Meeting Minutes

Date: 10/2/14

Present:
- ME students:
  - Steven Blanchette, David Deli, Jeremiah McCalister, Abigail McCool
- CE students:
  - n/a
- Faculty/Advisors:
  - n/a

Notes:
- Discussion of midterm presentation. Ideas include:
  - Background (1-2 slides)
    - Cost of standard wind turbine
    - Comparison of vertical and horizontal axis turbines
    - Two blades vs. three blades
  - Discussion of the two structures Theo and Kim designed (compare these to a standard steel tower as a normalized value)
  - Standards – 5MW – NREL
  - Material idea for blades
  - Internal blade support
  - Foundation (standard turbine foundation vs. "Eiffel Tower" foundation

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(The team had two meetings in one day)

Date: 10/2/14

Present:
- ME students:
  - Steven Blanchette, Jeremiah McCalister, Abigail McCool
- CE students:
  - Kimberly Martinson, Theodore Meros
- Faculty/Advisors:
  - Dr. Powell (COAPS)

Notes:
- Possible locations for wind turbine:
  - Mariana (height above sea level is a large factor in location)
  - Lake Okeechobee ("Sugar Land Wind" was planned to be built there but was abandoned)
  - South Florida (sea breeze from the East Coast)

- Log law allows you to put in influence from different roughness
- If blades are made lighter they could also be made longer
- IEC Standards for designing wind turbine (standard number 61400)
- AWS True Power is who NREL worked with to make wind speed map
- Yaw control- to shut down turbine and make it face a direction that will lead to the least amount of stress in bad weather conditions
    - ASCE 7-10 (standards pertaining to hurricane wind speeds)
        - Provides wind speed in gusts (need to convert "gusts" to "mean wind"
        - Peak 3 second gust = 1.4 mean wind
- Rough estimation:
    - If wind speed at 80 meters is 7m/s the wind speed at 110 meters is approx. 7.25 m/s
- Equation to interpolate wind velocity at higher altitude
    - $U_1 = \frac{U_*}{k} ln \frac{z_1}{z_2}$