#### **Proposed Burchill Wind Project**

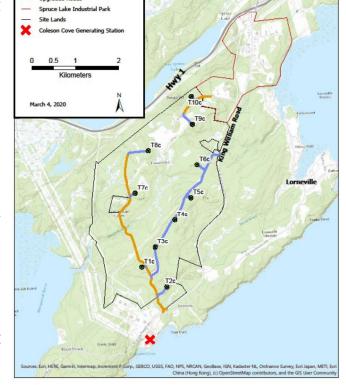
Proposed Burchill Wind Project

The proposed Burchill Wind Project with up to 10 wind turbines is being developed by Natural Forces to help Saint John Energy diversify their electricity mix by providing more local, renewable energy to their customers.

The Project will generate up to 42 megawatts of power to be distributed through the Saint John Energy electrical grid. The proposed turbines have an approximate individual capacity of 4.2 MW, an approximate tower height of 135 meters and blade length of 70 meters. The exact tower dimensions will be determined through the EIA process and decisions with Saint John Energy.

The Project will be located on Crown land approximately 15 kilometers southwest from the City of Saint John, between Lorneville, Spruce Lake Industrial Park and the Coleson Cove Generating Station.

This location has been chosen due to its elevation, optimal windspeeds, and the industrial nature of the surrounding area.



**ABOUT US:** Natural Forces is a private independent power producer from Halifax NS, that delivers renewable energy projects in partnership with local communities across Canada.





## Community Benefits

- Generate clean electricity for up to 10,000 homes in the Saint John area, displacing energy produced from fossil fuels and contributing to Saint John's renewable energy sector;
- Increase employment and revenue for local businesses due to activities associated with the development, construction and operation phases of the Project;
- Increase energy security by reducing Saint John Energy's dependency on imported energy sources;
- Create a local energy source that will contribute to reducing greenhouse gas emissions;
- Stabilize energy costs for Saint John Energy customers;
- Increase in property tax revenues to the City of Saint John; and
- Provide an investment opportunity to New Brunswick residents via the New Brunswick CEDC program.



#### **Project Timeline**

Site Identification by Saint John Energy

Feasibility Study

Preliminary Stakeholder Consultation by Saint John Energy

Preliminary Discussions with Regulators by Saint John Energy

Preliminary Wind Assessment

Saint John Energy Request for Proposal

Secured Lands for the Project

Field surveys were started

COMPLETED WORK

**Natural Forces Announced as Proponent** 

**Began Public Consultation** 

**Began Consultation with First Nations** 

Began Environmental Impact
Assessment

Initiated Wind Monitoring Campaign

**Began Grid Interconnection Studies** 

**Negotiating Power Purchase Agreement** 

Submission of Environmental Impact Assessment

**Finalizing Field Studies** 

**Continue with Interconnection Studies** 

Continue Consultation with Local Community and First Nation

Continue Stakeholder Consultation

Approval of Environmental Impact Assessment

Start of Pre-construction Activities

**Turbine Procurement** 

Electri

2020

Electrical Works and Interconnection

**Turbine Erection** 

Civil Works

**Commissioning of the Project** 

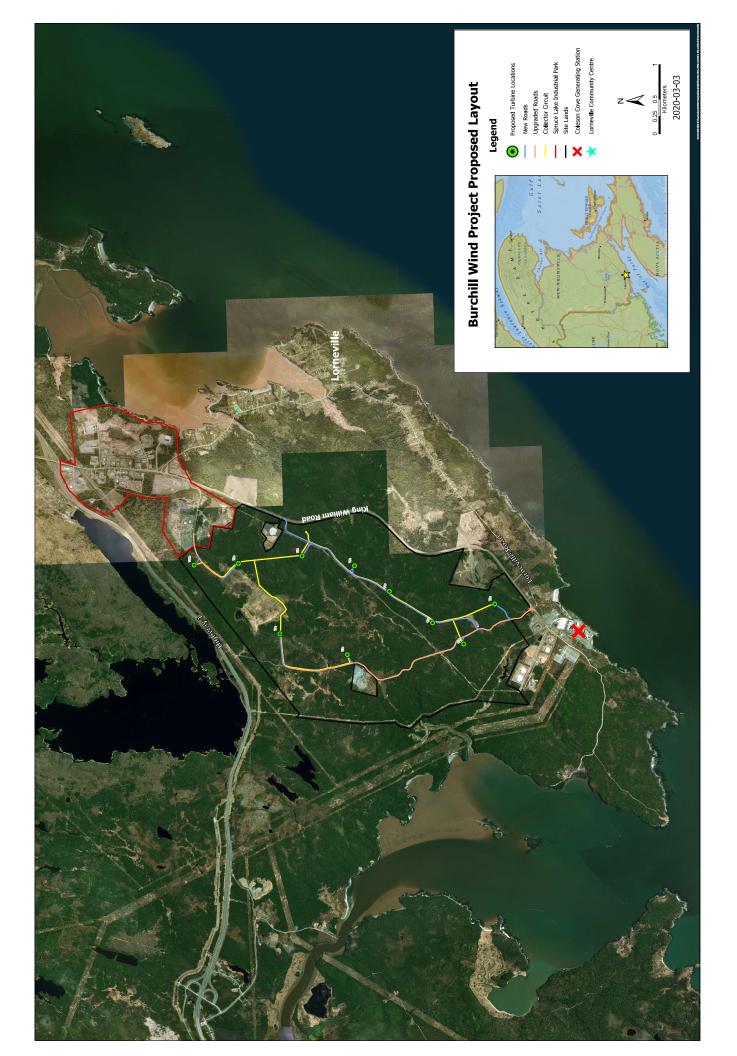
Opening Party

М

Operation of Turbines

Monitoring and Site Management

Decommissioning and Site Reclamation



### Proponent

Natural Forces is an independent power producer that develops renewable energy projects across Canada in partnership with local communities.

Natural Forces has been working in New Brunswick for over 15 years and is one of the pioneers of the renewable energy industry in Atlantic Canada. We have two operational wind farms in the province, Kent Hills Wind Farm (Phase I, 2 and 3) and Oinpegitjoig Wind Project in Richibucto, and a third project in construction, the Wocawson Energy Project near Sussex.



Natural Forces has been chosen by Saint John Energy to develope and own the Burchill Wind Project which will sell renewable energy to the utility which will be distributed onto the local electrical grid.



# Wind4AII INVESTINGEPOWER OF WIND ENERGY.

### **Investing in New Brunswick**Community Economic Development Corporations

CEDC is an opportunity for New Brunswickers to channel their investment dollars into their local economy. CEDC stands for "Community Economic Development Corporations". A CEDC is a pool of money raised by selling shares to individuals in a defined community.

Minimum individual investment: \$1,000
Maximum individual investment: \$250,000
Hold period: 4 years

#### **Benefits to Investing in a CEDC:**

- •CEDC investors may receive returns in the form of dividends
- Investing in a CEDC may also carry tax benefits.
- •The CEDC program is linked to the New Brunswick Small Business Investor Tax Credit (SBITC) program which offers a 50% personal income tax credit to investors on eligible investments made in CEDCs.
- Your investment may also be eligible to be held in a self-directed RRSP.

#### **Environmental Studies**

Several desktop and field studies were completed as part of the Environmental Impact Assessment (EIA). Natural Forces, partnered with Fundy Engineering and Boreal Environmental to study wetlands and watercourses, birds, bats, vegetation, wildlife, habitat, archeology, wind resource, noise, shadow flicker and visual aesthetics. Members of the local community are able to review and comment on the EIA document which is available on

#### **EIA** findings overview

- •White-tailed deer
- American moose
- American black bear
- •River otter
- Myotis bats
- Big brown bats

- •Black and Surf scoter
- Bald eagle
- •Double-crested cormorant
- Turkey vulture
- Peregrine falcon
- Common nighthawk



## — 20 dB(A) A Red Allianor beog meillim gaix (a) <sup>ĕ</sup>•

## **Burchill Wind Project**

Results of Noise Assessment

#### Legend

- Proposed Turbine LocationsResidences
- Conservative Noise Levels at 10 m/s Wind Speeds
- 30 dB(A) 35 dB(A) 40 dB(A)
- 45 dB(A) 50 dB(A)

New Brunswick's guidelines allow the following sound levels for wind turbine projects at residential dwellings:

Wind Speed (m/s): 4~5~6~7~8~9~10~11Noise Level (dBA): 40~40~43~45~49~51~53

More information can be found in the following document:

New Brunswick Ministry of Environment and Local Government. Additional Information Requirements For Wind Turbines- Clean Environment Act. New Brunswick.

The model for assessing noise levels makes the following assumptions:

- Sound is travelling downwards in all directions of the wind turbine at once;
- Topography of the site influences how sound is carried away from the wind turbine



Kilometers

PCS: UTM Zone 19, Northern Hemisphere

## 10 hr/year 0 hr/year Notes: Do too alliano, beog milliam goad 0

### **Burchill Wind Project**

Results of Shadow Flicker Assessment

#### Legend

Proposed Turbine LocationsResidences

Conservative Estimate of Annual Hours of Shadow Flicker:

20 hr/year

-25 hr/year -30 hr/year -35 hr/year

— 40 hr/year

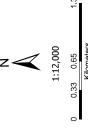
Shadow flicker is caused by the sun's light rays on moving turbine blades which then casts an intermittent shadow on a receptor.

New Brunswick's guidelines allow a maximum of 30 hours per year and/or 30 minutes per day of shadow flicker from wind turbine projects.

The model for assessing shadow flicker hours per year makes the following assumptions:

- The turbine is operational 95.17% of the time, or approximately 8,337 hours/year;
- though they are greenhouses with 3.0m high by 3.0m wide windows for  $360^{\circ}$  of the building. It is assumed there is no shield from flicker (e.g. trees, other buildings, - The "receptors" (buildings) are treated as awnings,etc.);
- -The average daily hours of sunlight hours for Saint John are consistent with historic data.

This model is conservative as it does not take into account site-specific wind direction and treats receptors as greenhouses.



PCS: UTM Zone 19, Northern Hemisphere Kilometers

2020-03-03