

WIND ENERGY



Wind Energy

1. Wind Turbines—Categories
2. Community Consultation
3. Proposed Policy Direction
4. Locations Suitable – Urban and Rural
5. Steps to RC Decision

Wind Energy

1. Wind Turbines - Categories

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Categories of Wind Turbine

1. Micro
2. Small
3. Medium
4. Large

Micro Turbines

Height Range: 0 – 23 metres

Power Output Range: 0 - 10 KW



Micro Turbines

Height Range: 0 – 23 metres

Power Output Range: 0 - 10 KW

10 kW



Small Turbines

Height Range: 23 –
35 metres

Power Output Range:
10 - 50 KW

15 kW





Medium Turbine

Height Range: 35 – 60 m.

Power Output Range: 50 –
300 KW

100 Kilowatts

Medium Turbine

50m Height
100 KW





Large Turbine

Height Range: 60
metres +

Power Output Range:
Greater than 300 kW
(EA process required --
2 MW)

Typical Utility
Grade

2 megawatts

Larger Turbines – Relative Height

Tufts Cove

Generating Station Stacks



152.4m

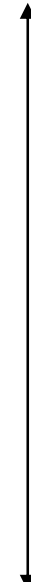


152 m (500ft)

LARGE
2MW

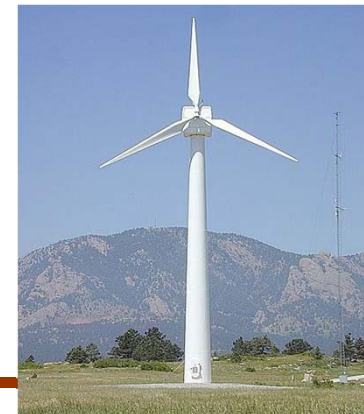


120m



120m (394 ft)

MEDIUM
100KW



60m



60m (197 ft)

Small and Micro – Relative Height

SMALL
15 KW



30 m (98 ft)

MICRO
0.5 KW



15m (49 ft)

Wind Energy

1. Wind Turbines—Categories

2. Community Consultation

1. Public Attitudes

3. Proposed Policy Direction

4. Steps to RC Decision

Public Attitudes and Wind Turbines

Preferences for Wind Power in the Maritime Provinces Study (Jacques Whitford, 2008)

Opinions varied as to whether Turbines:

- make too much noise
- are expensive source of electricity
- negatively change/impede views
- reduce property values
- produce negative health effects of people living near wind farms

Community Consultation

Issues raised through Consultation

1. Concern for adverse effects
2. Increase setbacks for larger machines
3. Provide access to smaller scale wind turbines for home use
4. Public consult/ input into projects

Public Values Expressed

Generally:

- Public wants the benefit of wind energy
- Public supports the use of wind energy
- Public does not want the impacts of wind energy

Wind Energy

1. Wind Turbines—Categories
2. Community Consultation
- 3. Proposed Policy Direction**
 - 1. Wind Turbines As of Right**
 1. Urban
 2. Rural
 - 2. Provincial EA and Large Wind Turbines**
 - 3. Exemption for access over restricted lands**
4. Steps to RC Decision

Proposed Policy Direction

Kent Hills Wind Farm, NB



Proposed Policy Direction

1. Wind Turbines As of Right

1. Discretionary Approvals

2. Urban HRM

1. Locations suitable

2. Setbacks

3. Rural HRM

1. Locations suitable

2. Setbacks

4. Provincial EA and Large Wind Turbines

5. Exemption for access over restricted lands

Proposed Policy Direction

- As of Right Process
 - Discretionary Approvals

Discretionary Approvals

(Development Agreement, Site Plan Approval)

- Mass, Scale and Location of Buildings
- Hours of operation
- Site function, parking, traffic issues
- Landscaping, screening, on site improvements.

Proposed Policy Direction

1. Wind Turbines As of Right

1. Discretionary Approvals

2. Urban HRM

1. Locations suitable

2. Setbacks

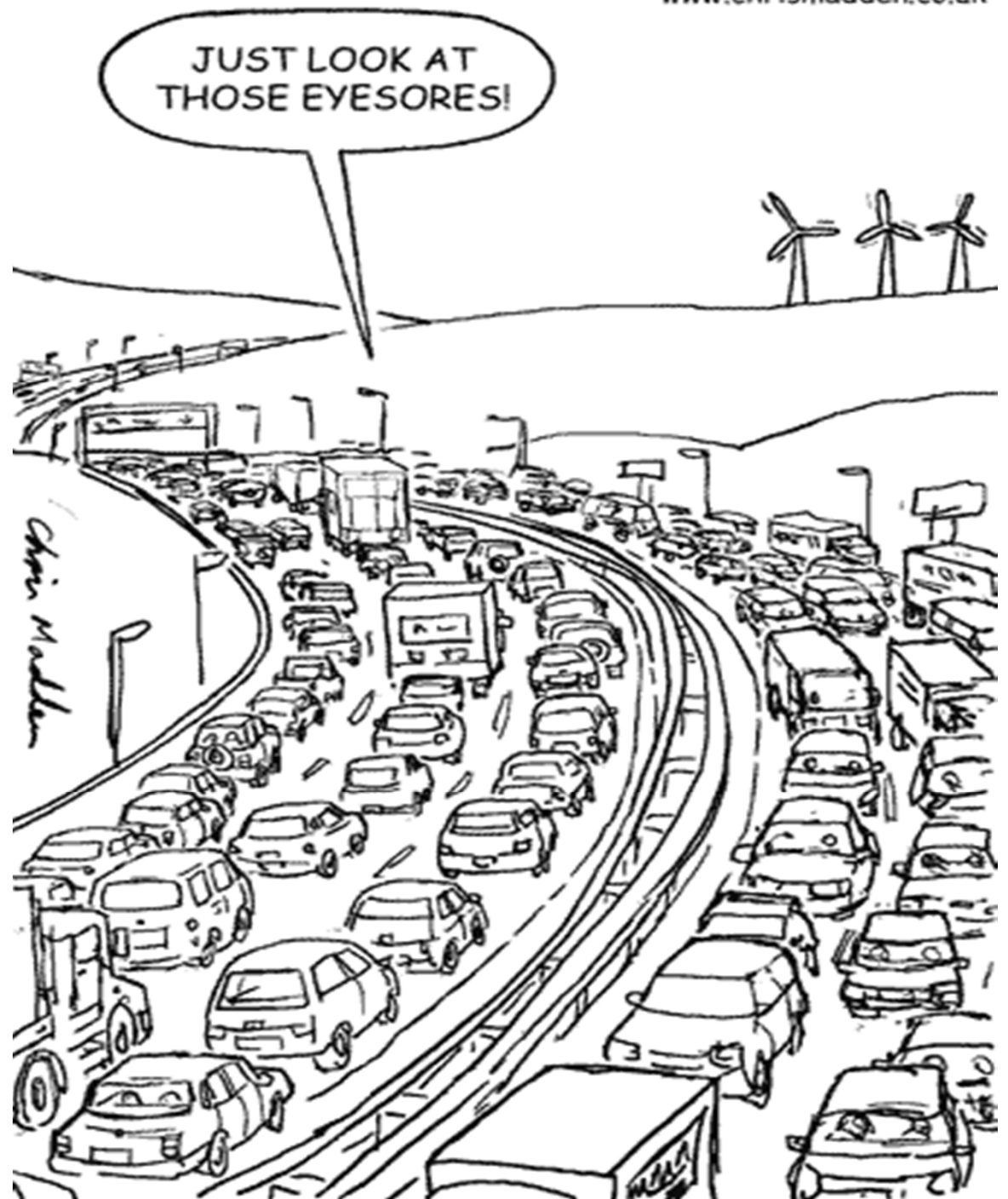
3. Rural HRM

1. Locations suitable
2. Setbacks

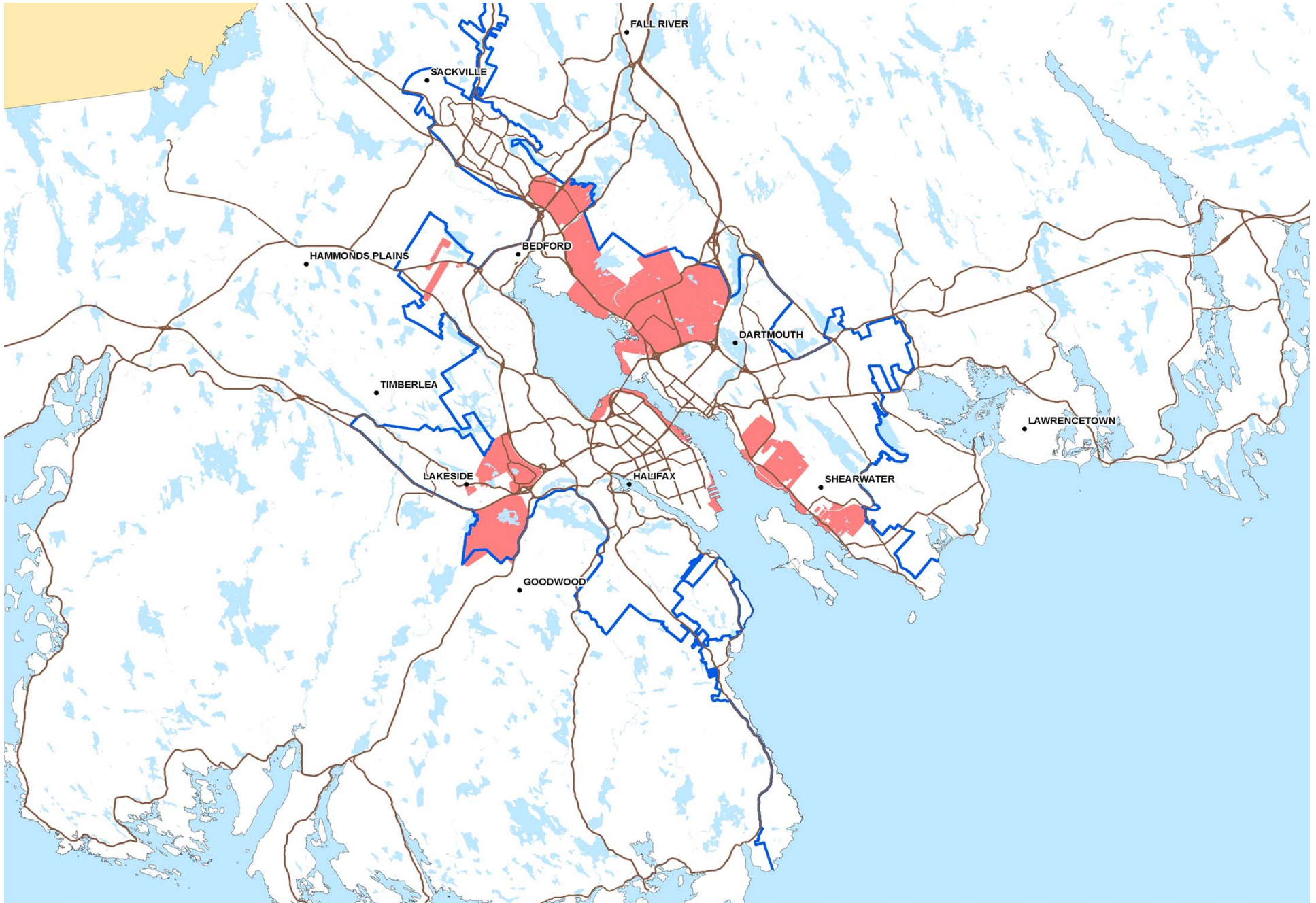
4. Provincial EA and Large Wind Turbines

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Urban HRM



Recommended Locations for Urban Wind Turbines



Different Methods of Setback Regulation

1. *Setback to property boundary* -- calculated based on the height of the turbine
2. *Separation to adjacent buildings* – calculated based on the height of the turbine
3. *Separation to adjacent buildings* – absolute measure

Turbine Type (<i>max. height</i>)	Setbacks from Turbine Urban Zone (Selected Areas Only include Commercial campus', business parks, some marine industrial locations.)		
	Prop. lines	Adj. Non - Sensitive	Adj. Sensitive Buildings
Micro (23m)	1.0 x ht	1.5 x ht	3.0 x ht.
Small (35m)	1.0 x ht	1.5 x ht	180 m
Medium (60m)	1.0 x ht	1.5 x ht	250 m
Large 60m+	Not Permitted		

Proposed Policy Direction

1. Wind Turbines As of Right

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1. Locations suitable

2. Setbacks

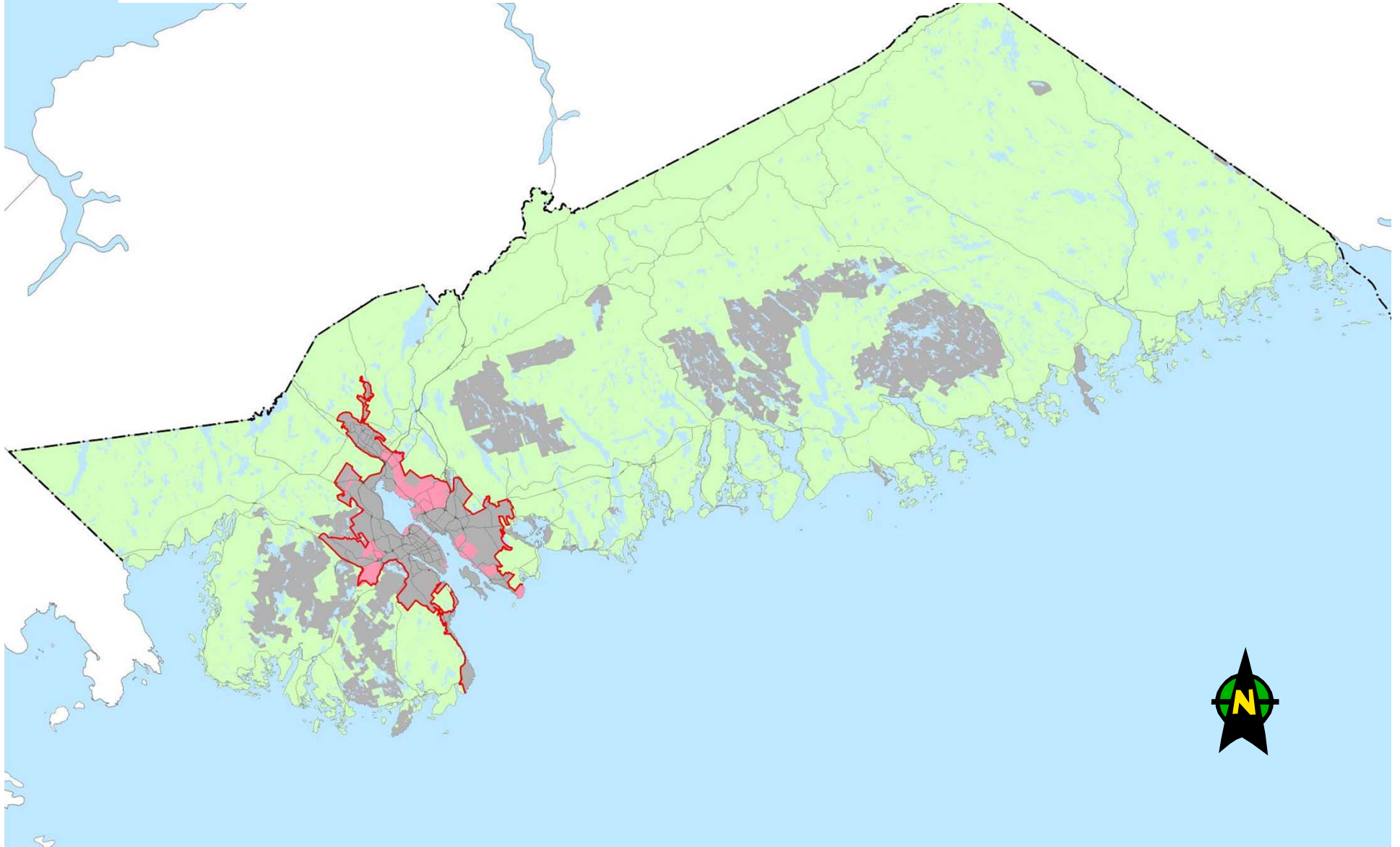
4. Provincial EA and Large Wind Turbines

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Rural HRM



Rural Context for Wind Turbines



Areas of Restriction for all Wind Turbines

- Regional Parks
- Protected Areas
- Conservation Areas
- Western Commons

Turbine Type <i>(max. height)</i>	Setbacks from Turbine-- Rural Energy Zone (Restricted from Regional Parks, Protected Areas, Conservation areas,	
	Prop. lines	Adj. Habitable Buildings
Micro <i>(23m)</i>	2.0 x ht.	3.0 x ht.
Small <i>(35m)</i>	2.0 x ht.	180 m
Medium <i>(60m)</i>	1.5 x ht.	250 m
Large 60m+	1.5 x ht.	550 m

Proposed Policy Direction

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Provincial Environmental Assessment -- Large Scale Wind Turbines

23 Criteria set out in Guidelines to address the following:

1. Human Safety
2. Environmental Protections
3. Site Operational Requirements
4. Nuisance Impacts

Provincial EA -- Large Turbines

- 2MW
- EA required



120m
Pubnico

- 0.6MW
- No EA required



80m
Goodwood

Provincial EA -- Large Turbines

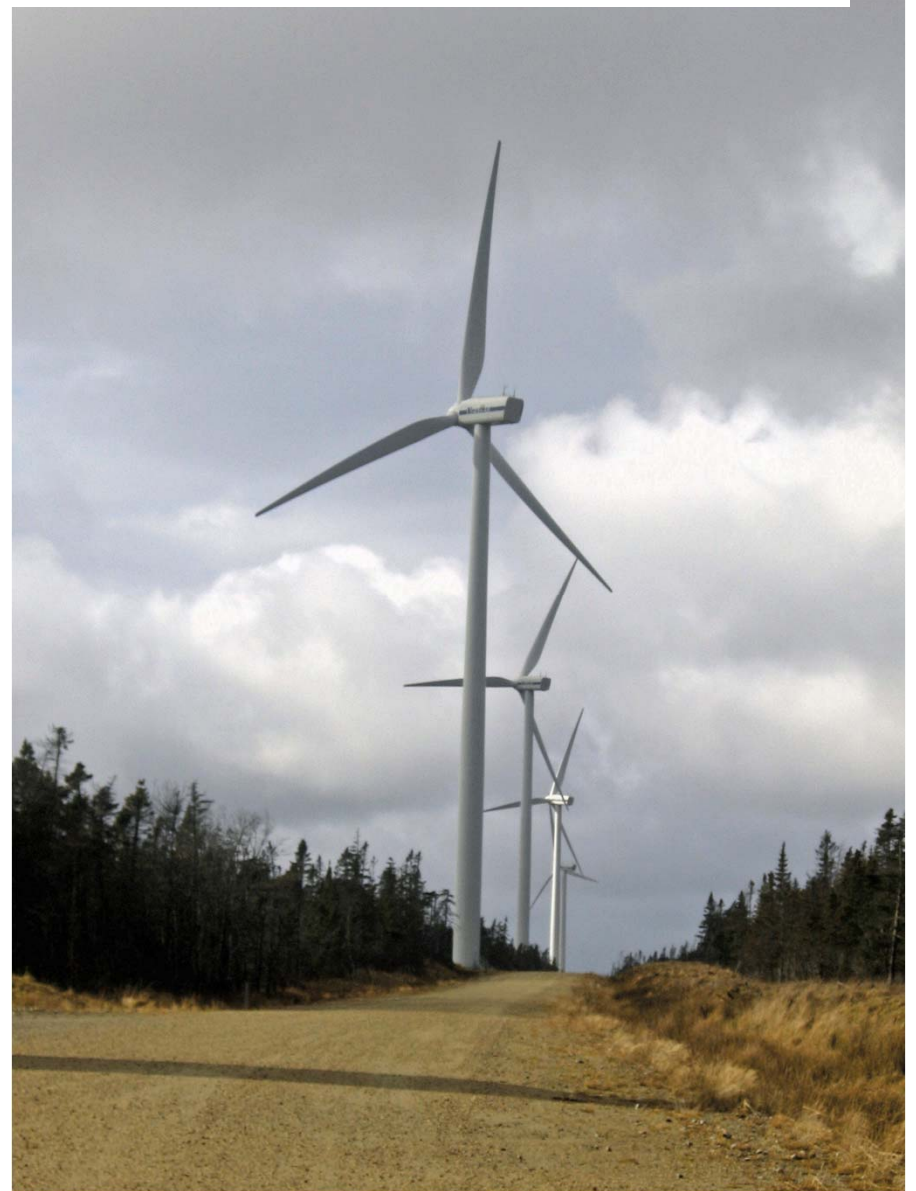


80m Heights **.6MW** Machines
Goodwood

Large Wind Turbines

Large Turbine Siting Criteria

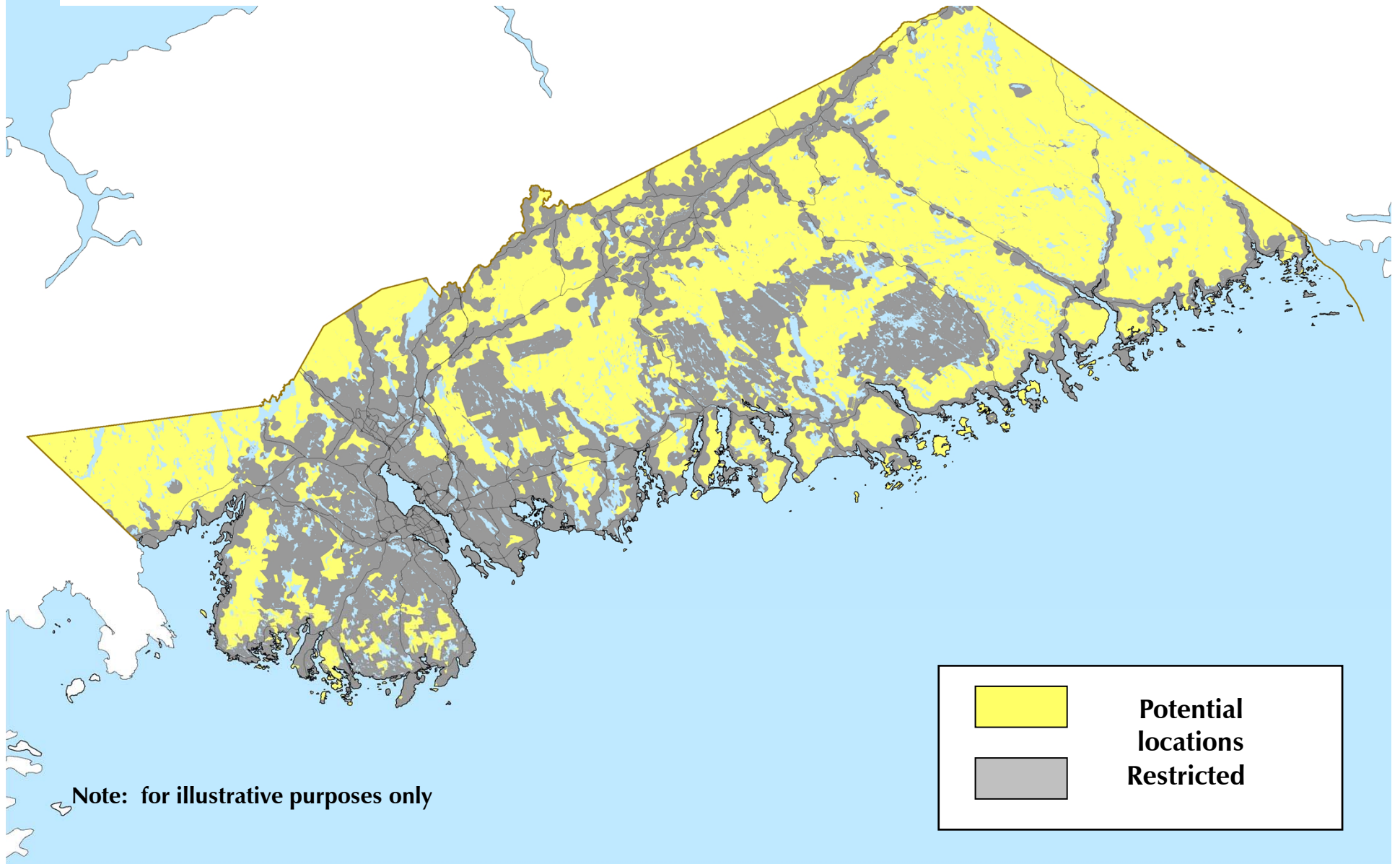
- **As-of Right**
- **Rural Areas Only**
- **550m distance separation from turbine to buildings**
- **No limit on turbine height**
- **Not permitted in Urban Area**



Large Wind Turbines Areas of Restriction

- Regional Parks
- Protected Areas
- Conservation Areas
- Western Commons
- Urban Centre

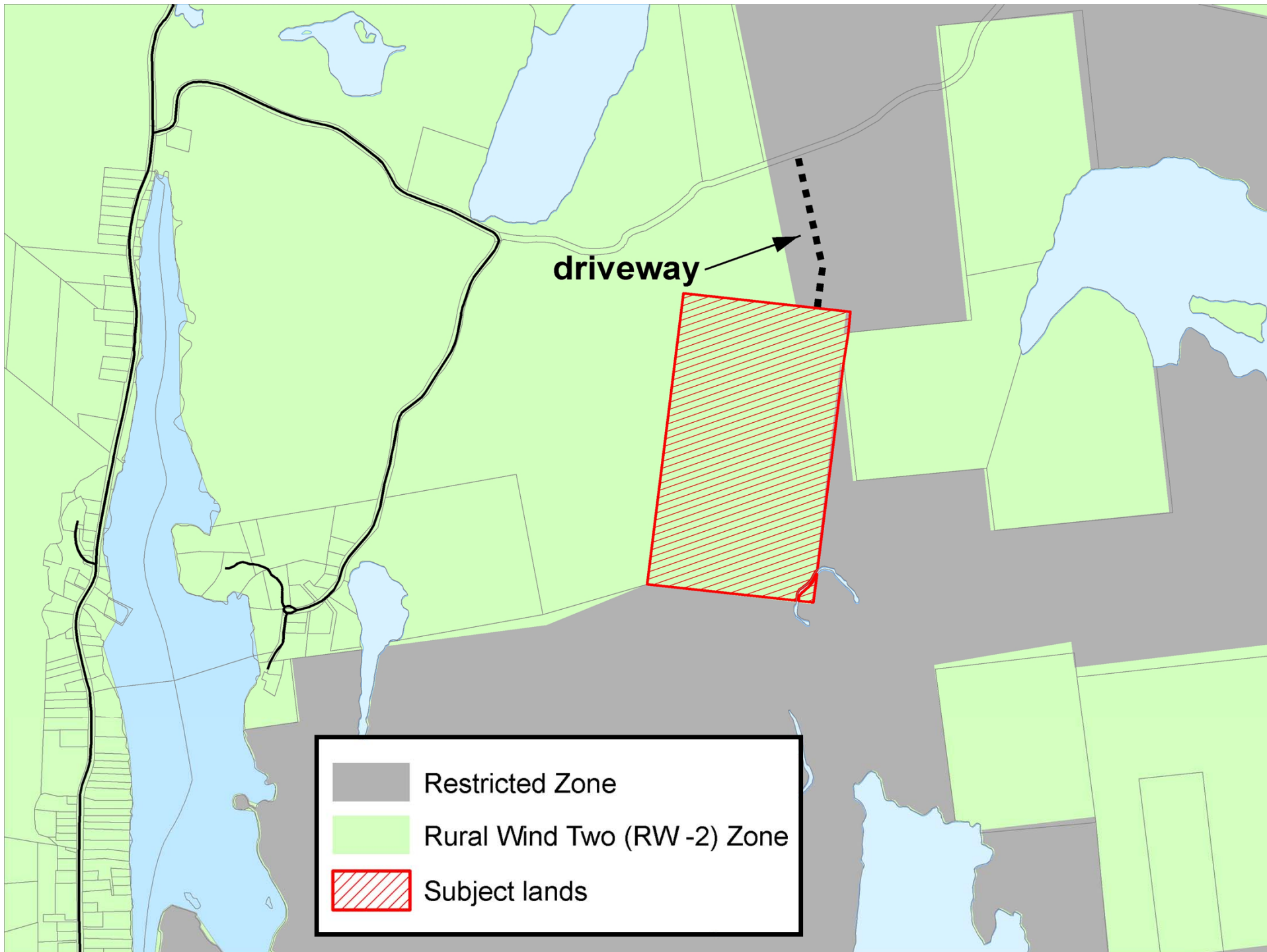
Approximate Potential Locations for Large Scale Wind Turbines



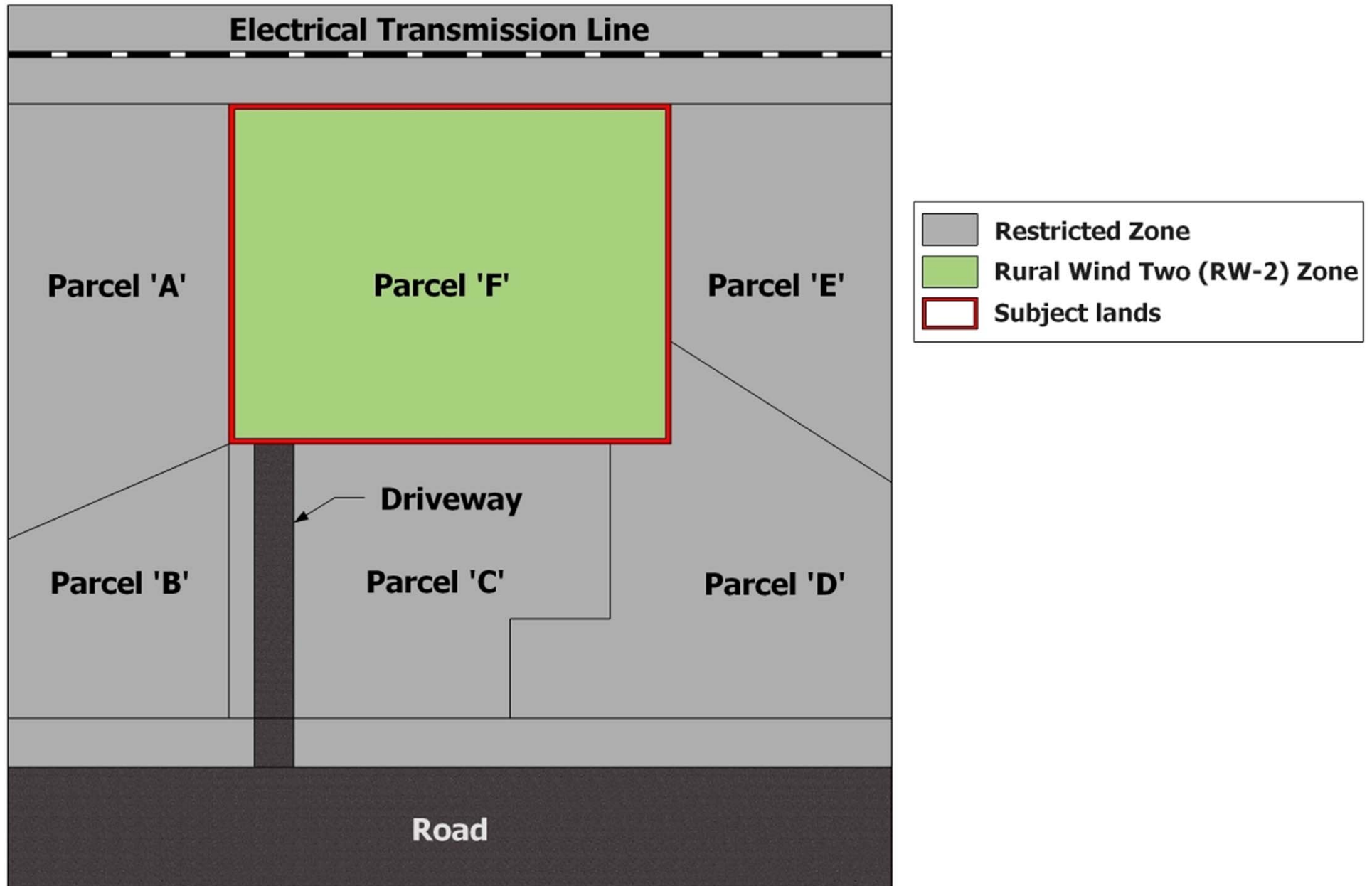
Wind Energy Facility Type (max. height)	Wind Turbines Permitted (Recap)	
	Urban (Selected Locations)	Rural
Micro (23m)	Yes	Yes
Small (35m)	Yes	Yes
Medium (60m)	Yes	Yes
Large 60m+	No	Yes

Proposed Policy Direction

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5. Recap
- 6. Exemption for access over restricted lands**



"Example--Access Over Restricted Lands"



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Steps to RC Decision

- Energy and Underground Services Committee (Sept)
- Regional Planning Advisory Committee (Oct)
- Regional Council (Oct./Nov)
 - First reading
 - Public hearing
 - Decision

A photograph of a wind farm with four large white wind turbines in a green field under a clear blue sky. A line of trees is on the left. The text "Questions/ Feedback" is overlaid on the right side of the image.

Questions/ Feedback