Energy Design Study

1. Learning: Provide a brief background for your target problem. Make sure to describe the problem and why it matters. I encourage you to narrow down the problem scope more tightly than what's presented in the scenario, focusing on a specific line of policy and/or historical patterns (e.g., patterns in economic factors or data about coal usage).

2. Winnowing: Figure out what data you will use to explore the problem. You are welcome, but not required, to bring in data outside of the provided dataset. Make sure to talk about the background of the data (e.g., where does it come from, what bias might it have, etc) and why it's useful for your question. Note that you should explain the specific columns/dimensions of the dataset you plan to use and why these are necessary and sufficient to support your approach.

3. Discover: Characterize your problem by identifying at least two tasks that you will want to conduct with your data. Enumerate the tasks using the 5Ws framework that we talked about in-class (see Lecture 16). Make sure to outline the process by which you were able to generate these specific tasks.

4. Design: Create a low-fidelity prototype of a visualization designed to address these tasks. Add brief design justifications and discussions of the trade-offs of key design choices in the prototype. Make sure to include an image of the prototype in your write-up (note: since this is a low-fi prototype, sketches lacking real data are perfectly sufficient).

5. Implement: Implement your design as a more polished digital or physical data representation. You can use any tool of your choosing, but if you elect to use a WYSIWYG tool like Tableau or Excel, please incorporate design choices beyond the defaults provided by the tool. Note how you've implemented your solution, justify the resulting design based on your tasks, research on the problem space, and any formative investigations (see the discussion of the presentation below), and include at least one image of the visualization using real data in the write-up. Note that you can choose to pare down the dataset for simplicity if you'd like.

6. Deploy: Use your visualization with your target data to conduct the tasks you outlined in Step 3. Note your observations about the data gained through these tasks.

7. Iterate: Note at least one new task you'd conduct now that you've had a chance to investigate your dataset. Describe how you would change your solution to accommodate that task. You do not have to implement that change, but may do so for extra credit (see Bells & Whistles at the end of this document).

8. Reflect, Pt 1: Describe what your solution tells you about your target problem. Note that you will do this with your domain expert hat on. What recommendations would you be able to provide on future policy directions and what historical patterns support those recommendations? Note that you may want to do a little digging into relevant data correlated with the patterns you observed (e.g., economic or socio-political events).

9. Reflect, Pt2: Describe what your solution tells you about designing visualizations for your target problem. Note that you will do this with your designer hat on.