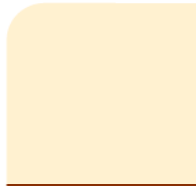
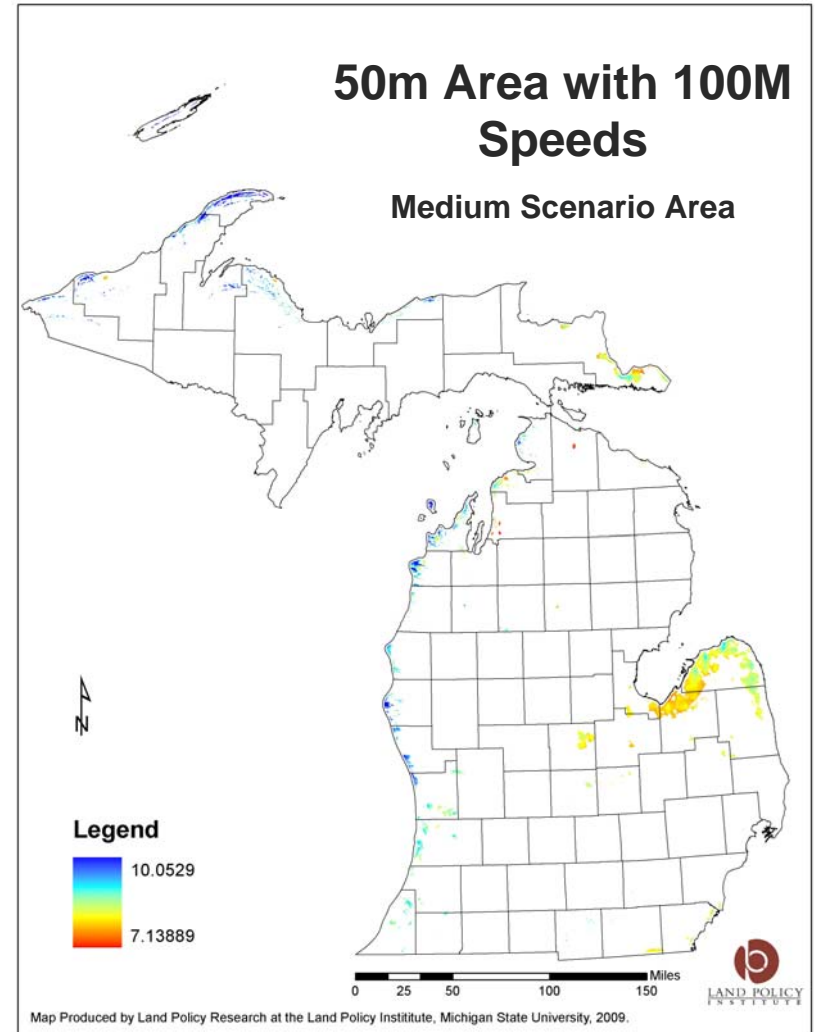
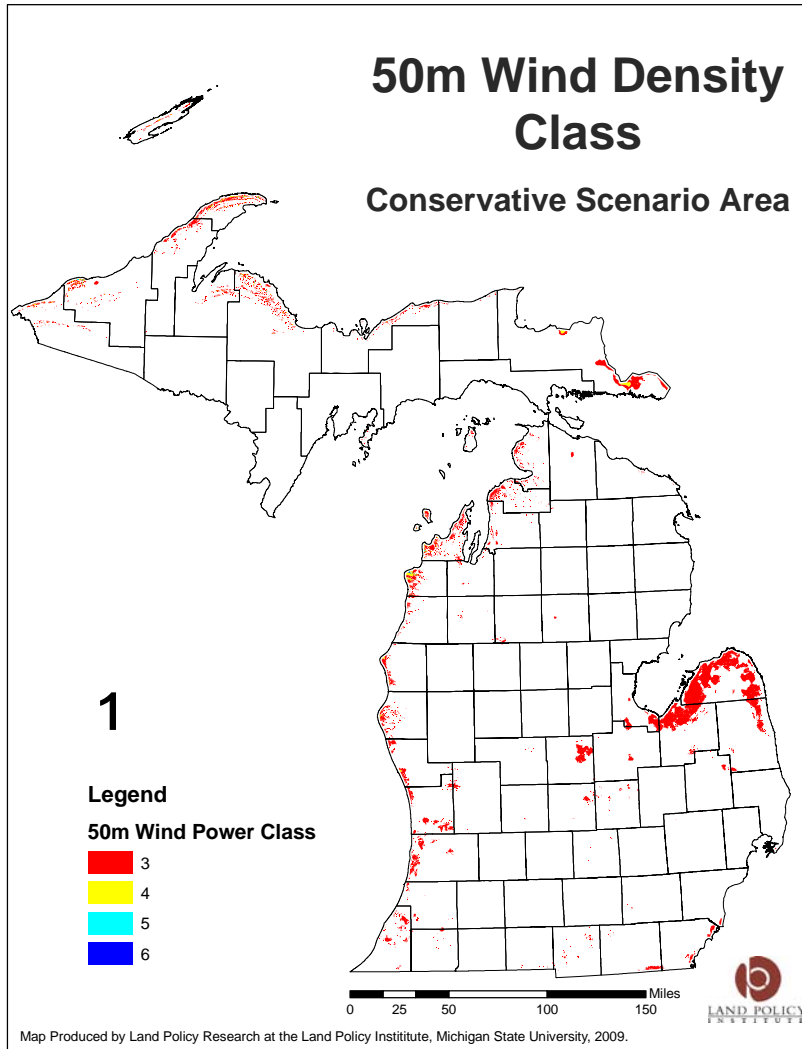




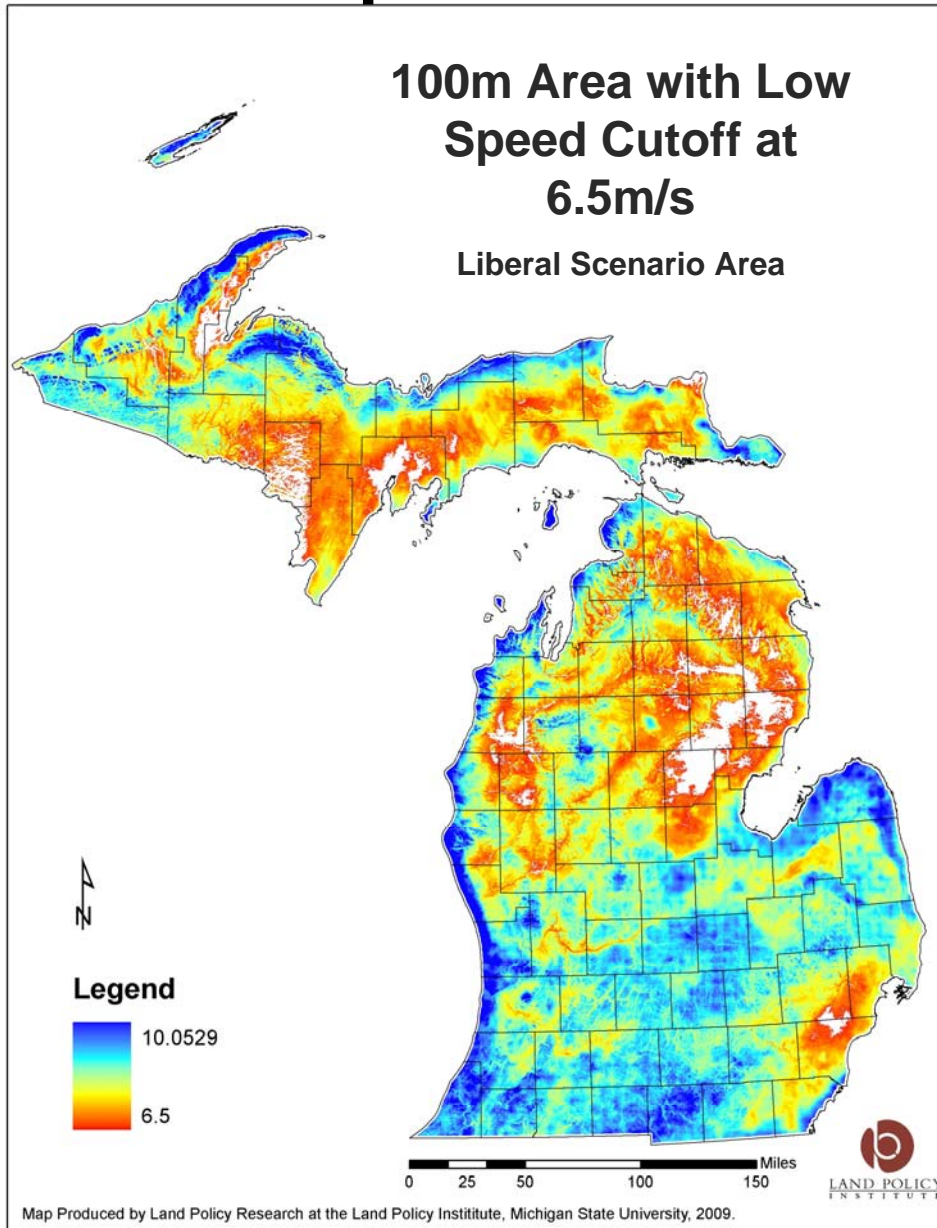
# Wind Resource Zone Board March 16<sup>th</sup>



# Wind Resource Maps



# Wind Resource Maps



# Exclusions Decided On

## Airports

- Michigan has 1,500 separate airports. The Board discussed how to determine setbacks for airports. Radar setbacks are done on a case by case basis by a board. The Board concluded that using Metro Airport's radar setback would likely cause too much land to be excluded.

## Wetlands

- The Board decided to exclude regulated wetlands (> 5 acres) and later on in the analysis, look at our identified regions to consider excluding smaller wetlands.

## Ownership

- The Board agreed to a three-tiered state land analysis.
  - No state lands.
  - State forest land included.
  - State forest land, state recreation/game areas and state parks included.

## Road Buffers

- The Board agreed to 1.5 \* the rotor hub height as a road setback and agreed to do a sensitivity analysis using 80 meters since it might be hard to install 100 meter towers in the Thumb due to all of the roads. A 100 meter hub height is the default hub height.

## Buffers from Great Lakes Shoreline

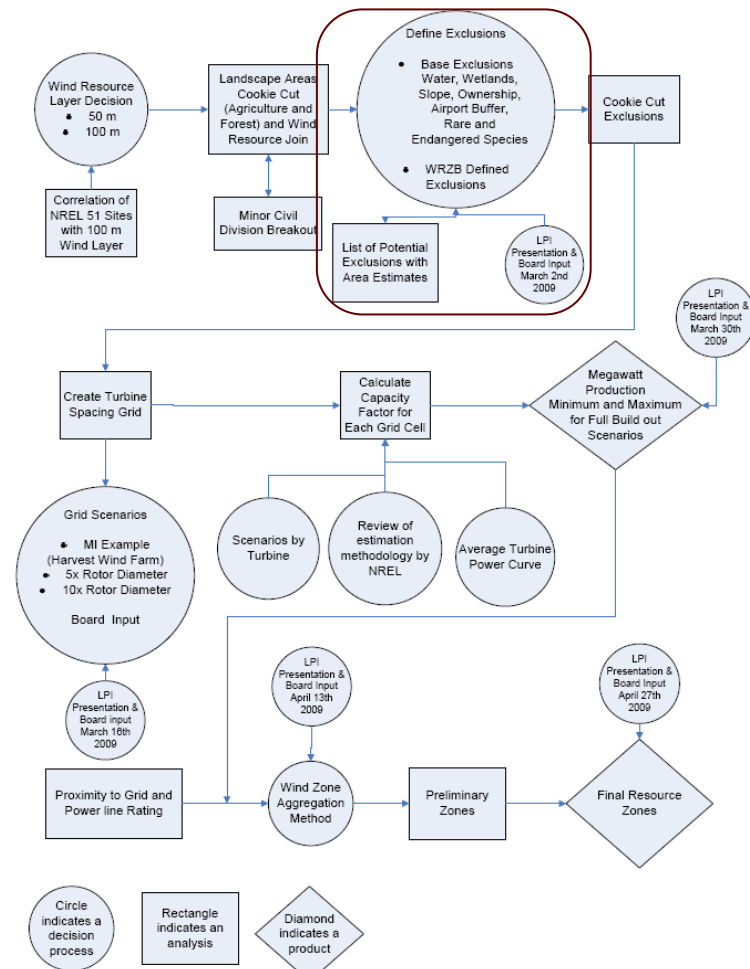
- The Board agreed on a 1 mile buffer from Great Lakes Shorelines.

## Buffer from Lakes and Rivers

- 1.5 \* ultimate height (hub height plus the height to the tip of the blade in its vertical position).

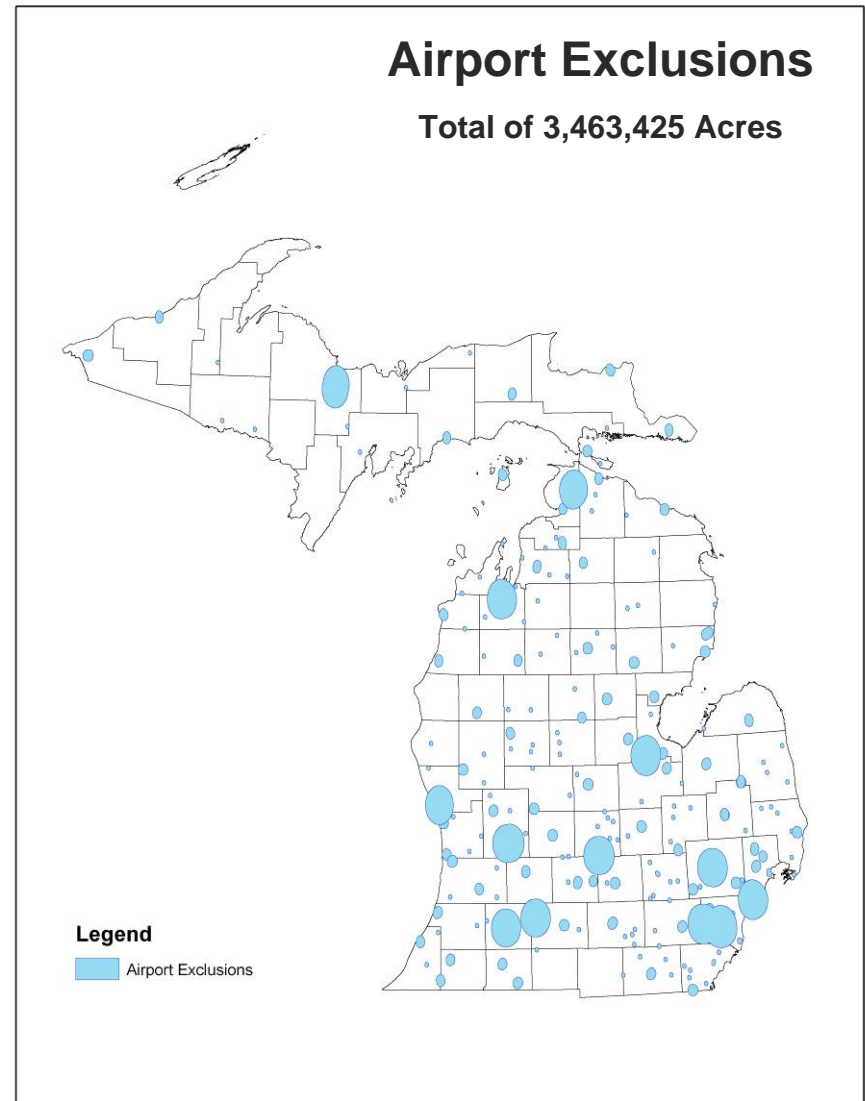
## Rare and Endangered Species

- MNFI (Michigan Natural Features Inventory) index. An index number of 26 and up is flagged.



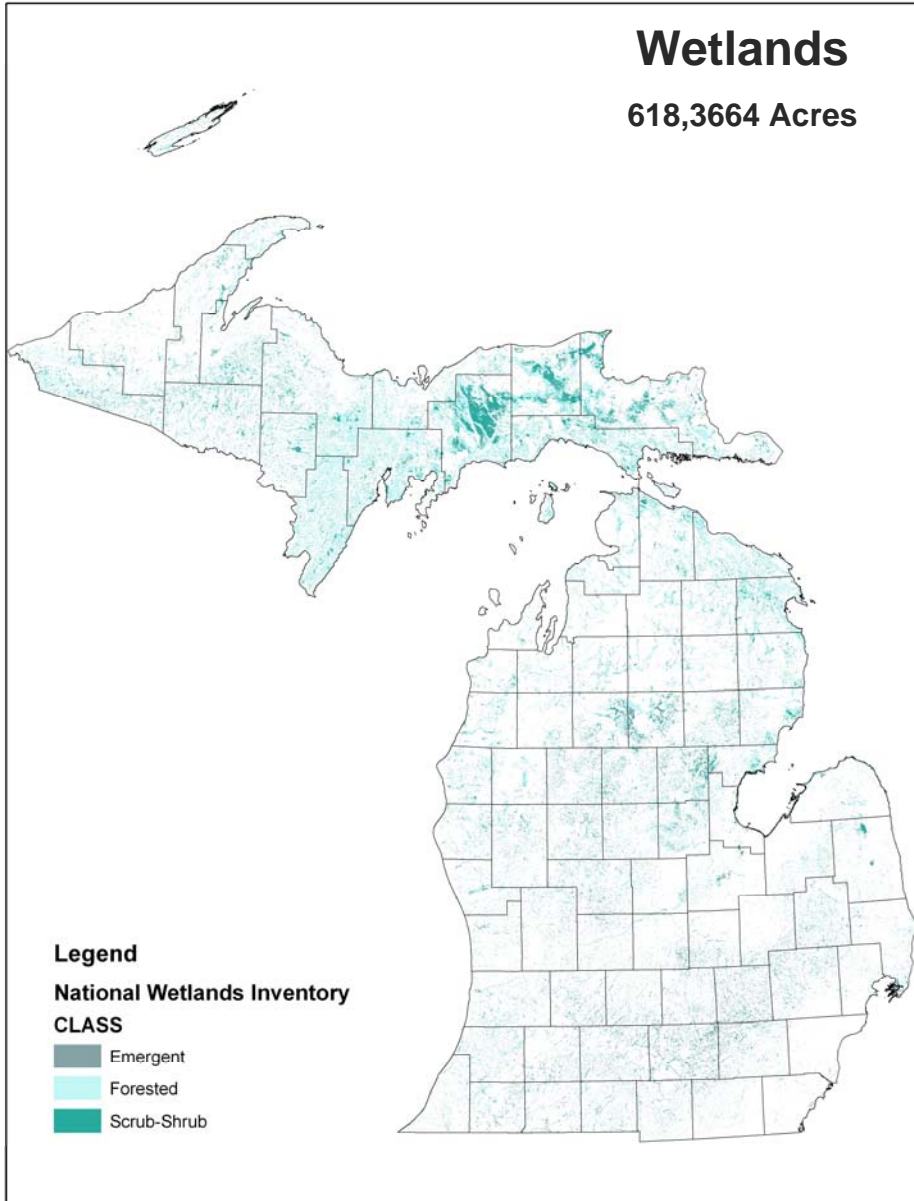
# Airport Exclusion Estimates

- Airport Exclusions are based on input and help from Michael Serafin, Specialist, Renewable Energy, DTE and Joe DeVito, VP of Development North Central and Northeast, US Renewable Energy Systems
- In Summary runway buffers are:
  - Commercial Airports are buffered 10 miles
  - Local Airports are buffered 6.32 miles.
  - And small Strips are buffered 1.25 miles



# Wetlands

**Wetlands**  
618,366 Acres

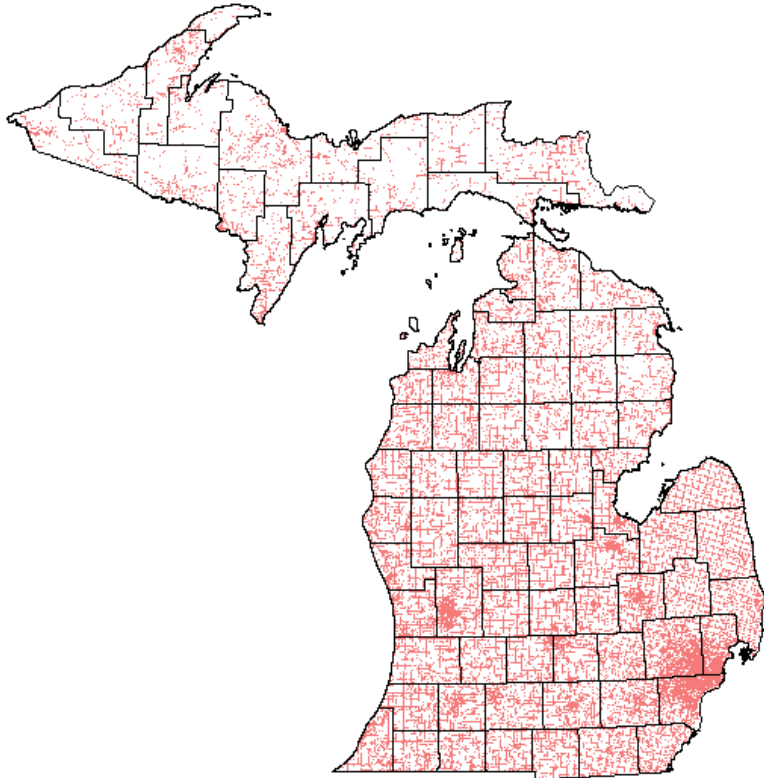


**Legend**  
**National Wetlands Inventory**  
**CLASS**  
Emergent  
Forested  
Scrub-Shrub

# Road Buffers

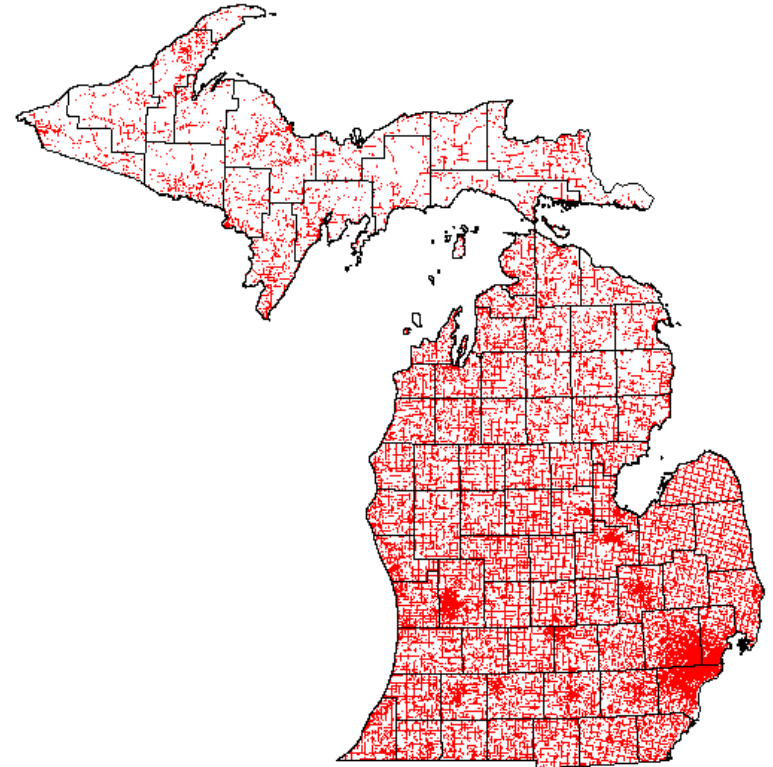
## 120m Public Road Buffer

80m Tower (7,293,504 Acres)



## 150m Public Road Buffer

100m Tower (8,904,575 Acres)



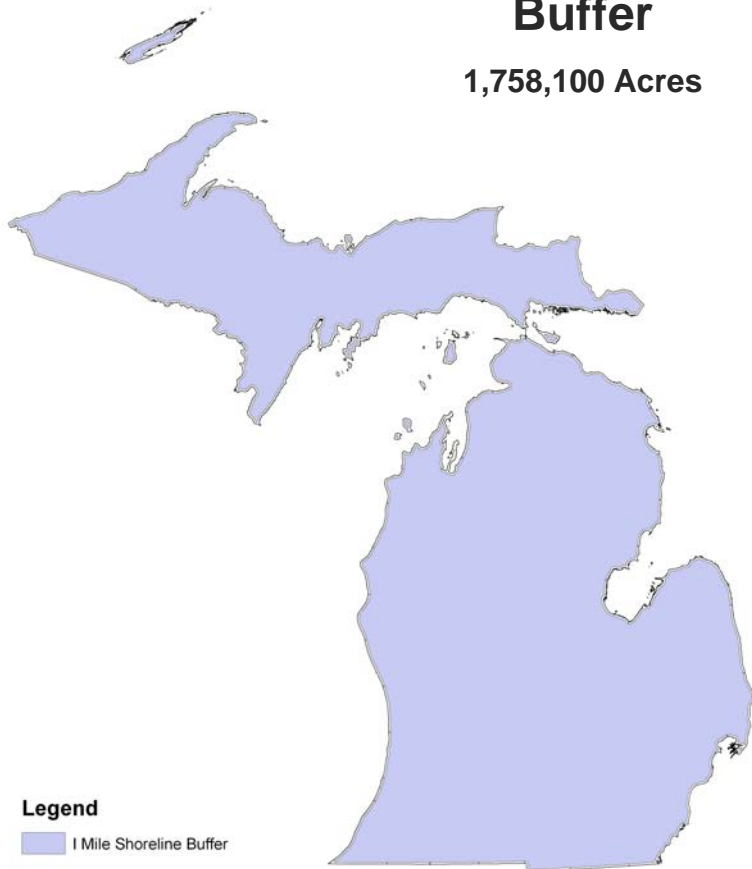
# Shoreline Buffer

## One Mile Shoreline Buffer

1,758,100 Acres

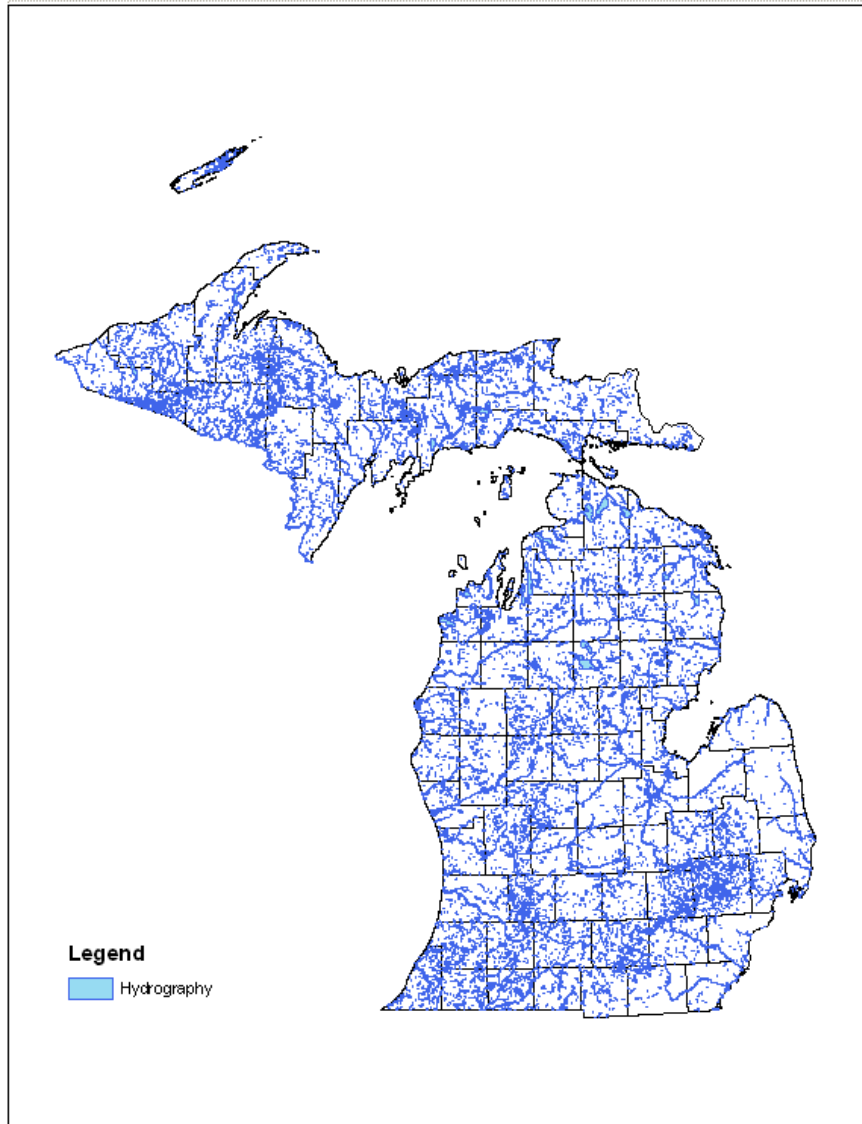
### Legend

 1 Mile Shoreline Buffer



# Inland Lake and River Buffers 120m buffer

Acres 2,119,880





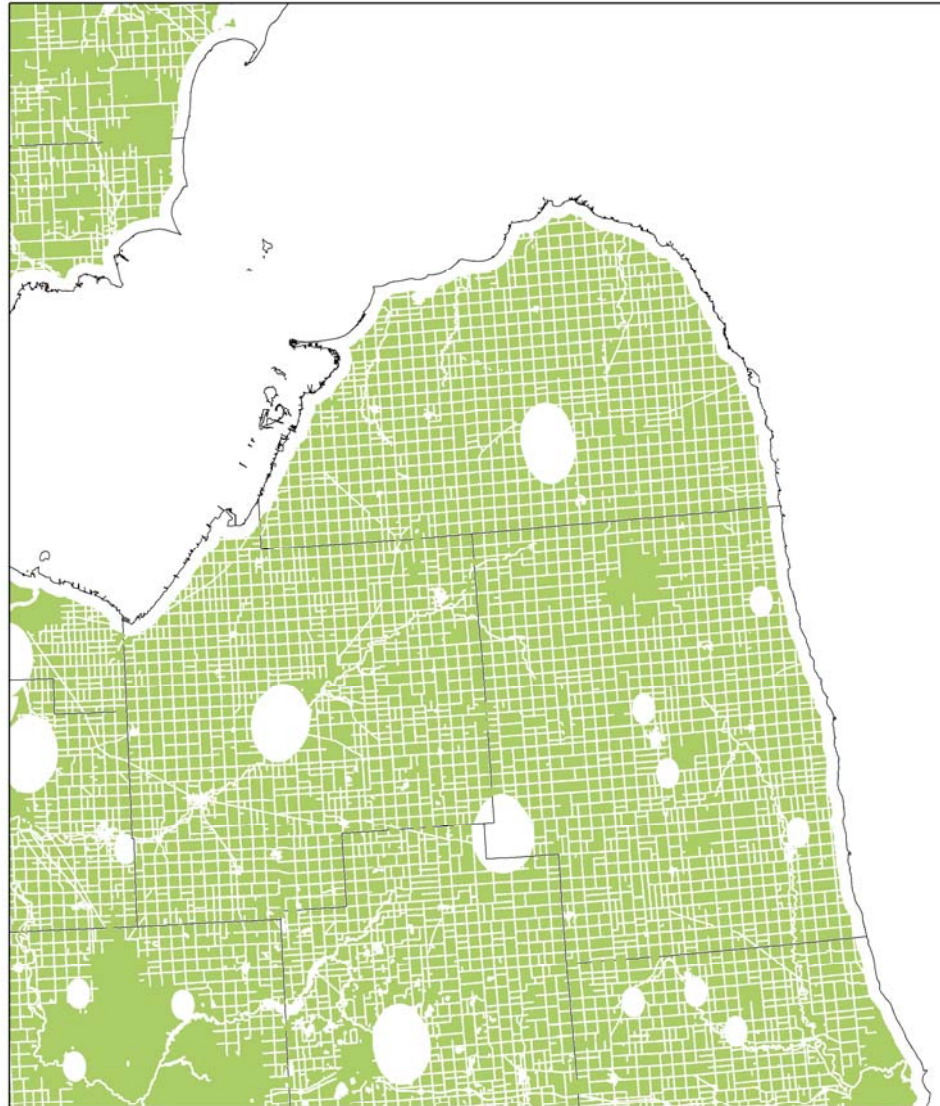
# DNR Suggested Exclusions (following meeting on 3/13)

On the following areas of DNR managed lands, commercial wind development will (likely) be prohibited:

- 1. Low suitability sites as defined by Wildlife Division
- 2. Natural River Areas
- 3. Natural Areas
- 4. Environmental Areas (A DEQ DESIGNATION)
- 5. Wilderness Areas
- 6. State Park and Recreation Areas
- 7. State Game and Wildlife Areas
- 8. Land purchased or managed with restricted funding where commercial use would interfere with the intended use based upon funding source
- 9. Areas without existing road access
- 10. Known historic/cultural areas
- 11. Pigeon River Country State Forest-pursuant to the Concept of Management
- 12. Critical Dune Areas/High Risk Erosion Areas
- 13. Biodiversity Stewardship Areas
- 14. Special Conservation Areas
- 15. Ecological Reference Areas



# 120m Exclusion Map



# Turbine Grid 3d Representation

