

**2021Q11****(RATES, TIMELINES)**

One Energy operates under a Linear Construction model. Under this model, different crews are responsible for different stages of the construction process. Once one stage is completed, the next crew can begin their work. Currently, three crews are designated: Civil/Foundation, Erection, and Electrical. The Civil crew is responsible for all earth work (flattening the site, creating roads, etc.) and concrete placement. The Erection crew offloads and preps components as well as completes turbine erection. The Electrical crew completes cable installation and the necessary electrical components for connecting the project to the plant.

For all questions, assume there are 4 weeks in a month and 5 workdays per week. Assume there are no weather delays and no holidays.

**Level 1:** Assume that all earth work has been completed and the holes for foundations have been excavated. If the Civil Team can complete 3 foundations (including rebar, concrete, and backfill) in 50 days, how many foundations would be completed in 4 months? Assume the crew works on one foundation at a time.

**Level 2:** The time needed for each crew to complete their tasks is shown in the table below. The Base Work Time is the number of days that the team will need, no matter the project size. Each turbine also has a number of workdays associated with it. For example, the Civil crew would need 50 days for a two-turbine project.

<b>CREW</b>	<b>BASE WORK TIME</b>	<b>WORK TIME PER TURBINE</b>
Civil	20 days	15 days
Erection	30 days	10 days
Electrical	10 days	10 days

The Electrical and Erection crews can each start work when Civil has completed all tasks. How long would it take the crews to complete one three-turbine project and one two-turbine project? Assume the three-turbine project is started first.

# WIND STUDY

Wind Study is intended for grades 5-8 and 8-11  
Questions posted on: Monday    Answers posted on: Friday  
Find downloadable one-pagers at [www.oneenergy.com/one-energy-feed](http://www.oneenergy.com/one-energy-feed)

*Civil work being performed at a project site.*

