

PROJECT INTRODUCTION

Nova Sustainable Fuels (NSF; the “Proponent”) is proposing to develop and operate a Renewable Energy Park (REP, the “Project”) at an existing industrial site in Goldboro, Nova Scotia (NS). The Project is the first phase of the larger Canada Sustainable Aviation Fuel Project that will produce sustainable aviation fuel (SAF), green methanol, and other low-carbon co-products from available biomass resources and renewable electricity. The components of the Project include a SAF production facility, freshwater pipelines, and supporting infrastructure, which will be built on approximately 313 hectares of Crown and private land.

SAF is a drop-in alternative to conventional aviation fuels with the potential for substantial reductions in greenhouse gas (GHG) emissions. The SAF produced by the Project will initially be exported for use in the European aviation industry, where a regulated transition to SAF is currently underway. To meet European Union regulations, the biomass feedstock used by the Project must be limited to waste and residues from forestry and forest-based industries and meet the reductions in GHG emissions through the use of green energy. It is expected that usage requirements for SAF will eventually extend to North America; when that occurs, the Project will be well situated to meet domestic demand.

The REP is part of Phase 1 of the Canada Sustainable Aviation Fuel Project. In addition to the REP, Phase 1 will also include the construction and operation of a marine berth and offloading facility for receiving biomass and the offtake of SAF. The marine berth and offloading facility are not included in this Environmental Assessment (EA) and will be developed through separate federal and provincial permitting pathways. Phase 2 of the Project involves the development of an onshore wind and solar project and a high-voltage transmission line to generate renewable energy for SAF production, and will be assessed under a separate EA.

CONSTRUCTION, OPERATION, AND DECOMMISSIONING OF THE PROJECT

Upon approval of the EA, construction is proposed to begin in 2028 and take approximately three-and-a-half years to complete. Construction activities include site preparation (i.e., clearing and grading), delivery of Project components, assembly of the substation, and construction of the SAF production facility, freshwater pipelines, and supporting utilities.

During operation, SAF will be produced by combining biomass, energy and freshwater through the following production stages:

- Biomass gasification: Biomass is converted to syngas through means of gasification (reacting biomass at high temperatures) Methanol synthesis: syngas is treated and combined with additional green hydrogen to produce green methanol.
- Methanol-to-jet (MTJ) process: Green methanol is processed with additional hydrogen to produce synthetic paraffinic kerosene (SPK), a kind of SAF, as well as a small amount of naphtha and diesel blend.

The REP will have approximately 60-80 full-time employees and will operate 24/7 throughout the year. At peak production, it is expected that there will be approximately 60 truckloads of biomass per day. Production will require an estimated 586 m³/h of freshwater, to be supplied from Meadow Lake and Ocean Lake through freshwater pipelines.

The SAF production facility and marine berth and offloading facility will be fenced, restricting site access. The freshwater pipelines will not be restricted and open to public activities, including hunting/trapping.

The Project is expected to be in operation for a minimum of 50 years, followed by decommissioning.

BENEFITS OF THE PROJECT

The Project is expected to have a positive effect on GHG emissions through the production of low-carbon alternatives to fossil fuels. The SAF produced by the Project will result in substantially less GHG emissions through production and use when compared to conventional aviation fuels. For example, although GHGs will be released by the Project, primarily during the construction phase, it is expected that construction-related emissions will be offset in less than one year of operations as NS-produced SAF replaces conventional fossil jet fuel.

Development of the Project will require the remediation of areas of historic contamination within the Project Footprint (i.e., the area to be developed for the Project). The land where the Project will be situated has a legacy of contamination associated with historical mining activities (e.g., tailings and waste piles). Through the development of the Project, it will be necessary to remediate site contamination, which will benefit conditions in the broader environment.

The Project will also benefit the community and province economically. NSF is committed to sharing economic opportunities with local communities. It is expected that the Project will benefit local and regional economies through job creation (including training and use of local skills and labour), substantial increases in municipal, provincial and federal tax revenues, and a capital investment of \$ 4-6 billion. The Project is expected to require 60-80 staff during operations, with an estimate 1,000 jobs created during construction. In addition to the direct benefits that the Project will bring to the NS economy, the Project will also result in indirect and induced economic benefits for local businesses, communities, and residents.

MI'KMAQ OF NOVA SCOTIA

The nearest Mi'kmaq community to the Project is Paqtnkek Mi'kmaw Nation, approximately 45 km north of the Project. First Nations engagement and an Archaeological Resource Impact Assessment (ARIA) were conducted as part of the Environmental Assessment process, and a Mi'kmaq Ecological Knowledge Study is currently underway. The ARIA identified two areas of high potential for archeology based on historic Mi'kmaq activity, both of which will be avoided.

The Proponent is committed to continued engagement with the Mi'kmaq of NS throughout the life of the Project. This includes a commitment to incorporating Mi'kmaw knowledge, culture,

and values into Project planning; ensuring environmental responsibility and stewardship; and advancing mutual economic, environmental, and community benefits.

POTENTIAL EFFECTS ON THE ENVIRONMENT

The Project has been designed to minimize impacts on the environment by avoiding and minimizing interactions with sensitive landscape features, habitats, and wildlife to the extent possible. Much of the area being proposed for development (approximately 70% of Project Footprint) consists of land that has been previously impacted by industrial projects, historical mining operations, and timber harvesting, such that few undisturbed areas will be developed for the Project.

In preparation for the Environmental Assessment, a field program was initiated to study aspects of the biophysical (e.g., air, water, land, wildlife) and socioeconomic environments, referred to as Valued Components (VC). The results of biophysical surveys were incorporated into the design of the Project and resulted in changes to the Project layout, including revising the location of the proposed freshwater pipelines to avoid and minimize interactions with rare flora. The potential effects of the Project on the biophysical and socioeconomic VCs are summarized below along with accompanying mitigation measures.

Atmosphere and Air Quality

Potential effects: Dust and exhaust emissions will occur during construction and operations, but air quality emissions are expected to remain less than or equal to the maximum permissible ground level concentration guidelines. Facility operational emissions are expected to remain less than or equal to the maximum permissible ground level concentration guidelines.

Mitigations: Dust emissions will be controlled using suppressants and stabilizing soil surfaces, as needed. Regular inspections and maintenance of equipment and restricting equipment idling policy will help to reduce Project emissions.

Sound

Potential effects: Sound will be produced by the Project, particularly during the construction phase and during operation and may cause sensory disturbance to wildlife and humans.

Mitigations: Construction activities will be conducted so that the loudest activities occur during daytime hours to limit disturbance to nearby receptors. Noise suppressants and regular inspections of equipment and machinery will be used to reduce construction noise. During operation, timing of activities expected to produce high noise levels will be scheduled during daylight hours, as much as possible, and will meet provincial guidelines.

Geology and Groundwater

Potential effects: Groundwater quality and quantity are not likely to be impacted.

Mitigations: The risks posed by geological hazards and contaminants will be managed through an updated Risk Management Plan for the Project. If blasting is required for construction, groundwater wells within 800 m will undergo a pre-blast survey.

Surface Water, Fish, and Fish Habitat

Potential effects: There will be a change in the local catchment area of eight freshwater catchments. One watercourse alteration will be required to support road construction, and additional alteration may be required for the construction of the freshwater pipelines.

Mitigations: Design strategies will be implemented to minimize interactions with watercourses and fish habitat (e.g., avoidance, maintaining vegetated buffers). A series of management plans will be developed to limit potential impacts to the aquatic environment (e.g., Surface Water Management Plan, Erosion and Sediment Control Plan, Spill Prevention, Preparedness, and Response Plan, Stormwater Management Plan, and Effluent Management Plan). Hydrological assessments are underway on Meadow Lake and Ocean Lake to allow for a full assessment of effects, and will be completed as part of the Water Withdrawal Application process.

Wetlands

Potential effects: There will be partial or total alteration of approximately 72 wetlands for Project construction (estimated maximum total impact area 25.91 hectares), of which 17.14 ha are located within the Facility Footprint, which is previously disturbed and has areas of contamination.

Mitigations: Impacts to wetlands have been avoided and minimized, where possible. The Proponent will obtain all necessary permits prior to wetland alterations, and the permitting process includes a requirement to compensate for lost wetland habitat and functions.

Terrestrial Vegetation Communities and Flora

Potential effects: It is estimated that approximately 247 hectares of land will be cleared for the development of the Project. No areas of old-growth forest were identified during field assessments, and the Project layout was developed through an iterative process to avoid known locations of rare flora species to the extent possible. Loss of some occurrences of individual lichen SOCI and/or supporting habitat are possible, however. No SAR species protected under either the federal *Species at Risk Act* or the provincial *Endangered Species Act* are expected to be impacted by the Project.

Mitigations: Habitat loss and impacts to rare plants and lichens have been reduced by maximizing the use of previously disturbed areas and updating the layout of Project components to avoid known occurrences of rare flora species.

Wildlife

Potential effects: There will be loss and fragmentation of wildlife habitat and sensory disturbance to fauna. Sensory disturbance to wildlife is most likely to occur during the construction phase of the Project.

Mitigations: Loss of wildlife habitats will be reduced by maximizing the use of previously disturbed areas. Allowing natural revegetation to occur within the freshwater pipeline corridor, to the extent practical, will limit habitat fragmentation. Operational strategies will be implemented to reduce sensory disturbance to wildlife.

Avifauna and Bats

Potential effects: Sensory disturbance to birds and bats will occur during construction. A small loss of suitable habitat for bird species is possible (few areas of suitable habitat for bats were identified). During operations, bird and bat species may be impacted by lighting, noise, and increased traffic.

Mitigations: Impacts to important bird habitats, such as wetlands and waterbodies, will be reduced to the extent possible to limit habitat changes. Clearing activities will be completed outside of sensitive periods for avifauna and bats. During operations, task lighting will be used when possible to minimize impacts.

Archaeological Resources

Potential effects: There is potential for interactions with archaeological resources during the construction phase of the Project.

Mitigations: Areas of high potential for encountering archaeological resources will be avoided, while areas of medium potential for encountering archaeological resources will be avoided when possible, and a shovel testing (i.e., field validation) program will be implemented if avoidance is not possible.

Socioeconomic Environment

Potential effects: The Project is expected to positively benefit the local and regional economy through the creation of jobs and income. Land use and value are not anticipated to change. Low-magnitude impacts to tourism and recreational use are possible.

Mitigations: The Proponent will continue to work with landowners and recreation groups to ensure productive relationships within the community and to ensure continued access for recreation and hunting/trapping along the freshwater pipelines.

CONCLUSION


The effects of the Project on the biophysical and socioeconomic environments have been assessed using the results of comprehensive field surveys, and a series of design strategies and mitigation measures have been developed to minimize the effects of the Project. It is expected that the Project will have a net positive impact on GHG emissions associated with climate change, and will have substantial economic benefits for local communities, residents, and Nova Scotians. NSF is committed to continued engagement with the public and Mi'kmaq of Nova Scotia throughout the duration of the Project.





Nova Sustainable Fuels


Plain Language Summary




Assessment Area 

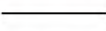
Project Footprint 

Project Infrastructure 

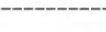
Proposed Freshwater Pipeline Routes 

Transportation


Road 


Unpaved Road 


Utilities (Line)


Existing Pipeline 

Water Features

Mapped Stream 

Mapped Indefinite Stream 

Mapped Lakes and Rivers 

Mapped Wetlands 



Coordinate System: NAD 1983 UTM Zone 20N
Sources: Esri, NASA, NGA, USGS, Service Nova Scotia, GeoNOVA, SNSIS, NSNRR, ACCDC, IBA Canada, CNWI, HERE, Garmin, USGS

Date:	2025-10-15	Project #:	24-10412
Scale:	1:60,000	Drawing #:	1
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