



Today you will be able to meet the team, learn more about the Project and get answers to your questions.

WELCOME TO
EDF RENEWABLES
OPEN HOUSE

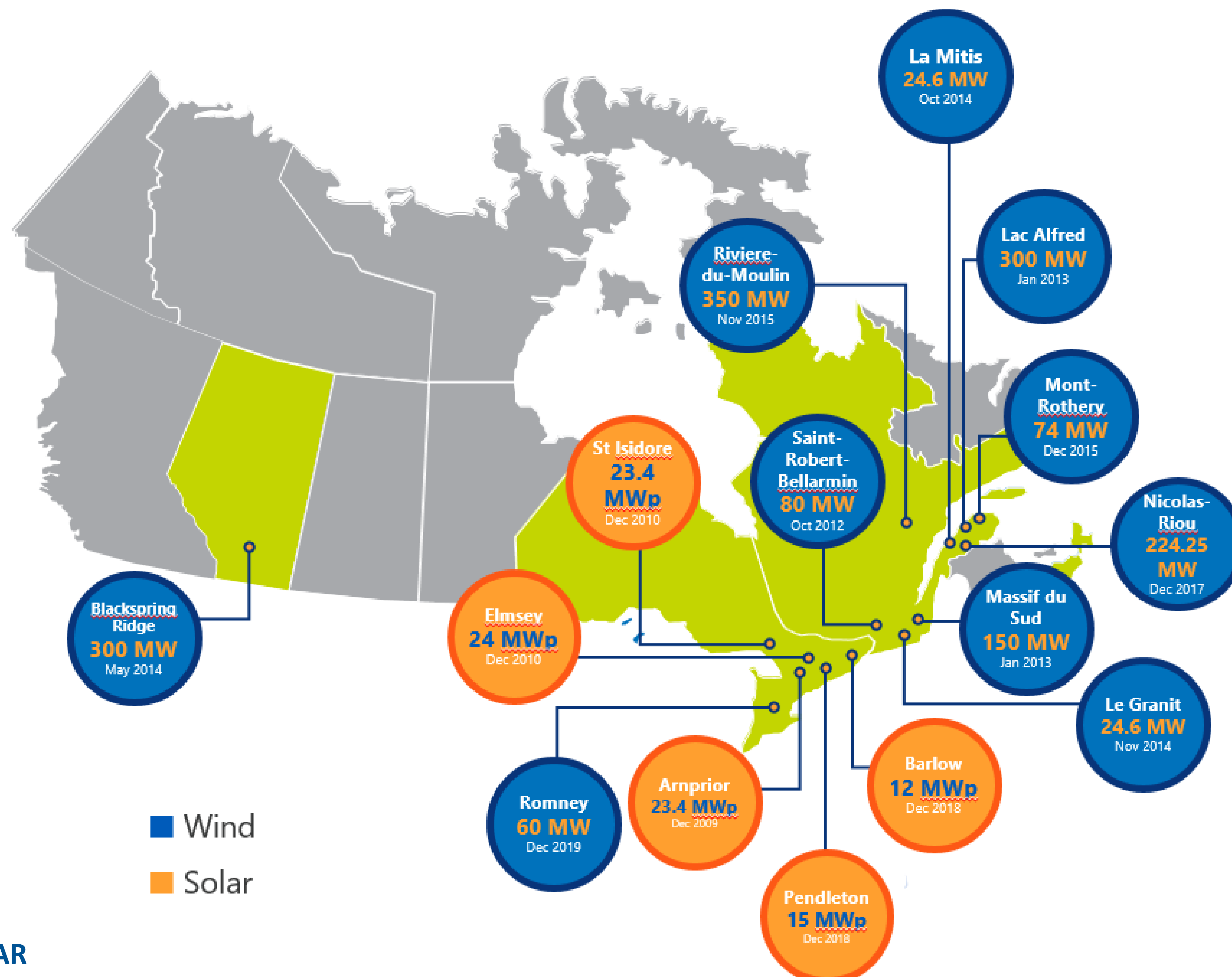
BULL TRAIL WIND POWER PROJECT



EDF RENEWABLES CANADA

1 680 MW

In service, under construction or in development



WIND & SOLAR

1 598 MW (390 500 homes) Commissioned Capacity

22 MW (5 500 homes) Under Construction

60 MW (14 700 homes) In Development

OPERATIONS & MAINTENANCE

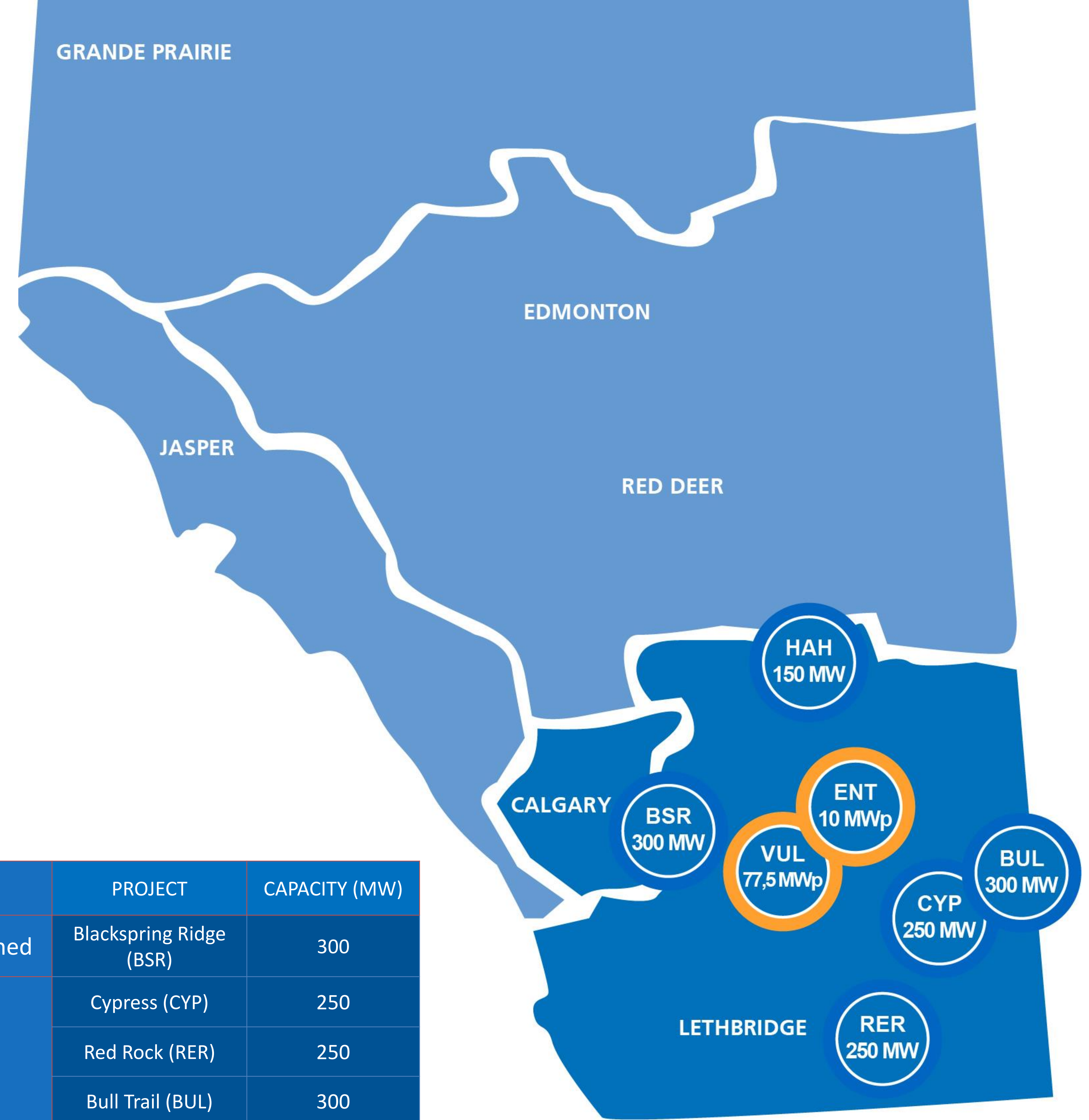
1 264 MW Wind

490 MW Solar

>\$3.5 billion invested
in Canada since 2008



ALBERTA PROJECTS



	PHASE	PROJECT	CAPACITY (MW)
WIND	Commissioned	Blackspring Ridge (BSR)	300
		Cypress (CYP)	250
	Under Development	Red Rock (RER)	250
		Bull Trail (BUL)	300
		Hand Hills (HAH)	150
SOLAR	Under Development	Vulcan (VUL)	77.5 MWp (ac)
		Enterprise (ENT)	10 MWp (ac)

10 YEARS OF ECONOMIC IMPACT IN CANADA

We are committed to our environment and the communities we work in. We are proud of the contribution our projects make.



3,000+

Active workers during peak construction



\$13.8 million

Annual landowner revenue and local benefits agreements



\$3.5+ billion

Invested in Canada since 2008



425,000

Equivalent homes powered

(MWh/10.932 MW per home, per year, per EIA household data 2014)

WIND ENERGY

#1 new source of electricity
Largest source of new electricity generation in Canada for 5 years



EDF RENEWABLES

A WORLD LEADER IN RENEWABLE ENERGY

Strong momentum in new markets; sustained level of construction starts

Financial

- 767 M€ EBITDA

Performance

- 11.8 GW Gross Installed
- 1.7 GW Under Construction
- 14 GW O&M Managed
- 18.1 TWh of green electricity

Operational

- Offshore and international growth - China, Brazil and India
- Plan Solaire: EDF proposed to develop 30 GW of large scale solar in France
- Photowatt refocused on wafer production and R&D facility



- North/South America / 5,748.7 MW
- Europe / 5,117.7 MW (Includes Futures)
- Africa, Middle East, India / 722.5 MW
- Asia / 198.4 MW

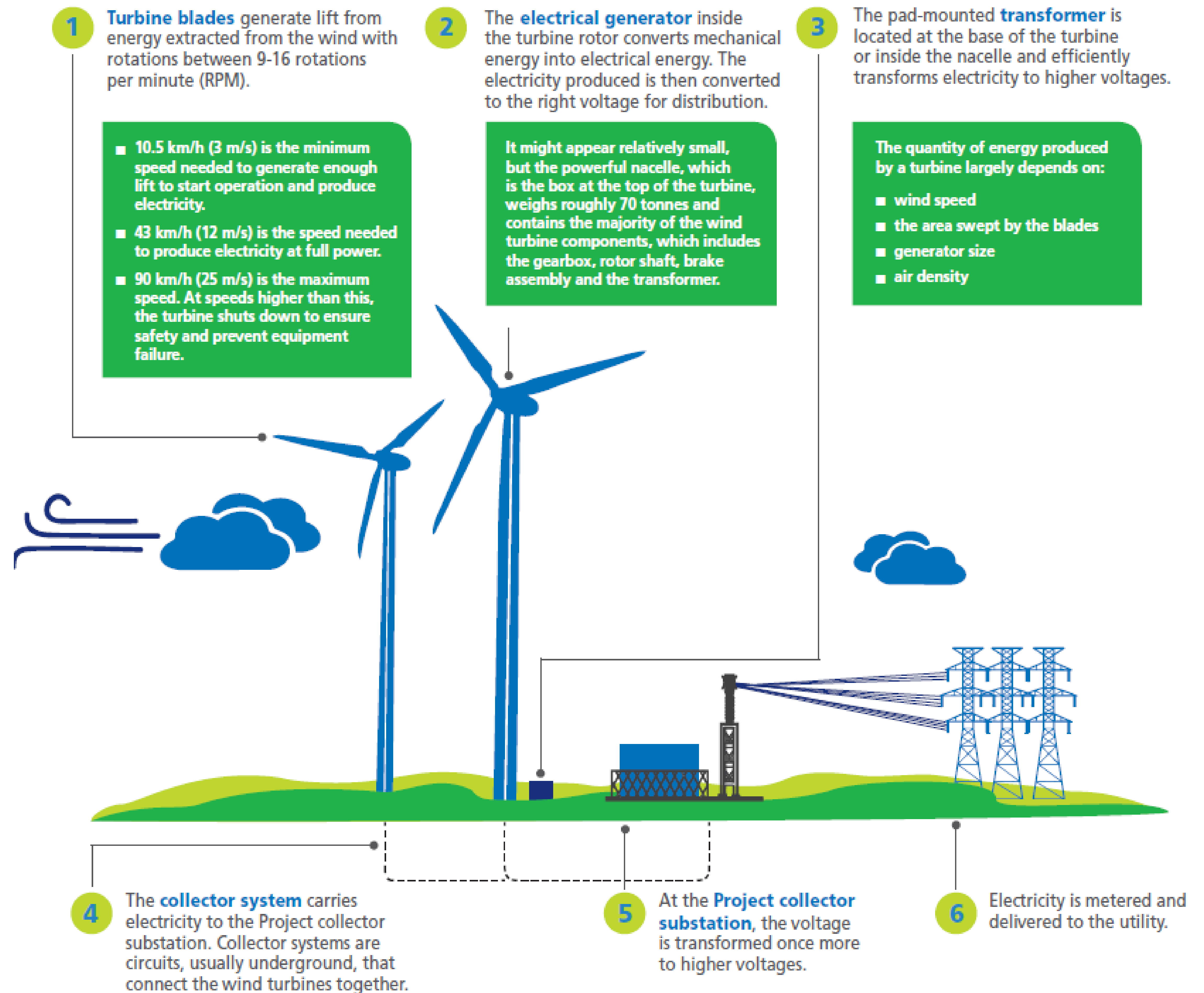
11,787.3 MW gross / 22 countries



- 84% wind / 9,946.4 MW
- 14% solar / 1,647.9 MWp
- 2% other / 192.8 MW

As of December 2017

WIND ENERGY: HOW DOES IT WORK?



WHAT IS THE RENEWABLE ELECTRICITY PROGRAM?



Alberta is changing the mix of power generation to include a larger portion of renewable energy in the province - including wind and solar power.

In March 2017, **the Alberta Electric System Operator (AESO)** launched the Renewable Electricity Program (REP) – a competitive procurement program intended to encourage the development of 5,000 MW by 2030.

Following the completion of the first round of the Renewable Electricity Program (REP) that included 600 MW awarded in 2017, the Alberta Electric System Operator (AESO) launched Rounds 2 & 3 of the program in March 2018. **The second round of the REP includes 300 MW of renewable electricity for projects. The third round will procure up to 400 MW of renewable electricity.** The two rounds are separate but parallel competitions with targeted in-service dates of June 30, 2021.

More information can be found at www.aeso.ca

WHY DID WE PICK THIS PROJECT SITE?



Close proximity to existing transmission



Strong wind resource

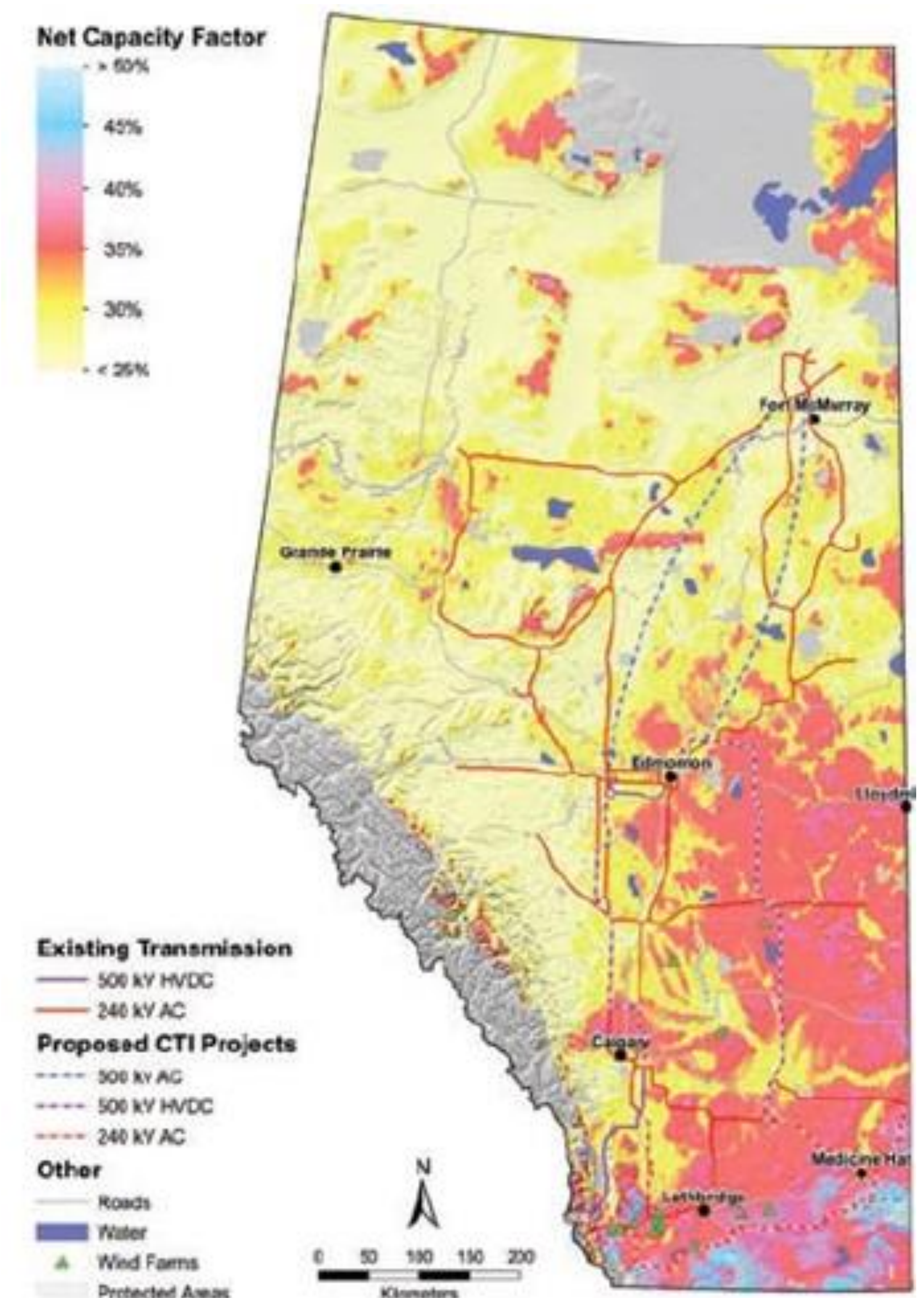


Supportive local community



Compatible with existing agricultural use

ALBERTA'S WIND RESOURCE





PROJECT DESCRIPTION



DEVELOPER

EDF Renewables

PROJECT NAME

Bull Trail Wind Power Project

HOST MUNICIPALITIES

Cypress County

CONTRACT CAPACITY

Up to 300 MW

ENERGY

The Project will generate enough electricity to power up to 75, 000 homes.

LOCATION

Located on approximately 21,005 acres of privately-owned land.

ELECTRIC SYSTEM

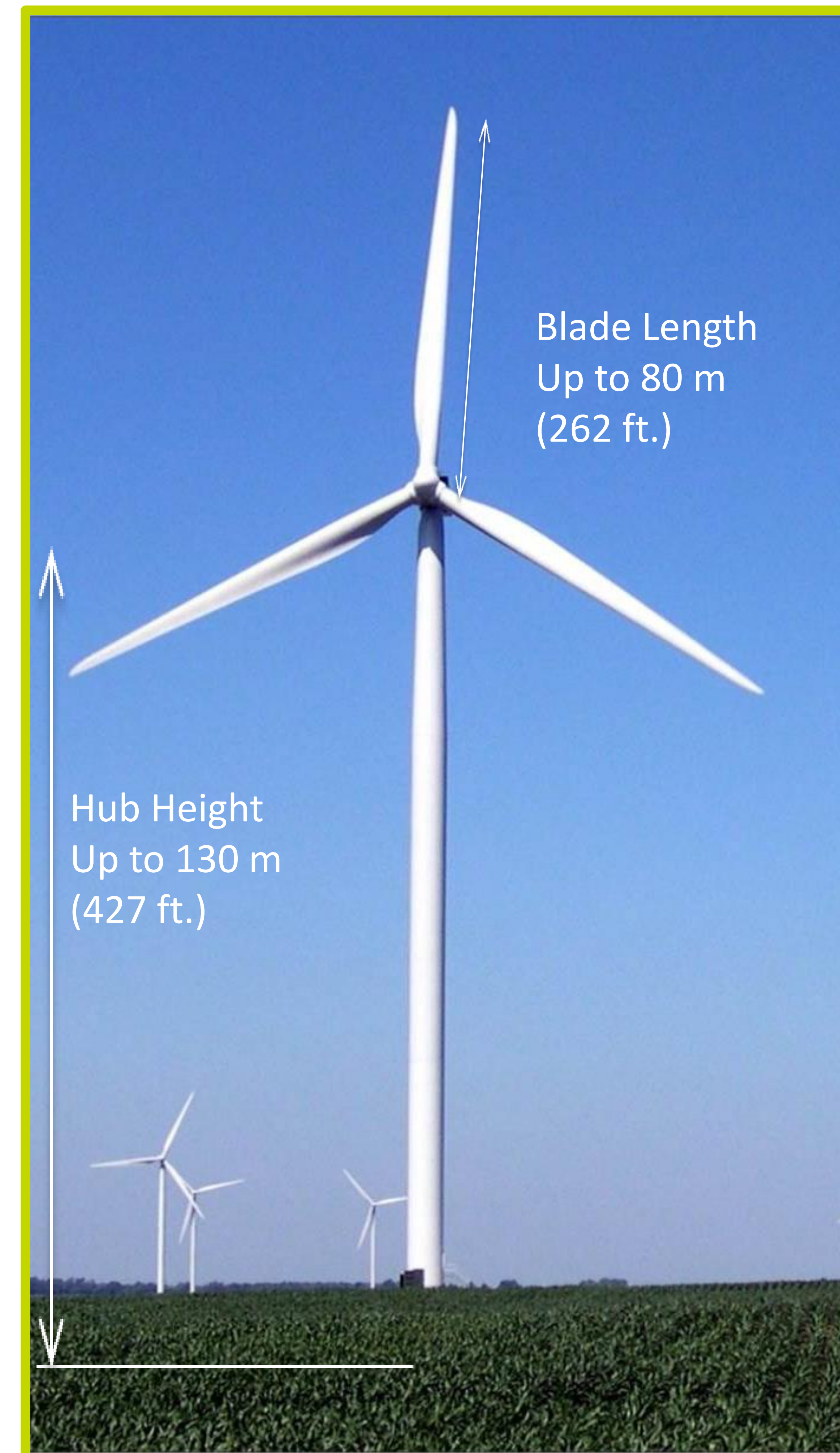
Each turbine will be linked to the Project collector substation by a collector system that will be underground, wherever practical. The location of the Project collector substation has not been determined at this time.

INTERCONNECTION

The Project is planning on interconnecting to the existing 240 kilovolt (kV) transmission system in the area that is operated by AltaLink.

**TYPICAL
PROJECT
INFRASTRUCTURE**

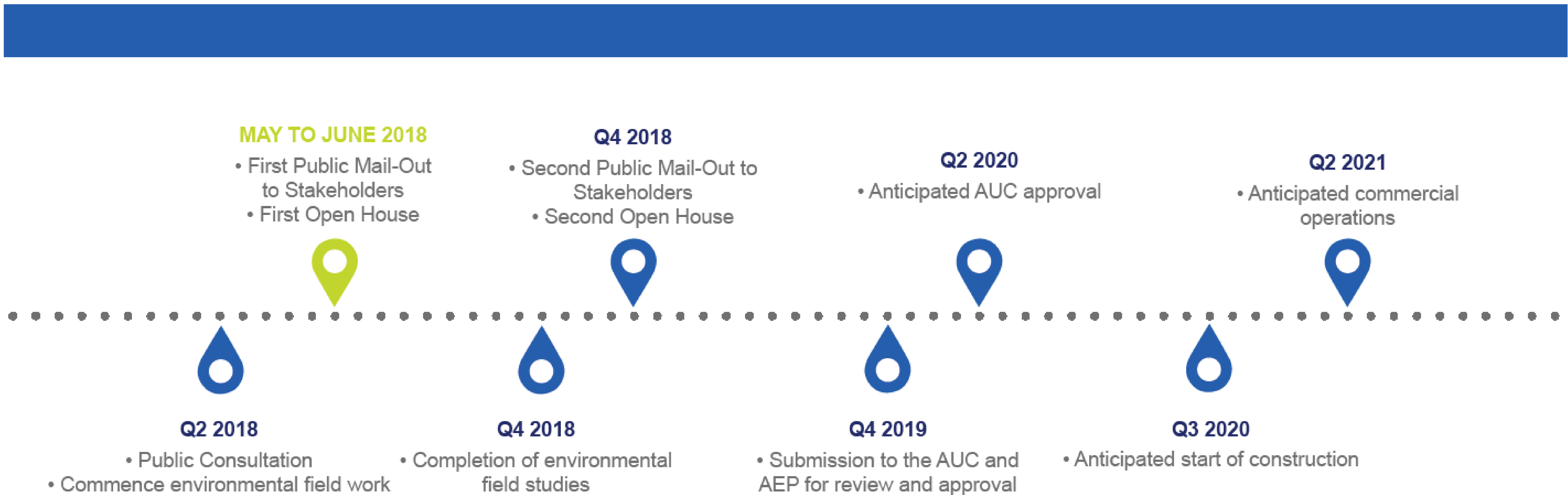
- Wind Turbines
 - 65-100 Turbines
 - Blades (up to 80 m)
 - Hub Height (up to 130 m)
 - Rotor Diameter (up to 160m)
 - Foundation
 - Capacity (3 to 4.5 MW)
- Access Roads
- Temporary Laydown Area
- Collector System
- Project Collector Substation
- Pad Mounted Transformers
- Operation and Maintenance Building
- Temporary and Permanent Meteorological Towers



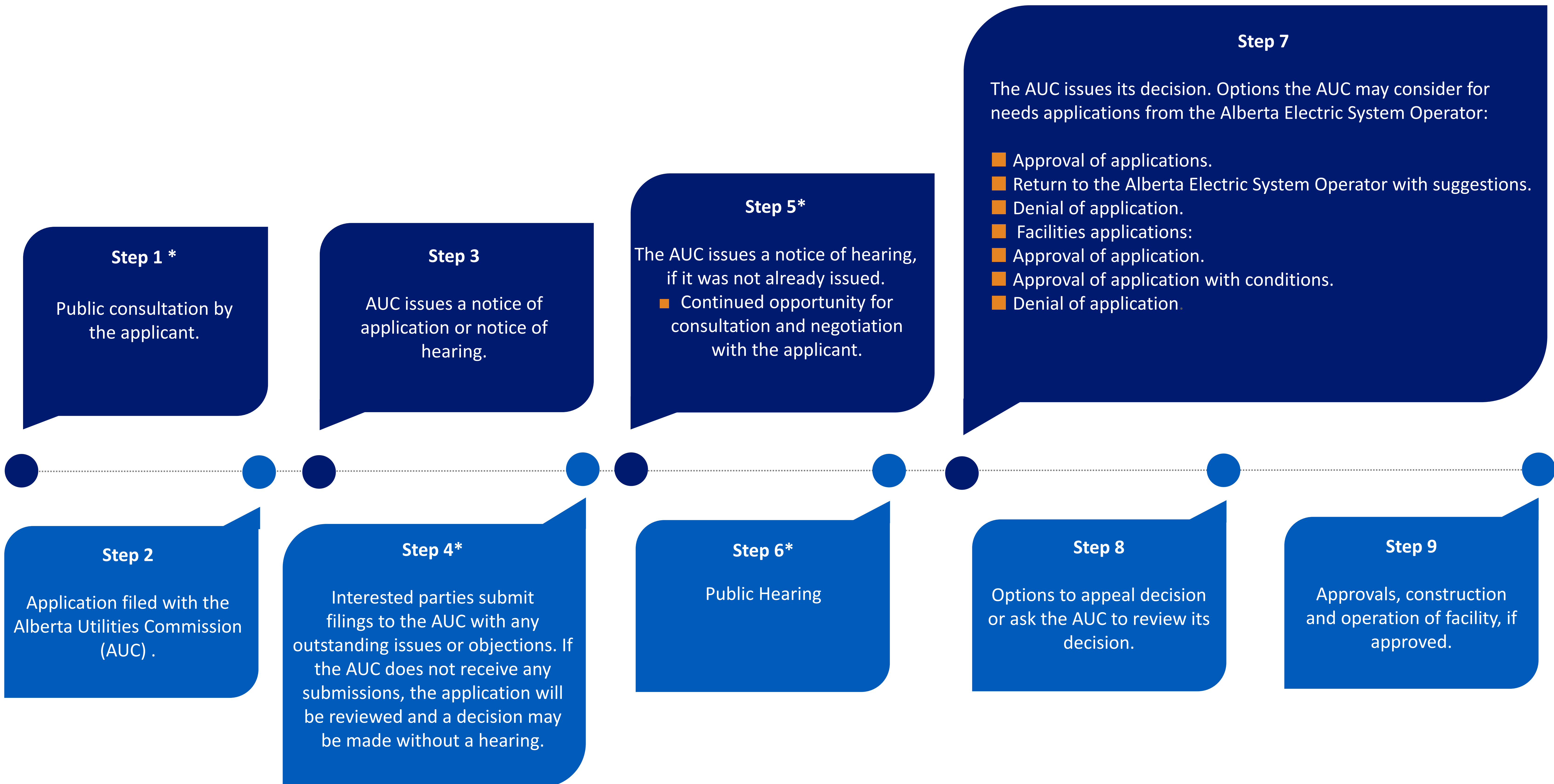
PROJECT AND COMMUNITY ENGAGEMENT TIMELINE



ANTICIPATED PROJECT TIMELINE

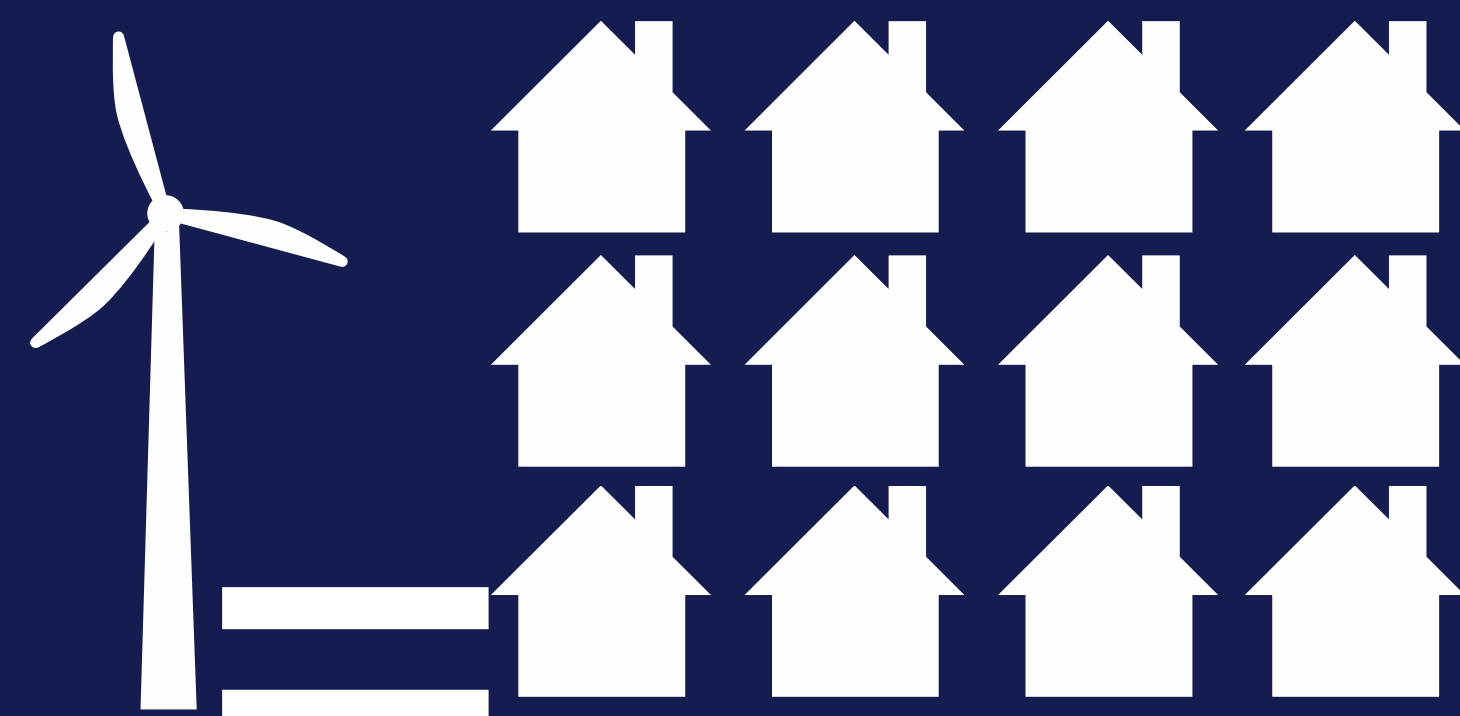


ALBERTA'S RENEWABLE ENERGY APPROVAL PROCESS



*Denotes opportunity for public involvement.

WHY WIND MAKES SENSE



1 MW Turbine ~ 300 homes

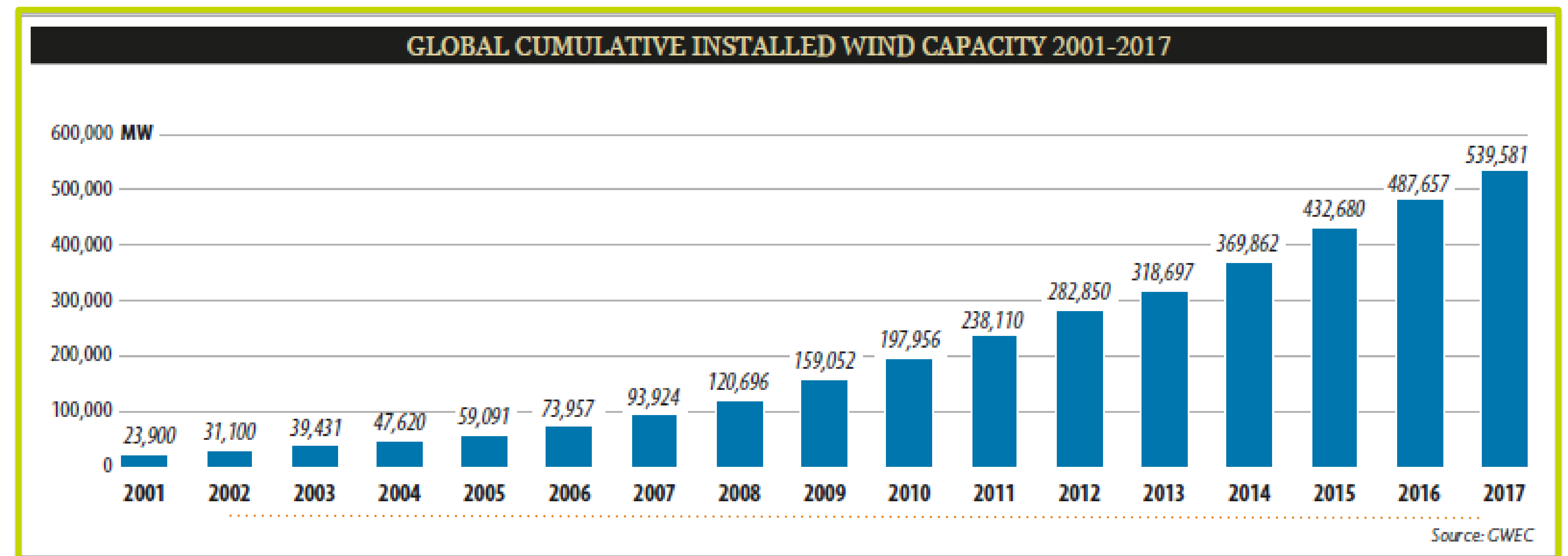
🏠 = 25 Households

Every 1 000 MW of new wind energy drives \$2.5 billion in investments, creates 10 500 person-years of employment, and provides enough clean power for over 300 000 Canadian homes.

Source: CanWEA <http://windfacts.ca/community-property>



Global Installed Wind Capacity 2000-2015



Clean power

Wind energy reduces dependence on other forms of electricity generation that contribute to greenhouse gas emissions.

Local job opportunities

Contractors, suppliers and local businesses benefit from the direct and indirect economic activity the Project brings to the local economy.

Clear air

Wind energy does not emit greenhouse gas during the production of electricity.

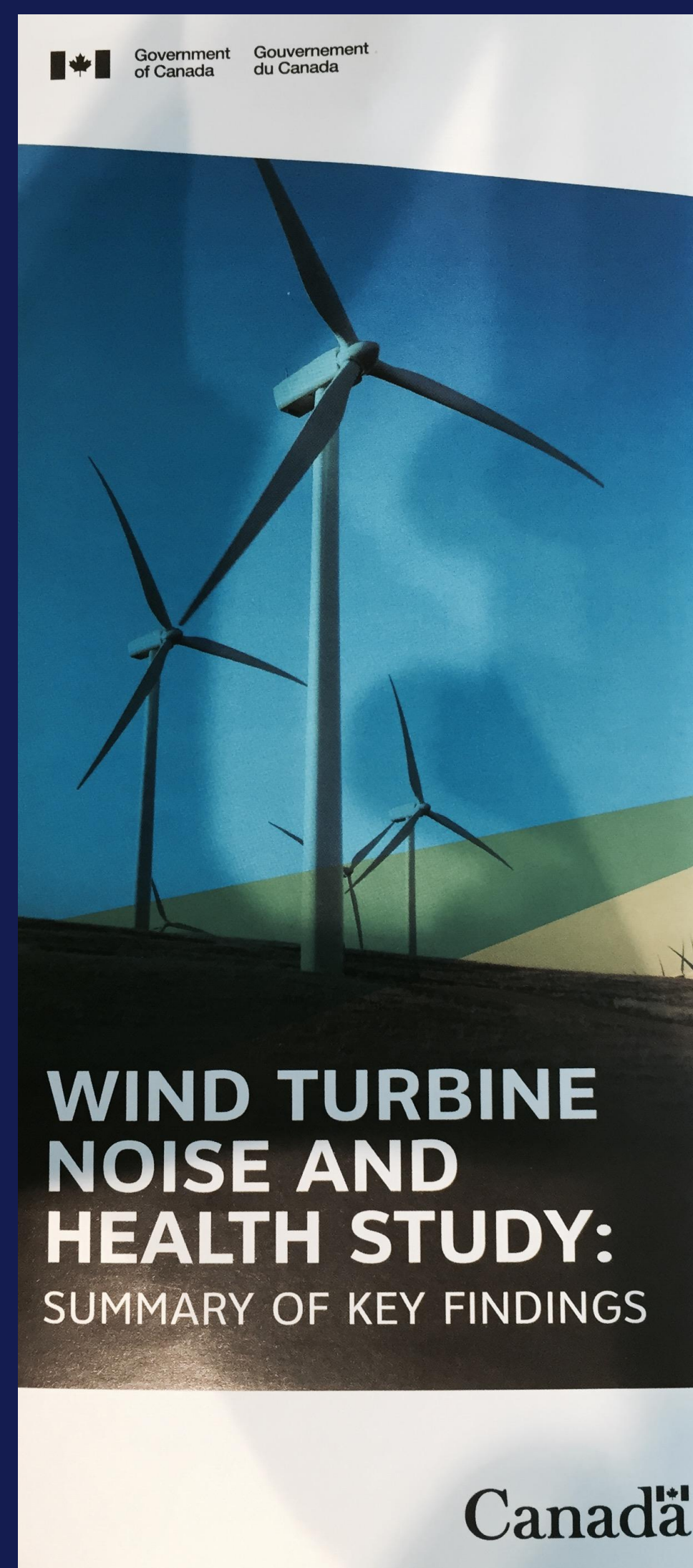
Water conservation

Wind turbines do not use water to produce electricity.

Predictable pricing

Wind generated electricity prices are fixed and stable, unlike natural gas or oil which have volatile and unpredictable pricing.

WIND AND YOUR HEALTH



In 2014, Health Canada commissioned a \$1.2 million study on the potential impacts of wind turbines on human health.

A hard copy of the key findings brochure is available. Please ask any EDF Renewables staff for a copy.

■ **Illness and disease**

No evidence was found to support a link between exposure to wind turbine sound and any of the self-reported illnesses and/or chronic conditions.

■ **Stress**

No association was found between the multiple measures of stress and exposure to wind turbine sound.

■ **Sleep**

No association between wind turbine sound and self-reported or measured sleep quality.

■ **Annoyance and quality of life**

No association was found with any significant changes in reported quality of life, or with overall quality of life and satisfaction with health.*

Ontario Chief Medical Officer's 2010 report which concluded:
There is "no scientific evidence of any direct causal link between wind turbines and adverse health effects."

*Assessed using the World Health Organization's Quality of Life Scale.

WIND AND PROPERTY VALUE

According to CANWEA, studies have consistently shown there is no causal relationship between wind farms and negative impacts on property values.

“The Board finds there is no evidence to allow the Board to conclude that since the construction of the wind farm properties on what [the landowner] defines as the west side of the Island have sold for less than properties on the east side.”

(Source: Ontario Assessment Review Board. File No: WR 113994. Municipality: Township of Frontenac Islands)



In 2014, MPAC (Municipal Property Assessment Corporation) performed a study that looked at all properties close to 1 157 turbines in total, and concluded that “there is no statistically significant impact on sale prices of residential properties in these market areas resulting from proximity to an industrial wind turbine.”

(Source: Municipal Property Assessment Corporation)

AVIAN IMPACTS

“It is estimated that each year more than 10 000 migratory birds are killed in Toronto between the hours of 11:00 p.m. and 5:00 a.m. in collisions with brightly lit office towers.”

Source: www.flap.org



Well-sited wind projects should have minimal impacts upon local bird and bat populations.

- Working closely with Alberta Environment and Parks, EDF Renewables will undertake significant bird and bat studies to quantify potential risks and develop mitigation tools to ensure sustainable development.
- Potential impact on birds, bats and raptors will be considered in the Environmental Evaluation.
- A multi-year post-construction wildlife monitoring program will be undertaken to determine the actual Project effects.

A report published in Avian Conservation & Ecology stated:

“Overall...the effects of collisions, nest mortality, and lost habitat on birds associated with Canadian wind farms appear to be relatively small compared to other sources of mortality.”

Source: Zimmerling, R. J., Pomeroy, A.C., d'Entremont, M. V., and Francis, C.M. (2013)

IN HARMONY WITH AGRICULTURE

- EDF Renewables recognizes that we can't have a project without the support of local landowners and we work diligently to listen and co-operate.
- Well-designed wind energy projects complement farming activity with minimal disruption.
- We work very closely with our landowners to ensure project infrastructure fits with current and future land use.



POWERING PROGRESS WITH COMMUNITY PARTNERS



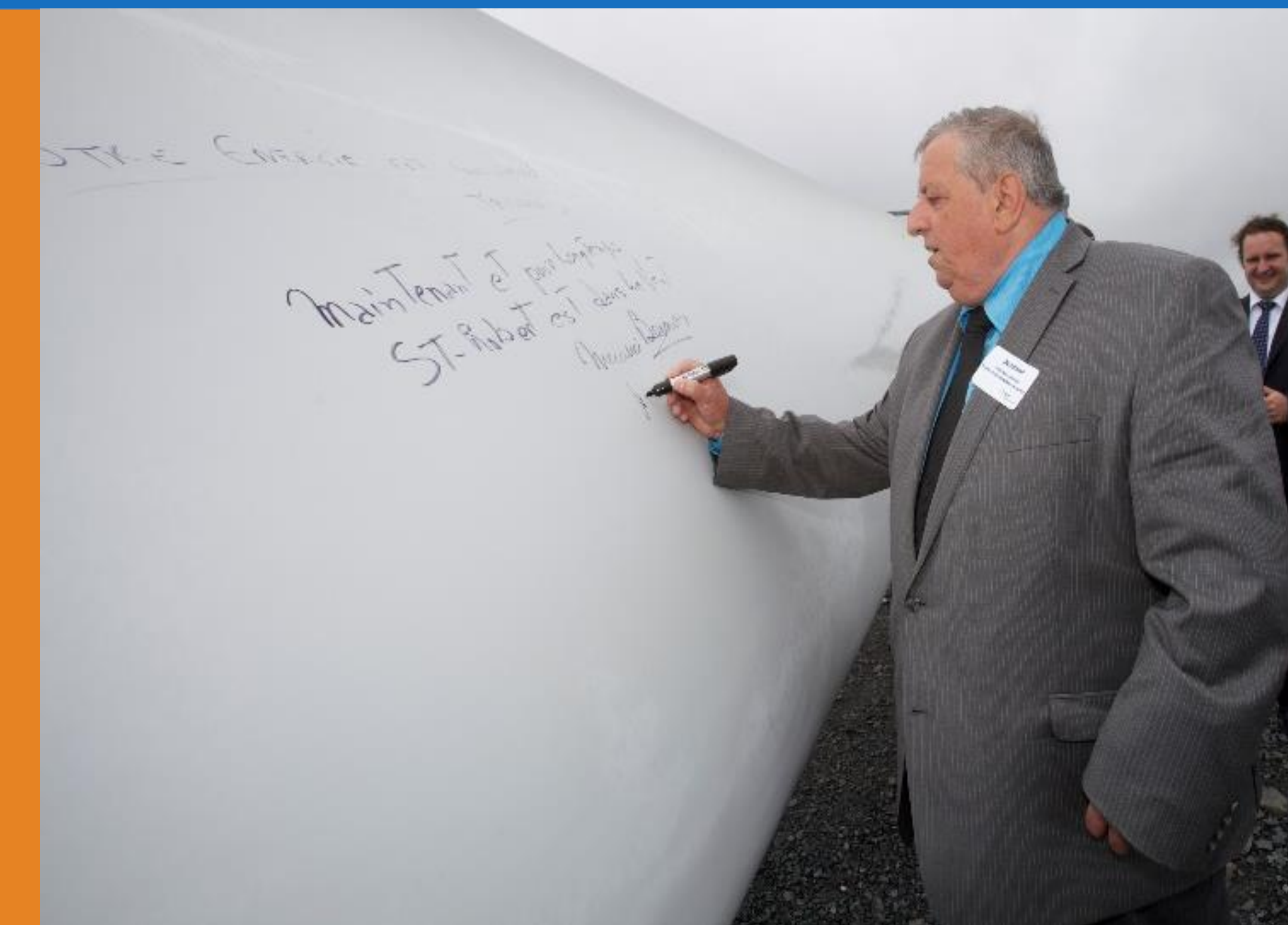
“Our community is very proud to be a part of such an important renewable energy project. There are tremendous economic benefits to our community including the more than 350 jobs that were created during construction and another 20 permanent operations and maintenance jobs.”

Kym Nichols,
Mayor of Carmangay, AB
Blackspring Ridge Wind Project (300 MW)

“EDF Renewables has established an open and honest communication process. They shared with us their plans and have delivered exactly on their promise. This is the key to success.”

Jeannot Lachance and Michel Polin,
Mayors of Saint-Robert-Bellarmin, QC

Saint-Robert-Bellarmin Wind Project (80 MW)
Le Granit Wind Project (24,6 MW)



“I consider the work done for this wind project to always have respected the important values of the MRC du Granit. Moreover, respecting the vision of the MRC, EDF Renewables was able to put the citizens and the environment at the heart of their priorities in the development and construction of this valuable wind project.”

Maurice Bernier,
Prefect of Granit MRC, QC (2005-2014)
Le Granit Wind Project (24,6 MW)

ENVIRONMENTAL AND TECHNICAL ACTIVITIES UNDERWAY

EDF Renewables commenced environmental, wildlife, and wetlands studies in 2018. As development progresses, additional field studies will focus on:

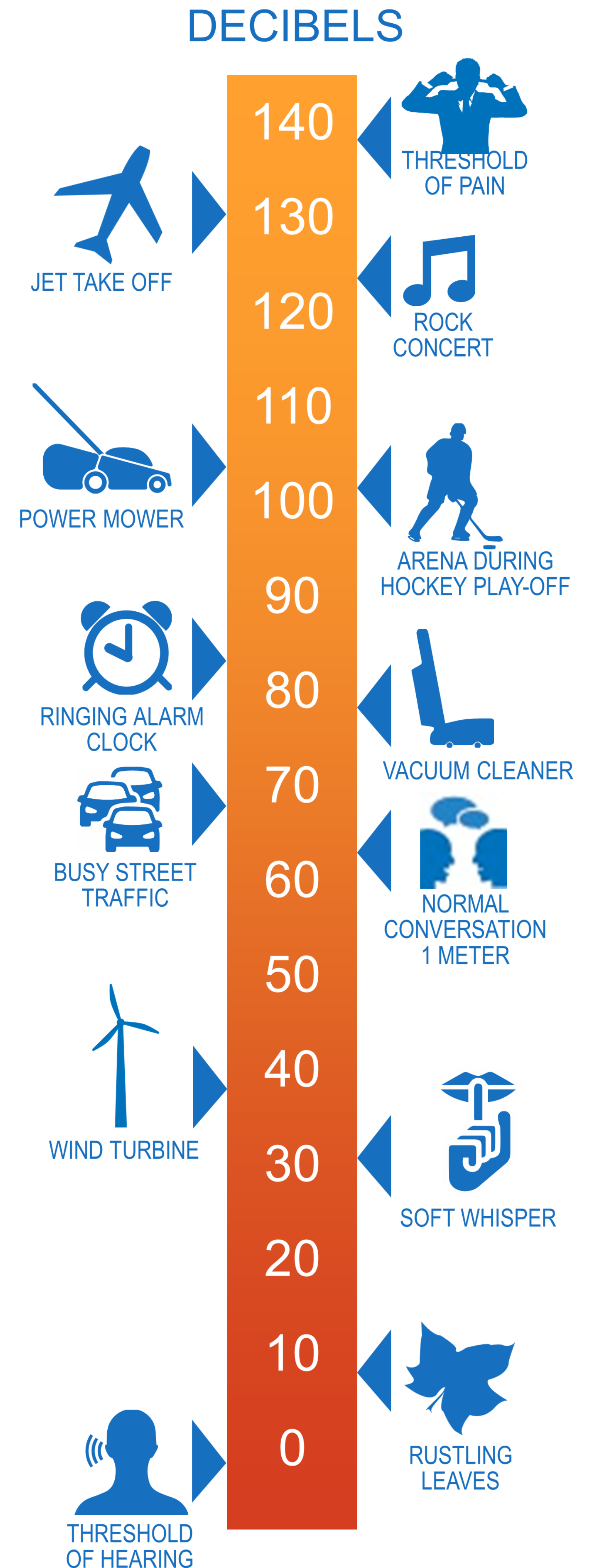
- Noise Impact Assessment
- Historical Resources
- Wildlife Studies
- Wetland Studies
- Habitat Studies

Throughout the development of the Project, we will work closely with Alberta Environment and Parks to ensure a robust understanding of the site.



NOISE IMPACT ASSESSMENT

- All wind energy projects must meet Alberta Utilities Commission (AUC) Rule 012: Noise Control.
- The Noise Impact Assessment will be completed for all residences and dwellings within 1.5 kilometres of the Project.
- The study will include the noise from the Project and other operational and proposed facilities nearby.
- The Noise Impact Assessment results will be used to determine the final turbine layout.



MUNICIPAL AND LOCAL COMMUNITY BENEFITS

EDF Renewables values the long-term benefits of working with the local community. If the Project is approved, the local community will benefit from:

- **Employment** opportunities during the construction and operation phases of the Project
- **Contract opportunities** for local businesses
- **Local investments** into hospitality and construction services during the development, construction and operation phases of the Project
- **Tax revenues** throughout the life of the Project



LOCAL ECONOMIC BENEFITS

■ Direct benefits

The Project will result in increased job opportunities for the local area. Some of these job opportunities may include:

- Surveying
- Civil engineering
- Mechanical work
- Electrical work
- Road construction
- Transportation equipment
- Earthwork activities
- Maintenance of vehicle fleet
- Maintenance paths
- Snow removal
- Other related services

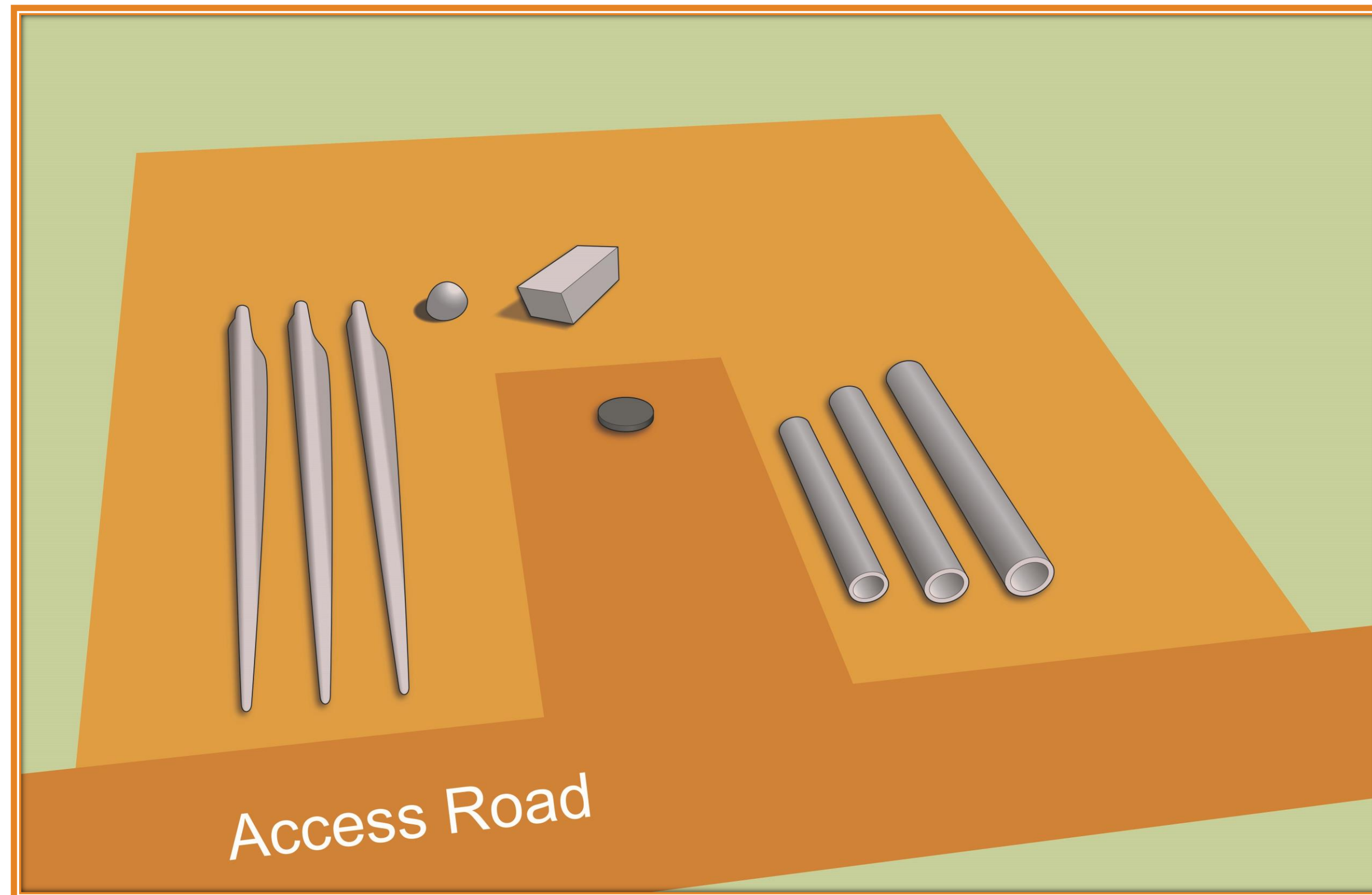


■ Indirect benefits

Increased spending on goods and services during the operations and construction phases.

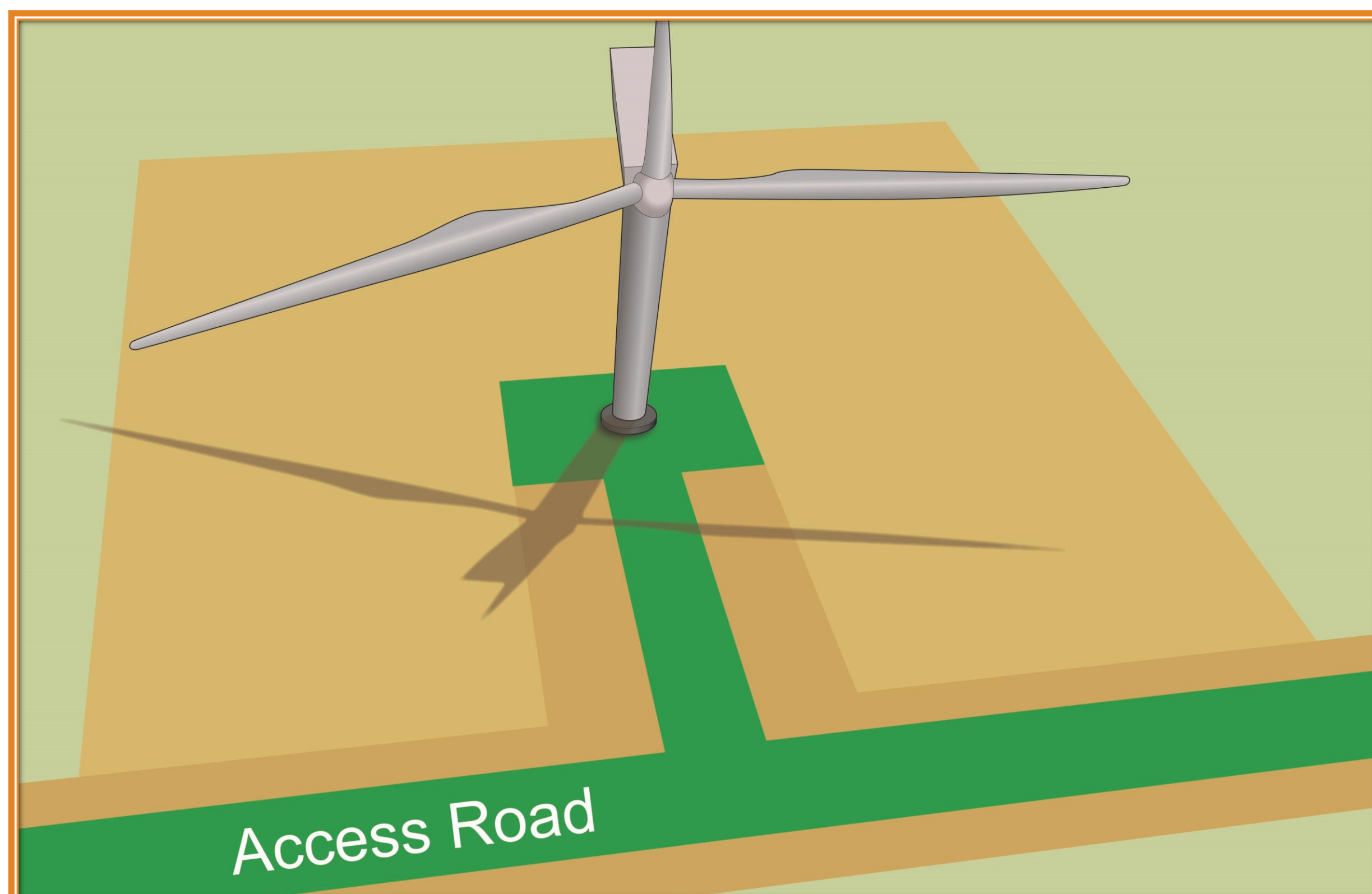
ACCESS ROAD & TURBINE PAD

Construction Phase - 5 acres / turbine



A temporary turbine pad area of about 80m diameter will be created at each turbine location, in order to deliver all the required turbine components on each turbine pad.

Operational Phase – approximately 0.25 to 0.5 acres / turbine



After construction, the access road width and the turbine pad will be reduced to limit impacts on agricultural use.



Turbine pad after construction

Access road and turbine pad during operation

TURBINE FOUNDATION & COLLECTION SYSTEM CONSTRUCTION



The turbines will be installed on top of a buried, cast-in-place reinforced concrete foundation.



Foundation excavation.
(Diameter approx. 20 metres)



Reinforcing steel installation.
Between 40-50 tons of rebar.



Each foundation requires approx.
400-600 m3 of concrete.

The electrical system will consist of underground cables or overhead lines and a Project collector substation. Ploughing, trenching, and directional drilling will be used to install underground cables. The cabling will be buried at a depth that will not interfere with normal agricultural practices.



Buried collection system



Substation connecting a project to a transmission line

TURBINE ASSEMBLY

Transportation of turbine components

Approximately 12 trucks
are required for delivery
of a complete turbine.



Tower assembly 6 to 7 tower sections.



Nacelle installation

The nacelle weighs
more than 100 tons.



Blade assembly

The blades will be attached
to the hub on the ground
or lifted blade by blade
onto the hub.



OPERATION & MAINTENANCE BUILDING AND PERMANENT METEOROLOGICAL TOWERS



- An operation and maintenance (O&M) building will be built to allow operators to maintain the turbines and house spare parts.
- Wind speed, wind direction, temperature and humidity will be measured by permanent meteorological towers. At least one permanent meteorological tower will remain on site for the duration of the Project.



**A WORLD
LEADER IN
RENEWABLE
ENERGY**



THANK YOU FOR ATTENDING

Your feedback is important to us.

Did you fill out a feedback form?

CONTACT US

PHONE:

844-55-EDF-EN / 844-553-3336

EMAIL:

bulltrailwind@edf-re.com

WEBSITE:

www.bulltrail.ca

