



## Engineering Services

MFG Energy Services Has a Team of Engineers to Serve Your Needs

### Root Cause Analysis (RCA):

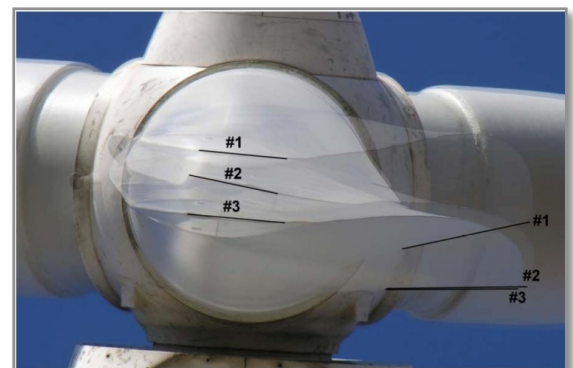
Third party analysis and conclusions

- ⤴ WES engineer works with the customer to gain all the facts of the calamity
- ⤴ Independent evaluation
- ⤴ Formal report is produced
- ⤴ Estimate for repairs if needed

### Aerodynamic Balancing:

Pitch problems solved

- ⤴ Blades are producing varying power
- ⤴ Uneven blade profiles
  - Built wrong
  - Repairs
  - Erosion
- ⤴ Coning angle errors
- ⤴ Pitch angle varies from blade to blade



Misaligned blades are revealed

### Dynamic Rotor Balancing:

Analysis and correction of mass imbalance

- ⤴ Mass imbalance can cause excessive main bearing wear and gearbox problems.
  - Moment varies due to uneven blade masses or distribution
  - Hub imbalance or flange errors
  - Are the tips of the blades equidistant?
  - Bent shaft
  - Blades have absorbed oil or water



Industry accepted analysis equipment