



# Collins Wind Project Informational Webinar

October 2023  
EDF Renewables Development Team

Check out  
the project website  
at  
**[collinswind.com](https://collinswind.com)**



**Kevin Campbell**  
Director of  
Development



**Drazen Gasic**  
Developer



**Chris Ollson**  
Environmental Health  
Specialist



**Haylee Ferington**  
Community  
Engagement Manager



**Carrie Granger**  
Permitting &  
Environmental Specialist

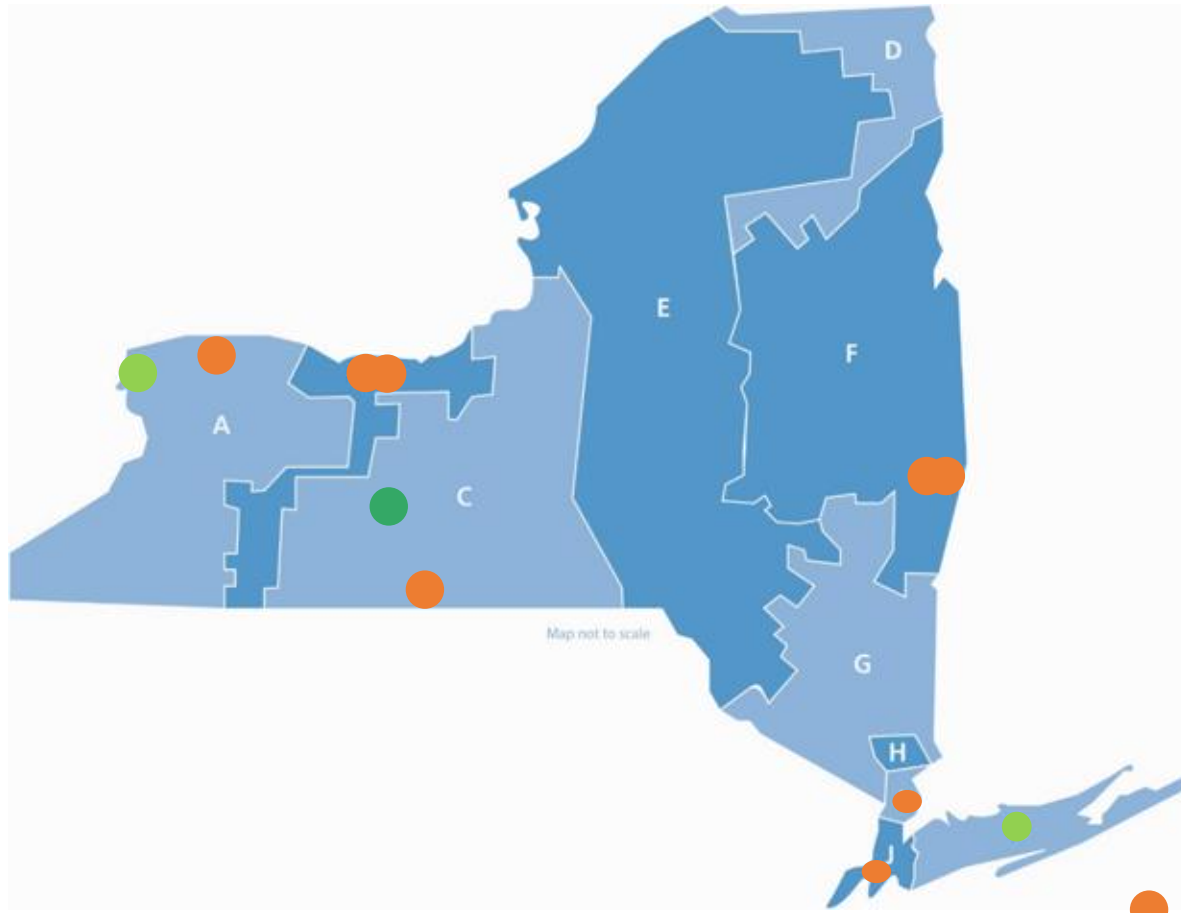


## Additional Project Support:

- J.S. Land Services
- TRC – Permitting/Environmental
- Ollson – Environmental Health Management
- Various internal teams (engineering, land, procurement, etc.)



# Building a New York Workforce:



Since 2018, EDFR has hired several full time NYS employees including:

- Development director
- Permitting & Environmental Manager
- Community Relations Manager
- Regulatory & Legislative Affairs Manager
- 2 Project Developers
- Permitting & Environmental Specialist
- Project Community Liaison

Additionally, we work with dozens of NY based consultants to support our efforts across the state.

● Full time employee    ● Intern/Fellow    ● Community Liaison

# Agenda

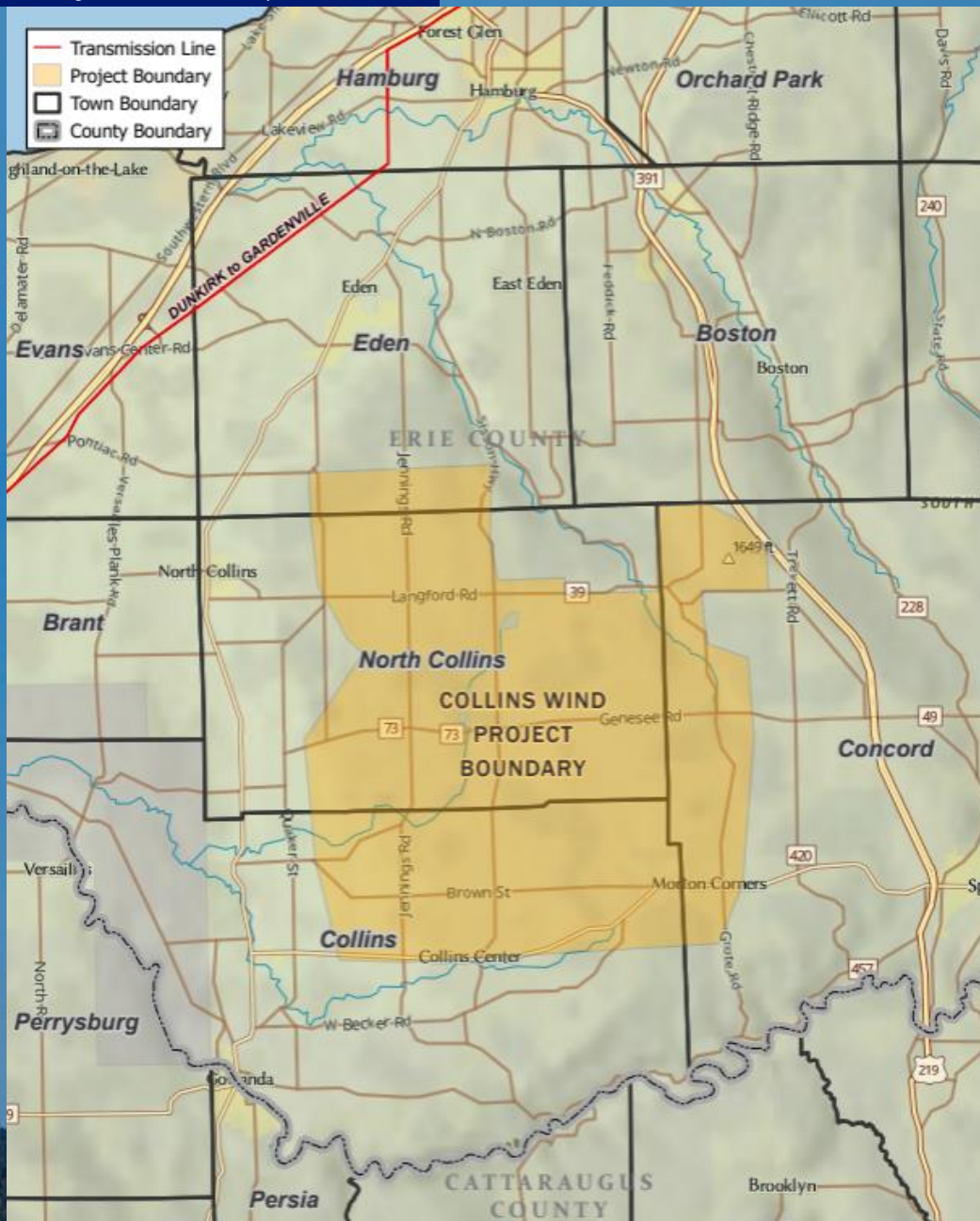
1. Project Overview
2. Community Benefits
3. 94-c Permitting
4. Health, Safety, & Environment
5. EDF Renewables



# Project Overview





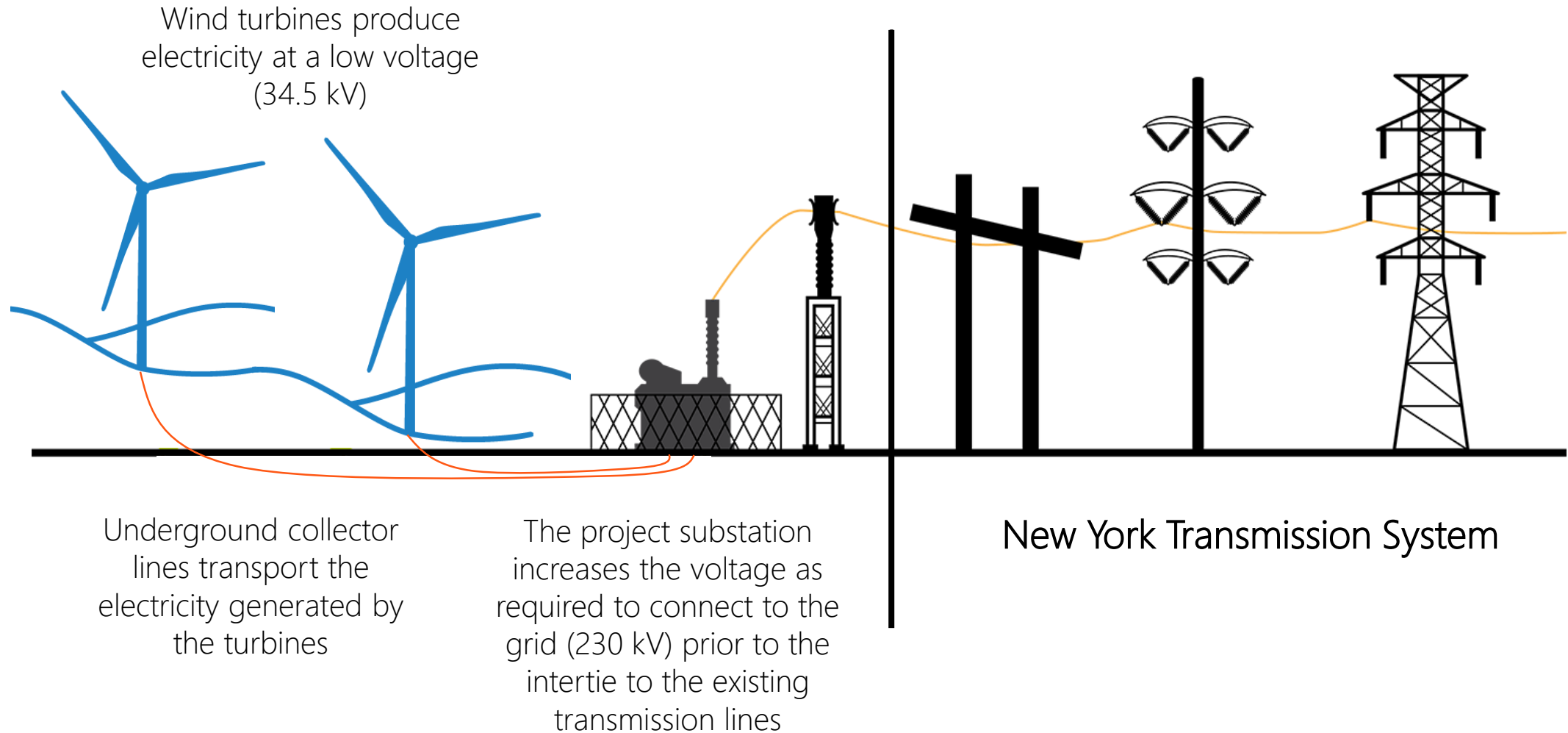


# COLLINS WIND

200 MW | 2028 COD

Collins  
North Collins  
Eden  
Concord  
Erie County, NY

# Wind Project Configuration



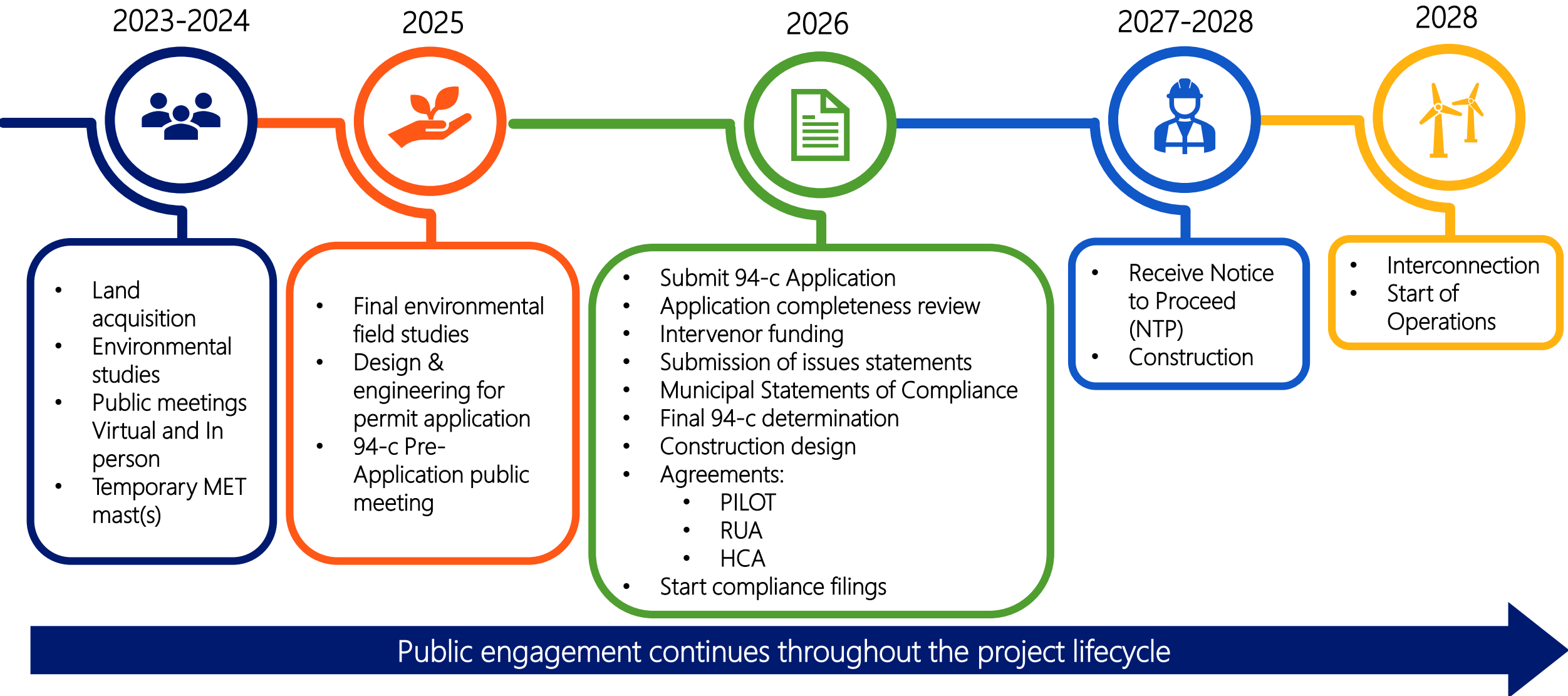
## Project Info

- 200 MW
- 30-40 turbines
- Newer turbines – taller, but fewer required





# Project Timeline (Approximate)



# Community Benefits



# Supporting Our Community and Investing in Our Future



**Over \$2 million/year in new annual revenues** through PILOT and Host Community Agreements for the towns of **Collins, North Collins, Concord** and **Eden**, Erie County and local **school districts**.

With escalation, this means **\$50 million in the first 20 years** of operation will be invested into the local community.



**80-90+ jobs** at peak of construction, and **4 fulltime local jobs** for the 30+ year project life

According to research by the Brookings Institute, jobs in clean energy offer an average 8%-19% more income without higher educational requirements.\*



## **Opportunities for local businesses**

Hospitality, material supplies, and construction sectors see an increase in opportunities during the construction, operation & decommissioning phases of the project.



# Supporting Farming and Keeping our Natural Environment Clean



## Preserves Farmland

Wind farms leave **98% of land undisturbed**, allowing landowners to continue farming their land while enjoying additional revenues



## Conserves water and keeps our air, water, and soil clean

Wind energy contributes **zero emissions** to air, soil, and water during operations

**Does not utilize water** to produce electricity

# Community Value Proposition

- **Host Community Share the Wind Program** (EDFR Initiative):
  - \$20,000/yr prior to construction for local events, initiatives, projects – determined by local community
  - \$40,000/yr during construction and operation
- **Workforce Development:** Annual scholarships to graduating students from project area schools



## EDFR's Contributions to Erie County:

- Donations of \$7,500 over 4 years to Erie County Parks Tree Program
- Donation of \$2,000 to East Concord Fire Department

# Protecting Local Resources

- **Decommissioning:** Providing financial security to the town prior to the start of construction to cover the cost of removing equipment and restoring the land at the end of life; cost reviewed and adjusted regularly during operation. EDFR is committed to either reuse, recycle, or recover decommissioned wind turbine blades.
- **Road Use Agreement:** During construction, preserving local roads and setting aside funds to make sure road repairs and restoration activities completed.



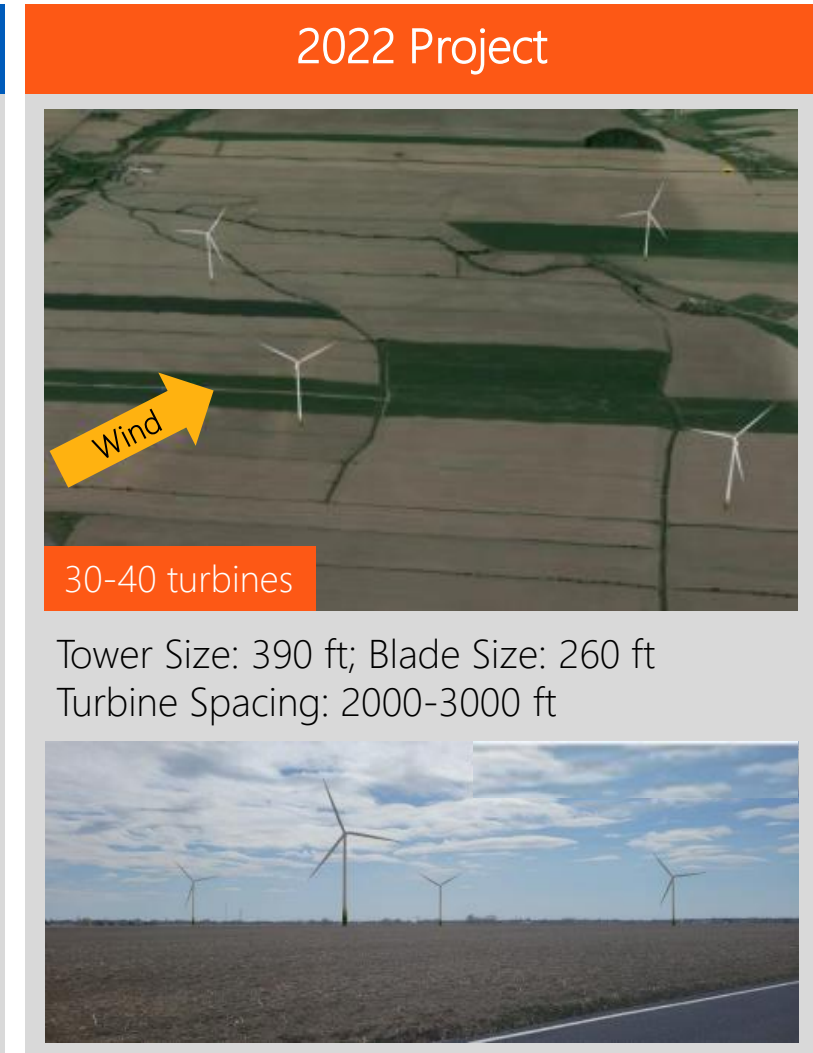
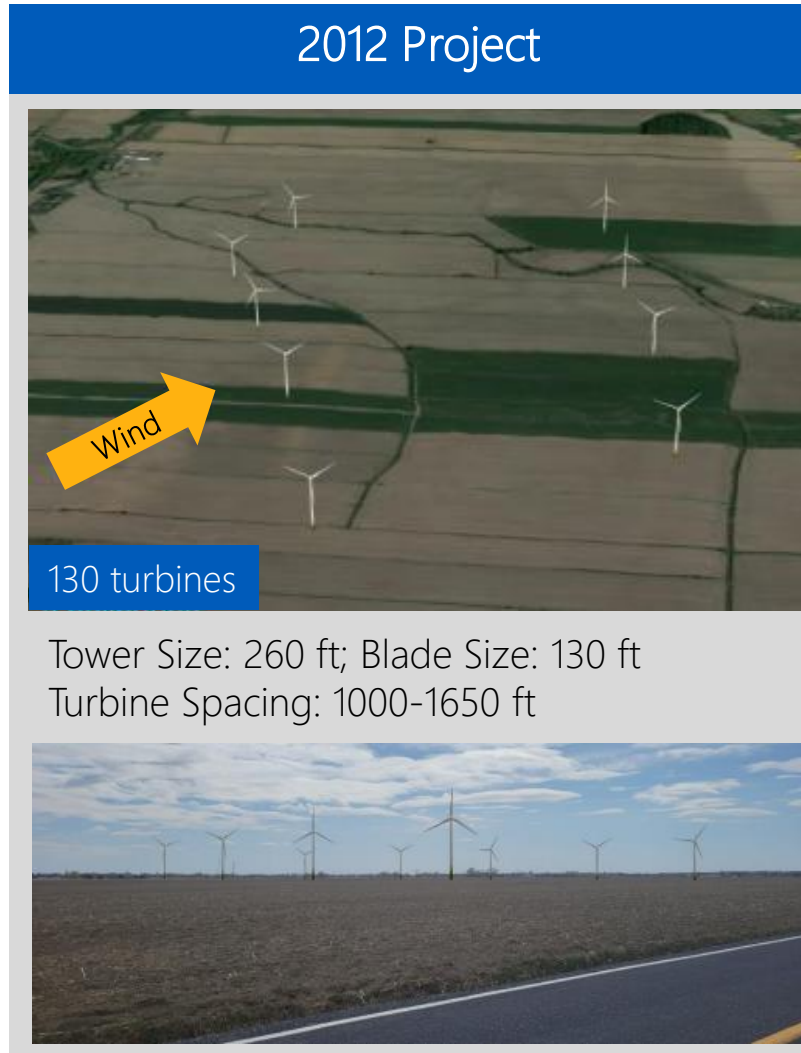


# Wind Turbine Technological Improvements

Case Study: How does a wind farm's look change between 2012 and 2022?

- For the same power output...
- **Less turbines**
- Increased tower and blade size
- **Increased spacing** between turbines
- Smaller land footprint means **more room for agriculture and grazing**

*Aerial View*



# Operation and Maintenance

- A local operation and maintenance (O&M) building will house the local operations staff and house spare parts.
- Our North American operations control center will monitor and provide oversight of the project 24/7/365
- Wind speed, wind direction, temperature and humidity will be measured by temporary and permanent meteorological towers.



# EDFR Copenhagen Wind: Testimonials



*"Not everyone can say "Yes" when asked if they love their job. Since starting my career 20 years ago in the renewable industry, I am one of those people that can. It has been such a rewarding experience to be part of an industry that uses innovative technology to harness clean energy while providing additional revenue sources and jobs for small town communities.*

*It has **enabled me to remain and raise a family in the very town I grew up in and call home.**"*

Bob Burke,  
Copenhagen Wind Operations Manager, EDF  
Renewables



*"The wind power project benefits our students in numerous ways. The EDF Renewables team **funded a wonderful playground at the school at no cost to taxpayers.** Our students benefit as future jobs in the renewable energy sector continue to grow energy.*

*Wind and solar power are the nation's fastest-growing job sectors today providing **good-paying careers for generations to come.** Our students will benefit from more renewable energy developments that literally create a brighter future while offering a career that helps the planet heal".*

Scott Connell,  
Copenhagen Central School Superintendent



*"I really only have good things to say about working with EDF Renewables as a participant of the Copenhagen Wind Farm. **It has been a welcomed economic boost for our community.***

*The roads are nice and having three turbines on my property, taking up a total of less than an acre of land, **there is not a crop you can plant as a farmer that will give you that kind of financial return on such few acres.**"*

Ken Freeman, Landowner, Copenhagen  
Wind Farm, Copenhagen, NY



# New York State Permitting Process for Large- Scale Renewable Energy Projects

## ORES & 94-c



# Permitting through Section 94-c and the Office of Renewable Energy Siting (ORES)



- Standardized conditions to be met by developers of major renewable energy facilities.
- Full suite of environmental studies, preliminary design engineering, and detailed design and engineering is required.
- Early coordination on environmental impacts & reports required.
- One-year timeline for approval following an applications completeness determination from ORES.
  - *Completeness generally occurs 60 days following an application submission.*
- For Collins Wind, a \$200,000 (\$1,000/MW) fund for towns & intervenors to participate in the 94-c process and hire experts & attorneys will be available 30 days after application submission.

*Note: **EDFR supports entering into escrow agreements** prior to submitting a 94-c application for the towns to hire attorneys and consultants to review a project and provide feedback prior to application submission.*



EDF proudly focuses on proactive engagement with host communities, so that there are no surprises during the 94-c application process.

# Section 94-c: Environmental Studies



## Environmental Studies

- Wetland and Stream Resources
- Wildlife Site Characterization
  - Threatened and Endangered Species Review
  - Winter Raptor and Breeding Bird Surveys
- Cultural Resources
  - Archaeological Survey
  - Historic Resources Survey
- Visual Impact Assessment
- Noise Impact Assessment
- Stormwater Pollution Prevention Plan
- Active Agricultural Assessment
- Transportation and Aviation Impact Study
- EMF and Communication Study
- Oil and Gas Well Survey



## Key elements of §94-c application process:

- 25 Comprehensive Exhibits within an Application
  - Exhibits within the Application provide a breakdown of how EDF will plan to avoid, minimize, and mitigate any impacts from the project.
- **Local agency consultation**
  - EDF is committed to working with host communities prior to submitting an Application.
- **Applicant Project website**
  - Including email and 1-800 number for the public to contact a project representative.
- **Community meetings throughout the permitting process**
  - Environmental resource studies and
  - Design drawings: Setback Requirements; Agricultural Plan; Noise Abatement Measures; Visual Impacts Minimization and Mitigation Plan; Lighting Plan.
- **ORES:**
  - 60 days to make a completeness determination on permit
  - ORES issues draft permit conditions
  - ORES issues final decision within **one year** of complete permit

# Environmental Permitting Process

# Health Safety & Environment



# Wind Turbine Health Concerns Raised by Concerned Citizens at County and State Level

- Includes concerns around:
  - Setbacks
  - Audible Noise (sound you hear)
  - Low Frequency Noise
  - Infrasound (sound you don't hear)
  - Shadow Flicker
  - Ice Throw
  - Blade Fragment Throw
  - Tower Collapse
  - Fire
  - Stray Voltage
  - Electromagnetic Fields (EMF)
  - Livestock and Hunting

Acoustics

Engineering

HEALTH & SAFETY





# Wind Turbine Health Research

 Government of Canada  
Gouvernement du Canada

Knopper and Ollson *Environmental Health* 2011, **10**:78  
<http://www.ehjournal.net/content/10/1/78>



ENVIRONMENTAL HEALTH

REVIEW

Open Access

## Health effects and wind turbines: A review of the literature

Loren D Knopper<sup>1\*</sup> and Christopher A Ollson<sup>2</sup>



Sleep  
Research  
Society®

SLEEPJ, 2022, 1–11

<https://doi.org/10.1093/sleep/zsab283>  
Advance Access Publication Date: 12 December 2021  
Original Article

ORIGINAL ARTICLE

## The effect of wind turbine noise on polysomnographically measured and self-reported sleep latency in wind turbine noise naïve participants

Tessa Liebich<sup>1,2,\*</sup>, Leon Lack<sup>2</sup>, Gorica Micic<sup>2</sup>, Kristy Hansen<sup>3</sup>, Branko Zajamšek<sup>2</sup>, Claire Dunbar<sup>1,2</sup>, Bastien Lechat<sup>2</sup>, Hannah Scott<sup>2</sup>, Nicole Lovato<sup>2</sup>, Felix Decup<sup>3</sup>

Environment International 132 (2019) 105090



Contents lists available at ScienceDirect

Environment International

journal homepage: [www.elsevier.com/locate/envint](http://www.elsevier.com/locate/envint)



Monitoring annoyance and stress effects of wind turbines on nearby residents: A comparison of U.S. and European samples

Gundula Hübner<sup>a,b</sup>, Johannes Pohl<sup>a,b,\*</sup>, Ben Hoen<sup>c</sup>, Jeremy Firestone<sup>d</sup>, Joseph Rand<sup>c</sup>, Debi Elliott<sup>c</sup>, Ryan Haac<sup>c</sup>



Wind Engineering

Volume 46, Issue 4, August 2022, Pages 1187–1202

© The Author(s) 2022, Article Reuse Guidelines

<https://doi-org.myaccess.library.utoronto.ca/10.1177/0309524X211072869>



Research Article

## Methodology to assess wind turbine blade throw risk to vehicles on nearby roads

Jonathan Rogers<sup>1</sup> and Mark Costello



9<sup>th</sup> International Conference  
on  
Wind Turbine Noise  
Remote from Europe – 18<sup>th</sup> to 21st May 2021

## Establishing Sound Limits for Wind Energy: What is the Role of Annoyance?

Christopher Ollson, Ollson Environmental Health Management (OEHM), Canada, [christopher.ollson@gmail.com](mailto:christopher.ollson@gmail.com)  
Mark Bastasch, Jacobs, United States, [Mark.Bastasch@jacobs.com](mailto:Mark.Bastasch@jacobs.com)

Energy Research & Social Science 87 (2022) 102471



Contents lists available at ScienceDirect

Energy Research & Social Science

journal homepage: [www.elsevier.com/locate/erss](http://www.elsevier.com/locate/erss)



In the shadow of wind energy: Predicting community exposure and annoyance to wind turbine shadow flicker in the United States

Ryan Haac<sup>a</sup>, Ryan Darlow<sup>b</sup>, Ken Kaliski<sup>a</sup>, Joseph Rand<sup>c</sup>, Ben Hoen<sup>c,\*</sup>



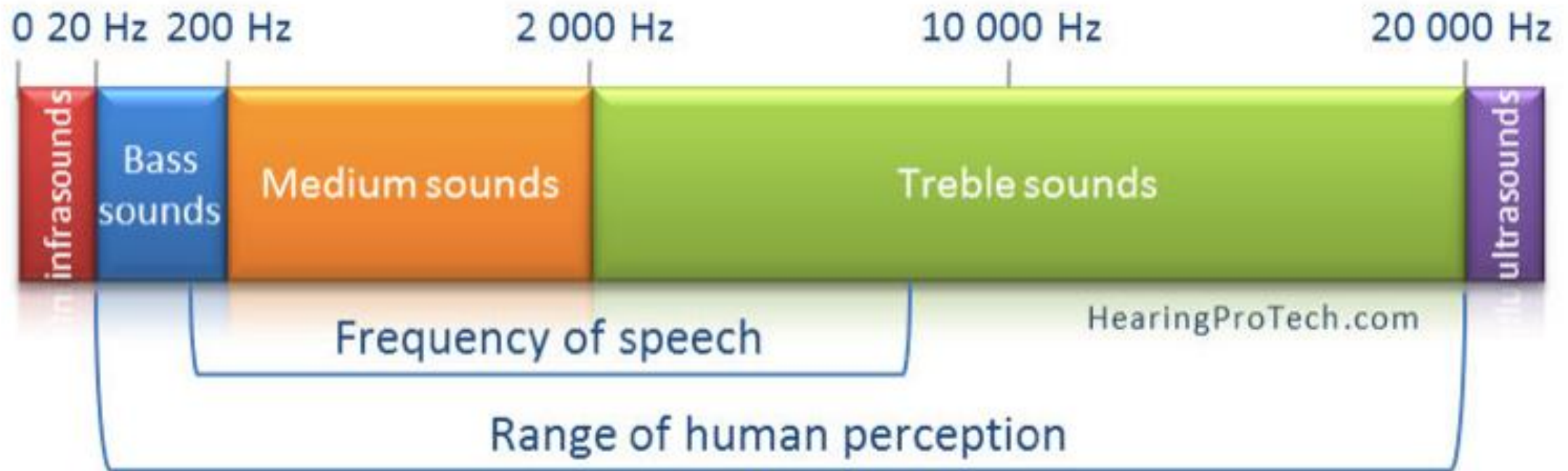
WIND TURBINE  
NOISE AND  
HEALTH STUDY:  
SUMMARY OF KEY FINDINGS

---

# Noise and Health

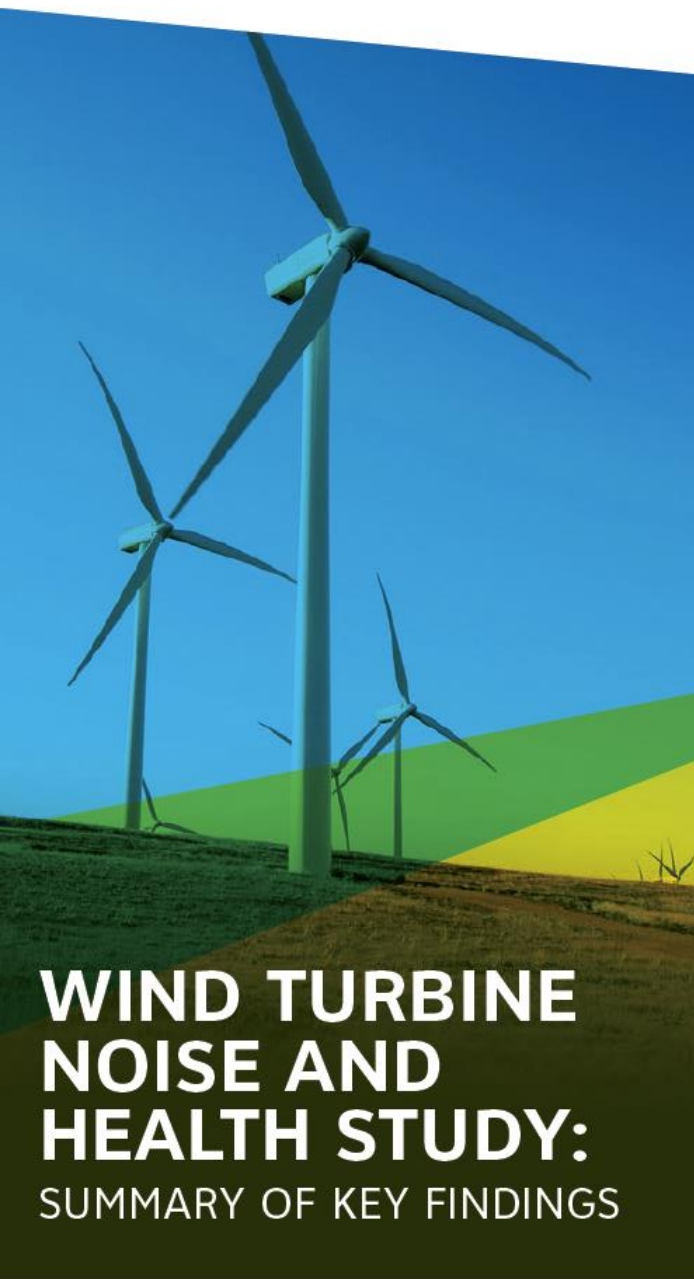
- Environmental noise above certain levels is a recognized factor in a number of human health issues.
  - e.g., hearing, sleep, heart disease
- Proper siting of wind turbines is key to ensure reasonable sound levels to protect health.
- New York requires noise modeling and monitoring of wind turbine sound of <45 dBA Leq at the exterior of homes to ensure the protection of health.

# Sound Frequencies in Hz



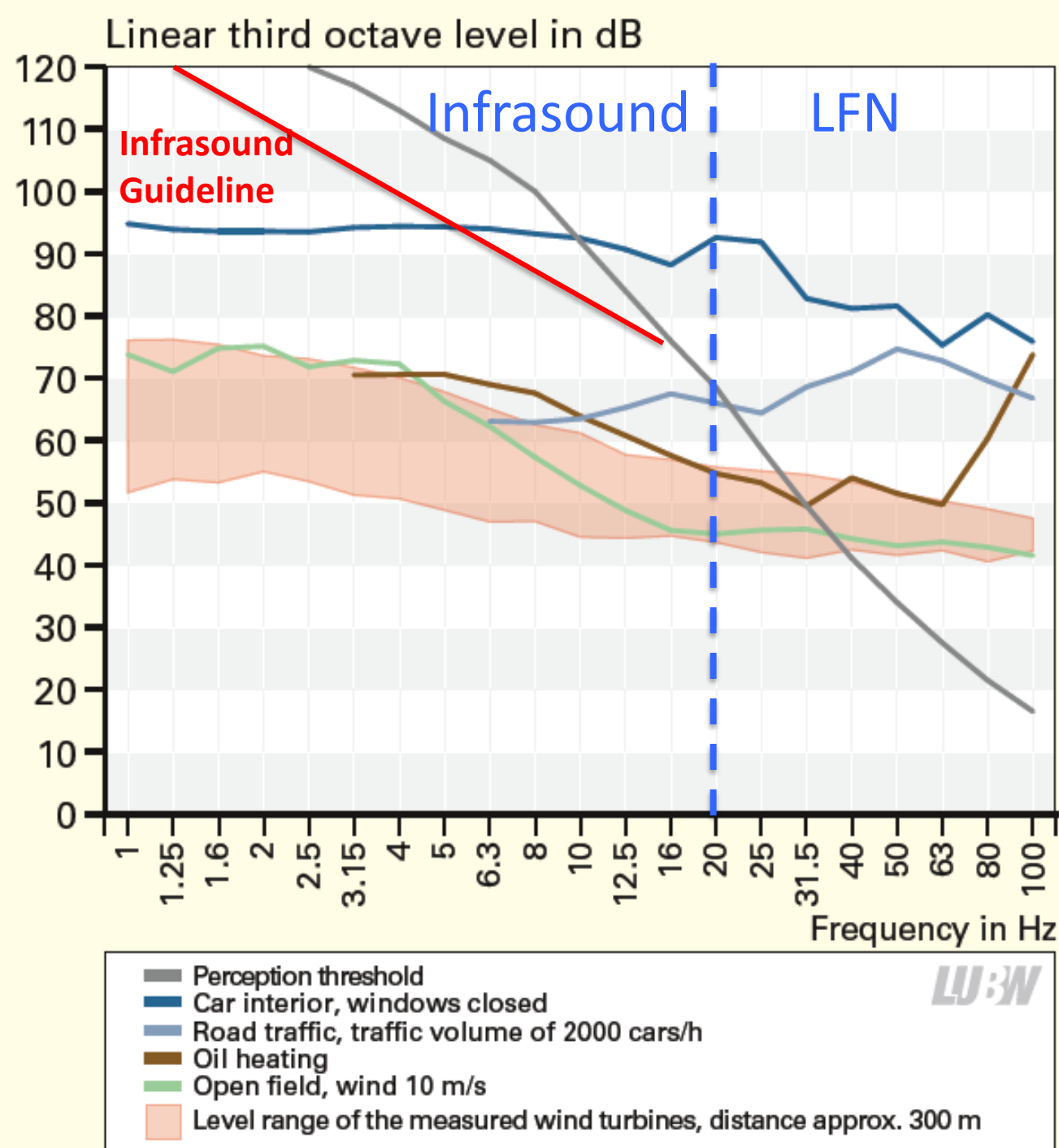
Scale of sound frequencies





# WIND TURBINE NOISE AND HEALTH STUDY: SUMMARY OF KEY FINDINGS

- Largest study ever undertaken around the world on wind turbines and health.
- 1,238 people participated
- Homes as close as 820 ft out to 7 miles from wind turbines.
- Conducted self-reported questionnaires and for the first time ever objective measures of health including:
  - Sleep Study
  - Hair Cortisol (stress)
  - Blood Pressure
- Sound levels as high as 46 dBA Leq
- The overall conclusion to emerge from the study findings is that the study found no evidence of an association between exposure to WTN and the prevalence of self-reported or measured health effects beyond annoyance.



# LOW FREQUENCY NOISE INFRASOUND

frontiers in  
PUBLIC HEALTH

ORIGINAL RESEARCH ARTICLE  
published: 24 February 2015  
doi: 10.3389/fpubh.2015.00031

Health-based audible noise guidelines account for infrasound and low-frequency noise produced by wind turbines

Robert G. Berger<sup>1</sup>, Payam Ashtiani<sup>2</sup>, Christopher A. Ollson<sup>3</sup>, Melissa Whitfield Aslund<sup>3</sup>, Lindsay C. McCallum<sup>3,4</sup>, Geoff Leventhall<sup>5</sup> and Loren D. Knopper<sup>3\*</sup>

<sup>1</sup> Intrinsic Health Sciences Inc., Mississauga, ON, Canada

<sup>2</sup> Aercoacoustics Engineering Limited, Mississauga, ON, Canada

<sup>3</sup> Intrinsic Environmental Sciences Inc., Mississauga, ON, Canada

<sup>4</sup> Department of Physical and Environmental Sciences, University of Toronto, Toronto, ON, Canada

<sup>5</sup> H.G. Leventhall – Consultancy, Surrey, UK

*Over-all, the available data from this and other studies suggest that health-based audible noise wind turbine siting guidelines provide an effective means to evaluate, monitor, and protect potential receptors from audible noise as well as Infrasound and Low Frequency Noise.*

# Shadow Flicker

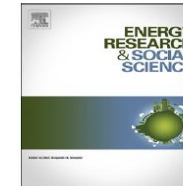
- New York requires no more than 30 hours of shadow flicker per year at non-participating homes.
- Photosensitive epilepsy affects up to 3% of people with epilepsy and is triggered by flashing lights (~14,000 kids in US).
- This was studied extensively by the British Epilepsy Society and researchers Smedly and Harding.
- The flash frequency needs to be greater than 3 hZ or for wind turbines a rotational speed of 60 rpm. Modern wind turbines spin at <20 rpm(<1 hZ 3 blades).
- Shadow flicker will not trigger seizures in any adults or children living in the Project area. There are no health impacts with shadow flicker.



Contents lists available at [ScienceDirect](#)

Energy Research & Social Science

journal homepage: [www.elsevier.com/locate/erss](http://www.elsevier.com/locate/erss)



In the shadow of wind energy: Predicting community exposure and annoyance to wind turbine shadow flicker in the United States

Ryan Haac<sup>a</sup>, Ryan Darlow<sup>b</sup>, Ken Kaliski<sup>a</sup>, Joseph Rand<sup>c</sup>, Ben Hoen<sup>c,\*</sup>





# Setbacks for Public Safety

## Ice Throw



Wind turbine failures, fires and ice throw are very rare events:

- 1 blade failure per 10,000 a year
- Fires are very rare events with <10 across industry
- Ice throw does occur but only as far as the height of the turbine
- No one has ever been hurt by any of these events.

## Tower Fire



## Tower Collapse



Setback distances required in NY are key to protection of public safety.

## Blade Failure



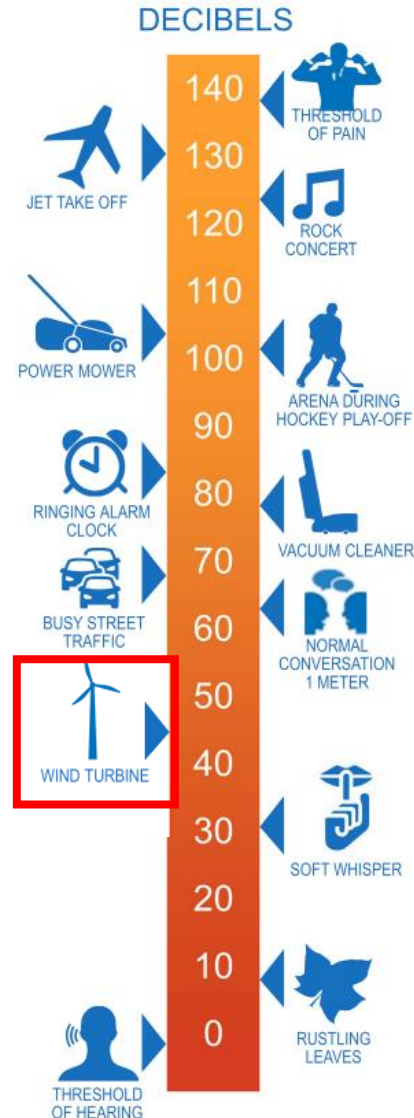
Structure Type	Wind Turbine Towers Setback
Public Roads	1.1 times tip height
Property Lines	1.1 times tip height
Non-participating, non-residential structures	1.5 times tip height
Non-participating residences	2 times tip height

### Noise

- Maximum of 45 dBA at the outside of an existing non-participating residence

### Shadow Flicker

- Maximum of 30 hours per year at the outside of an existing non-participating residence



# NYS 94-c Setbacks

---

# Conclusion on Health & Safety

- There has been considerable research conducted around the world to determine the proper setbacks and sound levels for wind turbine projects.

This is based on:

- the collective findings of over 100 peer-reviewed scientific articles;
  - the weight of scientific evidence of health studies of those living in proximity to wind projects; and,
  - government agency reports reviewing this topic from around the world.
- The Collins Wind Project is being designed to the 94-c standard, which will ensure the protection of public health and safety.



# Who We Are: EDF Renewables



# Grid-Scale Power

## Bigger Projects. Bigger Impact.

Providing origination, development, transaction, and construction services for large-scale wind (offshore and onshore), solar power generation and storage projects across North America.

Our team of leaders solve energy challenges for businesses and communities no matter the size or complexity having developed wind, solar and storage projects with some of the world's top corporates and utilities.

35+  
years



On the forefront of the burgeoning wind industry in California as a service provider beginning in 1985.

14 GW



Of developed grid-scale solar, wind and storage projects across North America

\$23B+



Paid to vendors, including lease payments made to landowners, since 2010.

70,000



Number of potential jobs created over the project lifetime of our development portfolio.

*Based on an employment factor of 5 jobs per MW IRENA Annual Review 2022*

# Projects in Service and Environmental Impact



10  
GW  
Wind



5.7  
GW  
Solar



0.3  
GW  
Battery Storage



11,550  
installed  
EV Chargers

We take pride in the impact of the **16 GW** we have developed since our inception.



3,906,464  
equivalent homes powered



18,115,880  
avoided metric tons of  
carbon dioxide annually



3,903,415  
Emission reduction compared  
to cars on the road







### **Support Livelihoods of Farmers and Landowners**

- Supplemental income is welcomed and helps our farmers and landowners succeed!
- Very little farmland is disturbed



### **Support Local Communities**

- Millions of dollars annually into the local economy – neighbors, schools, towns, and county
- Jobs during construction and operation



### **Support a cleaner environment**

- Uses no water during operation
- No air, ground, or water emissions



Check out  
the project website  
at **collinswind.com**





Achieve Your Sustainability Goals –  
Because the Future Depends on Us

Kevin Campbell

Director, Development

[newyorkwind@edf-re.com](mailto:newyorkwind@edf-re.com)

1 (833) 333-7369

Haylee Ferington

Community Relations Manager

[newyorkwind@edf-re.com](mailto:newyorkwind@edf-re.com)

1 (833) 333-7369

Check out  
the project website  
at **[collinswind.com](http://collinswind.com)**