Optimization of Operating Conditions for Wind Turbines

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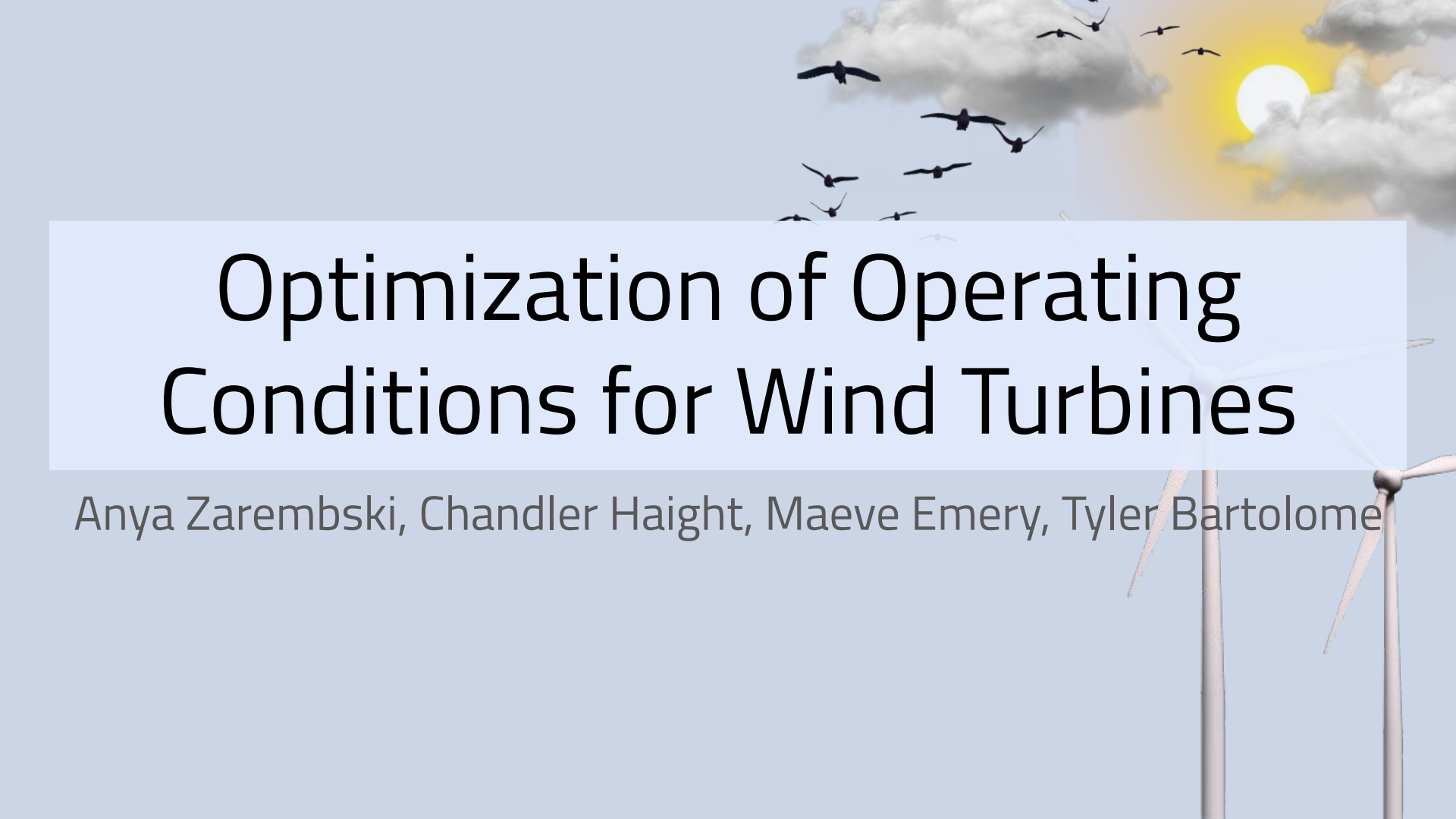


Research Question

What are the conditions are that lead to the greatest amount of energy produced and the least amount of maintenance required?

Solving this problem would allow windmill technicians to better maintain windmills while still producing the maximum amount of energy.

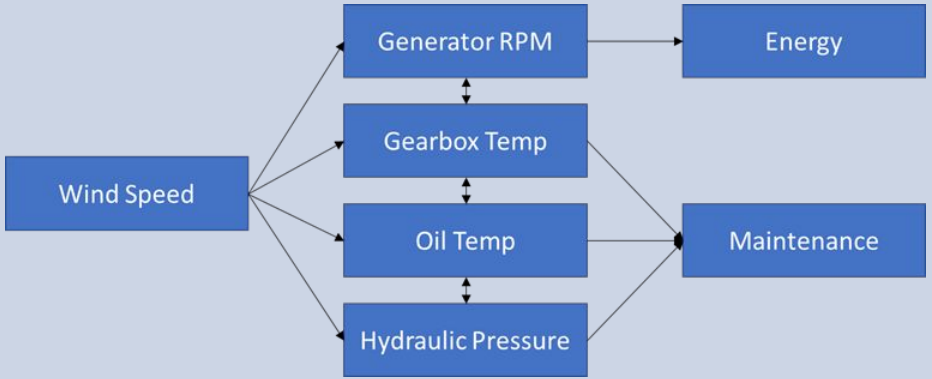
The outcome will be judged on the basis of total potential benefit given a metric that equates the cost of maintenance with the production of energy.

Variables

- Generator RPM
- Hydraulic pressure
- Windspeed
- Gearbox temp
- Oil temp
- Active Power

Next Steps

1. Associate maintenance costs with the time required for the repair and/or the cost associated with the part needed for a particular fault code
2. Associate turbine fault code and dates with gearbox or oil temperatures
3. Find energy production output for particular conditions
4. Understand how internal factors affect each other, find equations that associate each of the variables.



Questions:

- Value associated with maintenance costs: part costs and labor costs
- Most of the maintenance times are zero, what is the value of that?
- Value associated with producing energy