

Data visualizations and metrics

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1 Introduction

In the near future, we'll chat about the tools, metrics, and visual metaphors that will allow us to explore the data underlying Jeremy's Energy Communities initiative. Jeremy's job is to get you fired up about how we can help people—my job, thankfully, is just to get you thinking about the visual tools that you'd love to explore.

I have written this article in a \LaTeX pdf for a few silly reasons:

- I have been working with Google's interactive dashboard system, but it's not ready for primetime yet. In contrast, I can always present something to you in R/GGPlot.
- I don't think I have the ability to make a new Microsoft Office document anymore using our Teams setup.

2 Data, and useful visual metaphors

The two datasets that we'll focus on right now are foundational for this project: Clean Repowering, and the Clean Investment Monitor.

The dashboard that we'll create will almost certainly be both interactive, and will feature a map. (It's worth noting that the reason why Google Looker Studio wasn't doing what I wanted is because I wanted some dots to represent electricity generated, and some to represent CAPEX investments. Then, I found that GGPlot also doesn't allow multiple metrics to share the same visual metaphor (eg size) while representing entirely different metrics. So, we'll have to find a flexible tool that allows that kind of thing.) In this map, I simply z-scored each value—so, investments are represented in terms of investment standard deviations, and MW is represented in terms of MW standard deviations.

3 Useful Metrics

As we glance at these distributions, our brains will naturally begin to find interesting patterns, and will start to create heuristics. This is what I want

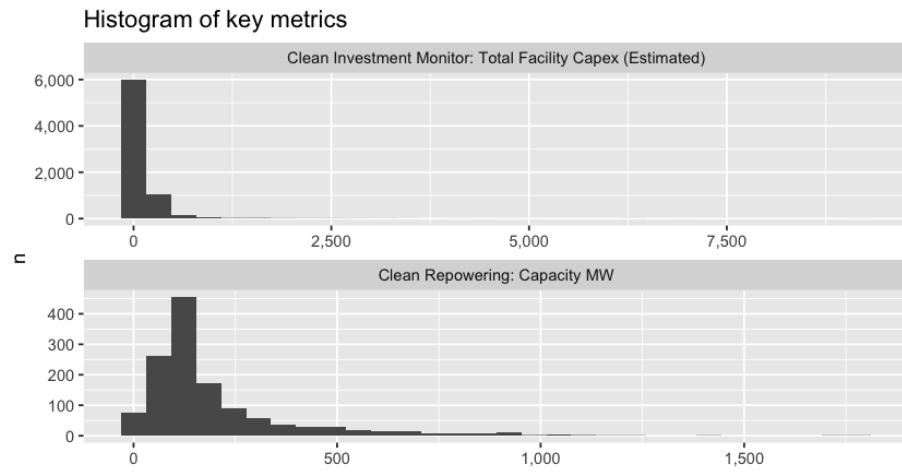


Figure 1: The overall distribution of key metrics in our two datasets

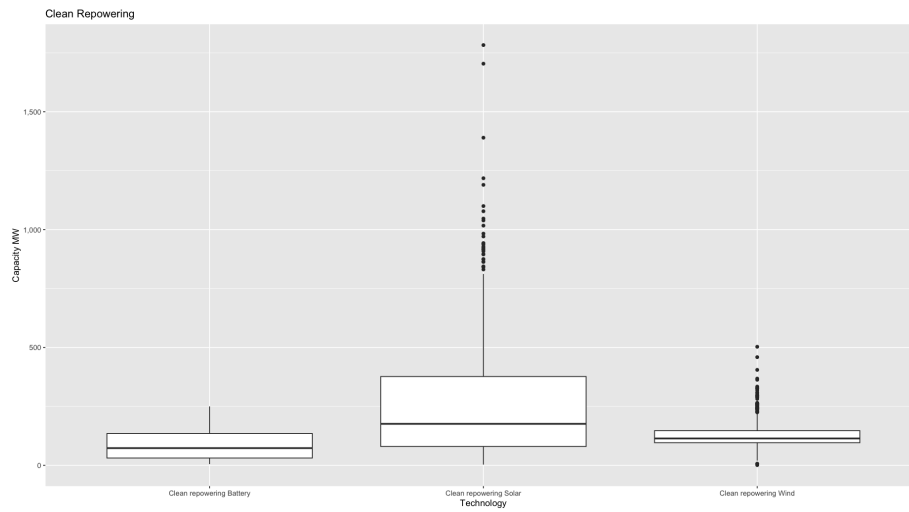


Figure 2: Clean repowering: Distribution of power

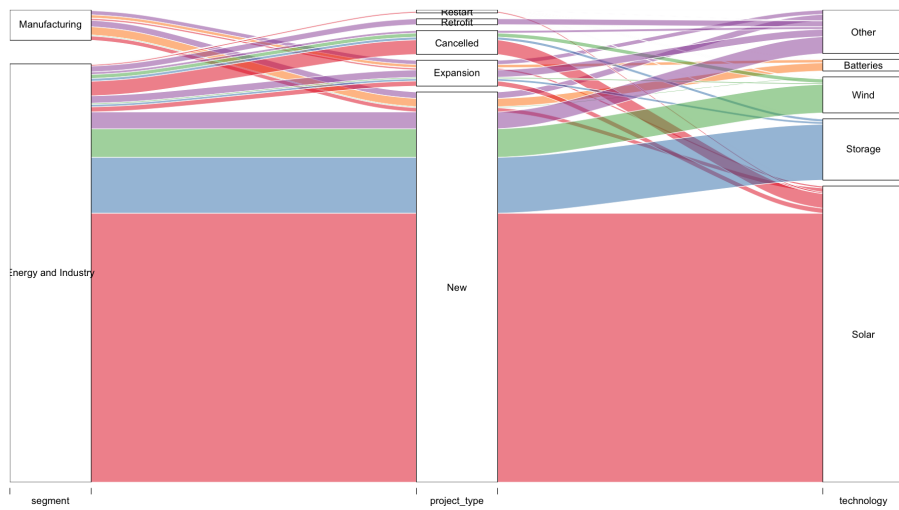


Figure 3: Clean Investment Monitor: Breakdown of project types

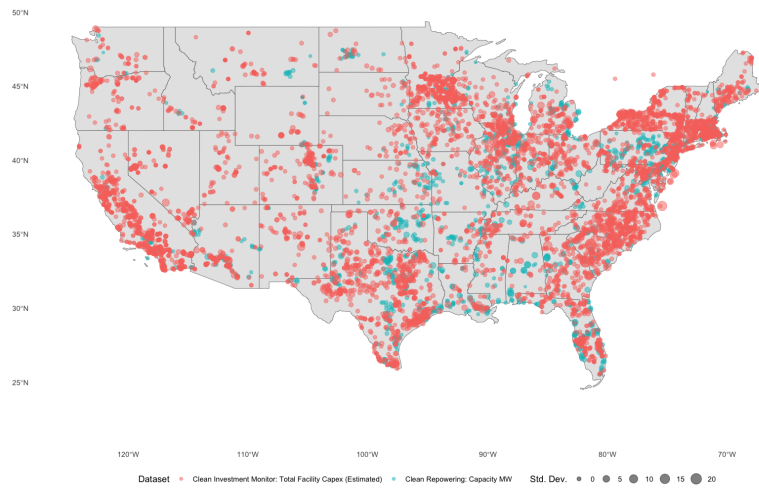


Figure 4: All of the above points, visualized

to explore! By exploring the questions we four want answered, and the tools that jibe with our minds, we can start to create some pretty cool new tools and metrics. I believe that it's useful to think in terms of three key metrics, and the relationships between them:

- MW
- CAPEX investments
- Geographic distance

The ratio of MW to CAPEX springs to mind, as does the ability to filter clean repowering to a few key kinds of projects, and then sort to the remaining clean investment projects. But any two opportunities don't really influence each other if they're insufficiently far.

This is why I'm beginning to think not in terms of filtered datasets, but spacially, in terms of a literal triangle tool. Abstractly, I am thinking of a triangle with three points: MW, CAPEX investments, and Geographic distance (meters, etc). I'll keep thinking of how this literal shape can become a functional, useful tool.