinery are documented in the Final Environmental Assessment (EA), which is hereby incorporated by reference.

This FONSI was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 et seq.); Council on Environmental Quality NEPA implementing regulations (40 Code of Federal Regulations [CFR] Parts 1500–1508); and DOE NEPA implementing procedures (10 CFR Parts 1021 and 1022).

ENVIRONMENTAL IMPACTS: The Final EA examines the potential environmental impacts of the DOE Proposed Action and No-Action Alternative. Under the No-Action Alternative, DOE would not authorize OTFF to spend federal funds on the proposed project and DOE

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assumed, for purposes of the EA, that the proposed biorefinery would not be constructed or operated without this financial assistance. This approach provides a basis of comparison for the potential impacts of the proposed project.

The proposed biorefinery would be entirely within the boundaries of the OTFF existing pulp mill, which is on approximately 180 acres in Old Town, Maine, and would be inside an existing building formerly used to manufacture tissue. The proposed biorefinery would require electricity, steam, potable water, domestic wastewater treatment, process water, process cooling water, process wastewater treatment, and interior storage tanks. All supporting infrastructure currently exists on the site. The proposed project would require a small increase (approximately 16 percent) in feedstock. The pulp mill currently uses 1,800 to 2,000 green tons per day of woodchips, and an additional 337 green tons per day would be required for the biorefinery. OTFF would purchase the additional woodchips from the current pulp mill feedstock suppliers.

All construction activities would take place inside the former tissue building, and all construction staging and access would be in previously developed areas; therefore, there would be no changes to land use or drainage patterns. Based on this and other information, DOE concluded that the design, construction, and operation of the proposed project would have no measurable impact on geology and soils. Therefore, those resources are not analyzed in the EA.

DOE considered the following resources in more detail in the Final EA: land use, water resources, biological resources, air quality, aesthetics, noise, safety and occupational health, waste management and hazardous materials, utilities, cultural resources, traffic, socioeconomics and environmental justice, and the cumulative impacts of the proposed project. The construction and operation of the proposed biorefinery project would have the greatest potential for impacts on water resources, biological resources, air quality, waste management and hazardous materials, traffic, noise and cumulative impacts. The analyses of these resource areas are discussed in more detail below.

Water resources - The proposed project would not use groundwater resources as a source of potable or process water, nor would it affect floodplains or wetlands. OTFF would develop several measures to prevent soil and groundwater contamination, including the development of both a construction Stormwater Pollution Prevention Plan and an operations Stormwater Pollution Prevention Plan, and a Spill Prevention, Control, and Countermeasures Plan. The proposed project would use facility designs that include secondary containment and have operations policies and procedures to manage and store hazardous materials. The existing OTFF wastewater treatment system has a licensed capacity of 24.4 million gallons per day; the system is currently processing approximately 12 to 13 million gallons per day. The proposed project would generate approximately 150,000 gallons of wastewater per day. The wastewater treatment plant has adequate capacity to treat this wastewater within the limits of the existing permit. Maine Department of Environmental Protection (MEDEP) has issued a new Wastewater Discharge License for the pulp mill, which includes anticipated flows from the proposed biorefinery. In the permit, the MEDEP determined that the addition of the biorefinery to the operation of the pulp mill would not result in impacts to water quality or violations of water regulations, and authorized OTFF to utilize the existing wastewater treatment facility for the proposed project.

Biological resources - DOE determined that the proposed project would not be likely to adversely affect listed fish species or other aquatic species with the addition of the biorefinery to the existing wastewater treatment facility. The National Marine Fisheries Service (NMFS) concurred with the DOE determination that the proposed project would not be likely to adversely affect listed or candidate species. The NMFS made this determination based on current conditions because neither listed shortnose sturgeon nor candidate species Atlantic sturgeon have access to the waterway in the vicinity of the proposed project. The U.S. Fish and Wildlife Service (USFWS) concurred with the DOE determination that the proposed project would not be likely to adversely affect the endangered Atlantic salmon, nor would it destroy or result in adverse modification of Atlantic salmon critical habitat. OTFF contacted the Maine Department of Inland Fisheries and Wildlife (MDIFW) regarding the presence of state threatened, endangered, or listed species at the pulp mill site. MDIFW responded indicating that they do not anticipate any inland fisheries or wildlife concerns associated with the proposed project.

Air quality - The proposed project would be a source of air pollutant emissions during construction and operations. Construction emissions would be minor because most of the project would be in the former tissue mill and staging would be in a previously disturbed area. Emissions of fugitive dust during construction would be minimized through standard practices, such as minimizing the size of the staging area and the duration of exposure, watering or chemically treating exposed soil surfaces and roadways, and seeding or mulching exposed soil surfaces.

The biorefinery would utilize some of the existing equipment at the pulp mill. Additional process equipment would be installed that could emit air pollutants and would be permitted as a minor modification to the existing Title V air permit. The proposed increase in the volume of woodchips processed at the pulp mill would result in an increase in emissions from the currently permitted combustion sources. These emissions would be permitted as a major modification to the existing Title V air permit. Air quality modeling would be performed as part of the application for the major modification to demonstrate that the project would comply with ambient air quality standards.

No additional fuel-burning equipment would be installed for the biorefinery. However, there would be minor emissions of volatile organic compounds and carbon dioxide as a result of biorefinery operations. The estimated emissions solely from the biorefinery process are 300 pounds per year of volatile organic compounds and 1,290 pounds per hour (5,650 short tons per year) of carbon dioxide.

As part of the proposed project, there would be an increase of 100 bone-dried short tons (18 percent) per day in the quantity of woodchips processed by the existing pulp mill. The energy required to process the additional woodchips would increase the emissions associated with facility operations. Proposed biorefinery operations are estimated to produce 97,376 metric tons (107,339 short tons) of carbon dioxide per year. This represents a 19 percent increase in greenhouse gas emissions compared to current operations at the existing pulp mill. Emissions of greenhouse gases from motor vehicle and rail locomotive operations have not been quantified, but would be small compared to the facility's existing greenhouse gas emissions and the increase due to the proposed project.

Waste management and hazardous materials - During biorefinery operations, the wastewater treatment plant would generate approximately 12.4 tons per day of solid waste. Like the current disposal practice, this sludge would be disposed of at the State of Maine licensed special waste landfill. Given the existing capacity at and the approved expansion of Juniper Ridge Landfill, and the presence of the nearby Crossroads Landfill, impacts are expected to be minimal over the operational life (approximately 10 years) of the biorefinery. OTFF would remove the existing tissue mill first-floor composite concrete slab for the installation of new tanks and would remove and reframe the roof. The proposed project would store and use various hazardous materials. OTFF would use materials compatible with the contents being stored to build each storage tank. Any tanks inside the building containing regulated material would have secondary containment.

Traffic - Construction truck traffic is estimated to be an average of approximately 10 trucks per day visiting the site. Construction would require a workforce of approximately 80 contractor workers, who likely would commute to the facility using their personal vehicles. This level of traffic increase would not generate any traffic operations issues, because the roadway would continue to operate well below the estimated capacity of 800 vehicles per hour per lane.

During the operational life of the biorefinery, woodchips would be delivered to the site via truck at a rate of 14 trucks per day (or 28 truck trips per day), enzymes at a rate of 7 trucks per year (or 14 truck trips per year), sulfuric acid at a rate of 1 truck per month (or 2 truck trips per month), sodium hydroxide at a rate of 3 trucks per year (or 6 truck trips per year), and ammonia at a rate of 3 trucks per month (or 6 truck trips per month). This level of traffic increase would not generate any traffic operations issues, because the roadway would continue to operate well below the estimated capacity of 800 vehicles per hour per lane.

The transport of by-products, green oil, and sugar extract would require 6 rail cars per month, creating 12 rail car trips per month (6 inbound and 6 outbound). Pan Am Railways, the owner and operator of the rail infrastructure on and near the project site, indicates that the increase in rail traffic would not create rail yard or rail line capacity issues. Existing rail crossings are gated with rail signals. An additional 12 rail car trips per month would not be anticipated to greatly increase rail crossing delays compared to existing conditions, or to create any safety issues.

Noise - No new major plant noise sources would be added to the site. Woodchips would be transported via trucks to the facility and re-chippers (to reduce the size of oversized chips) will be fully enclosed in buildings. Consequently, it is expected that biorefinery operations noise levels would be lower than existing plant noise levels. Residents along U.S. Route 2 and other trucks routes would experience additional truck noise. However, the incremental increase in truck traffic (approximately 14 trucks per day) would not be significant compared to existing truck traffic. The addition of 12 rail car trips per month to the existing rail line would not result in a significant increase in rail noise. Therefore, no significant increases in vehicular or rail noise levels are expected.

Cumulative impacts - DOE evaluated the cumulative impacts of past, ongoing, and planned activities in the city of Old Town and in the surrounding region. The biological and water resources cumulative impacts associated with the proposed project combined with the Penobscot River Restoration Project dam removal would result in temporary impacts to water quality and

aquatic species due to the presence of heavy equipment in the waterways, turbidity associated with construction, built-up sediment behind the dams, and noise. The proposed project would not include any in-water activities, and changes in effluent discharge as a result of the addition of biorefinery operations would not be expected to result in adverse impacts to aquatic species. Therefore, the Proposed Action would not impact the completion of the dam removal projects or contribute to the potential impacts associated with the dam removal projects.

Other cumulative impacts to transportation and traffic in the vicinity of OTFF would be temporary and only realized if the identified projects were constructed concurrently. DOE concluded that the proposed project, in conjunction with other activities considered, would have negligible cumulative impacts on all resources considered in the Final EA.

PUBLIC PARTICIPATION IN THE EA PROCESS: In accordance with applicable regulations and policies, DOE sent a scoping notice on June 1, 2011, to federal, state, and local agencies; tribal governments; elected officials; businesses; organizations and special interest groups; and a local library, and provided 20 days to submit comments regarding the scope of the EA. DOE published the Scoping Notice online at the DOE Golden Field Office Public Reading Room. No public comments were received on the Scoping Notice.

In addition, DOE initiated consultation with the USFWS, the NMFS, the Maine Historic Preservation Commission, the Penobscot Indian Nation, the Aroostook Band of Micmac Indians, the Houlton Band of Maliseet Indians, the Passamaquoddy Tribe, and the Pleasant Point Reservation of the Passamaquoddy. Appendix B of the EA contains copies of the consultation letters and responses, and Appendix D contains the follow-up correspondence with the USFWS and NMFS for the revised project.

DOE published the Draft EA online at the DOE Golden Field Office Public Reading Room for a 30-day review period that ended August 29, 2011. A Notice of Availability was mailed to the identified stakeholders and published online at the Golden Field Office Public Reading Room. DOE received no comments during the comment period.

Because the proposed biorefinery project changed after issuance of the Draft EA for public comment, DOE posted the Revised Draft EA for public comment for 19 days that ended September 3, 2012. A Notice of Availability for the Revised Draft EA was mailed to the identified stakeholders Golden Field Office Public Reading Room. Again, DOE received no comments during the comment period.

DETERMINATION: DOE has determined that authorizing OTFF to expend federal funds to facilitate final design, construction, and operation of the proposed biorefinery would not constitute a major federal action significantly affecting the human or natural environment, as defined by NEPA.

The OTFF commitment to obtain and comply with all appropriate federal, state, and local permits required for construction and operation of the biorefinery and to minimize potential impacts through the implementation of the design features and best management practices detailed in the Final EA shall be incorporated and enforceable through the DOE financial assistance agreement.

Therefore, the preparation of an Environmental Impact Statement is not required, and DOE is issuing this FONSI.

Copies of the Final EA are available at the DOE Golden Field Office Public Reading Room website at: http://www.eere.energy.gov/golden/Reading_Room.aspx.

For questions about this FONSI, please contact:
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Issued in Golden, Colorado, this 25 of SEPTEMBER 2012.

For Carol Battershell
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United States Department of Energy