The goal of this project is to identify the best potential locations for community wind energy projects. I used population density and wind speed data to determine what places in Massachusetts would be good spots to consider putting wind turbines. Ideal locations would be in areas where electricity demand is high (a high concentration of people) and where wind speeds are high enough for a wind turbine to be an economically smart choice.

The results show that the Boston area has plenty of good candidate spots, and some of the windier areas on Cape Cod could be well suited to turbines as well, by these metrics. Areas on Martha’s Vineyard and Nantucket also show some promise, as well as a few inland pockets with high population densities.

One flaw of the model is that it was unable to take advantage of the more favorable offshore wind speeds, since matching onshore with offshore areas was too challenging. In real life, there are many more factors to consider when planning a community wind turbine project. Other factors that could be included in the model would include location of wetlands and other important habitats, electric grid infrastructure, zoning laws, and current land uses. Taking these into account would show many fewer desirable locations for wind turbines. Additionally, you would want to place the turbine nearby, but not in, a densely populated neighborhood, potentially outside of the densest area in a place that is less populated and not very developed, or in an open space near a school or other community building.