altered it within Python by converting loops into vectorized statements. In testing, these reimplementations sped up the analysis time by at least an order of magnitude.

In our survey we asked participants to self-report time and iteration count for their optimizations. However, the question was not clearly worded resulting in different interpretations. Some reported the time for their best optimization run, while others included total time include exploratory runs, multistarts, or other iterative approaches (the latter was intended). Also, because we did not warn users that this information would be requested in the survey, some of the numbers were not recorded during optimization and were simply estimated. As an example, self-reported optimization time for the 64 turbine case is shown in Fig. 5 labeled by submission number. Given the limitations in reporting described above, no real conclusions can be drawn at this time, but the data is provided to give a general sense of the algorithmic times.

### B. Case Study 2: Combined Physics Model/Optimization Algorithm

For case study 2, participants ran both the optimization algorithm and wake model of their choosing. There was no restrictions on programming language for either the wake model or optimization algorithm, but results of optimal turbine layouts were to be submitted in the `.yaml` format supplied in the case study 1 examples.

Because participants used different wake models, AEP values reported cannot be fairly compared between participants. Results were therefore judged on cross-comparison calculations.

#### *1. Data*

The cross-comparison displays some interesting trends. Tables 5 to 9 show how each submission's wake models ranked the proposed optimal turbine layouts for the other 4 submissions. Each submission's ranking of its own layout is in **bold**. The penultimate column in each table is the submission number of the layout being cross-compared (cc-sub#). So submission 4's analysis of submission 2's layout would be found in *sub4*'s table, with 2 in the cc-sub# column. The last column is the percentage difference (Difference) from the reporting submission's submitted layout. A positive value here indicates a better AEP, a negative value indicates a worse one.

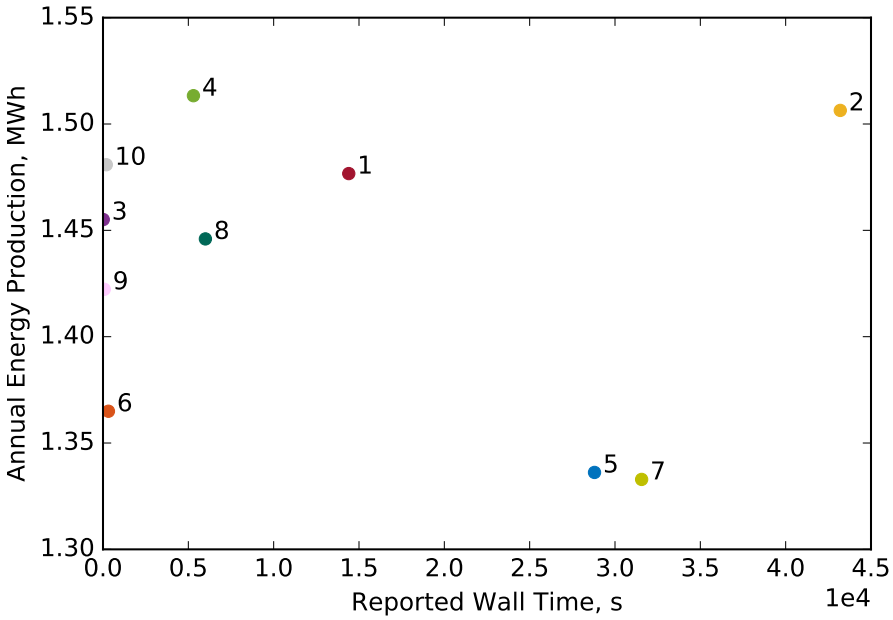


**Figure 5 AEP vs wall time, 64 turbine scenario. Submission numbers placed next to reported values.**