WIND STUDY | Wind Study is intended for grades 5-8 and 8-11
Questions posted on: Monday   Answers posted on: Friday
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2020A4   (TABLES, METRICS)

L1: To determine the maximum radius, the total weight of the lift needs to be determined.

$$Total\ weight = Generator\ weight +\ Rigging\ weight$$

$$Total\ weight = 101,200\ lb +\ 18,000\ lb$$

$$Total\ weight = 119,200\ lb$$

The lifting capacity of the crane must be higher than the total weight. The closest lifting capacity listed on the chart is 117,500 lb, but this is less than the total weight. The maximum radius would thus be 90 ft, with a lifting capacity of 127,900 lb.

L2: To determine if the pick is critical, and if so, what level, first calculate each of the metrics for this pick.

Tandem Pick: The generator is lifted using a single crane. This is not a Tandem Pick.

Load Dollar Value: The dollar value is given as $230,000.

Total Load Weight: As calculated in the L1 question, the total weight is 119,200 lb.

% of Lifting Capacity used: The load chart gives the lifting capacity at a radius of 70 ft as 161,500 lb.

$$\%\ of\ Lifting\ Capacity\ Used = \frac{Total\ Load\ Weight}{Lifting\ Capacity}$$

$$\%\ of\ Lifting\ Capacity\ Used = \frac{119,200\ lb}{161,500\ lb}$$

$$\%\ of\ Lifting\ Capacity\ Used =\ 73.8\%$$

The values of each metric for this pick are shown below.

	Tandem Pick?	Load Dollar Value	Total Load Weight (lb)	% of Lifting Capacity Used
Generator Pick	N	$230,000	119,200	73.8%

This is a Level 2 pick because the Load Dollar Value, Total Load Weight, and % of Lifting Capacity used exceed the Level 2 thresholds, but all 4 metrics are under the Level 3 threshold.
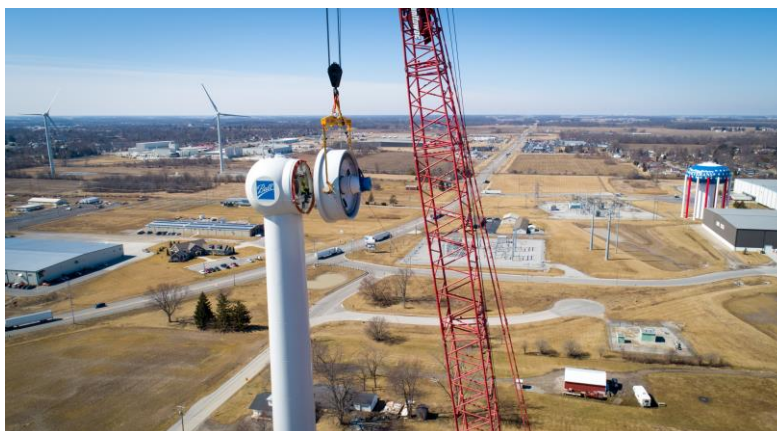
Generator being lifted by a crane during construction of a One Energy Wind for Industry project.