

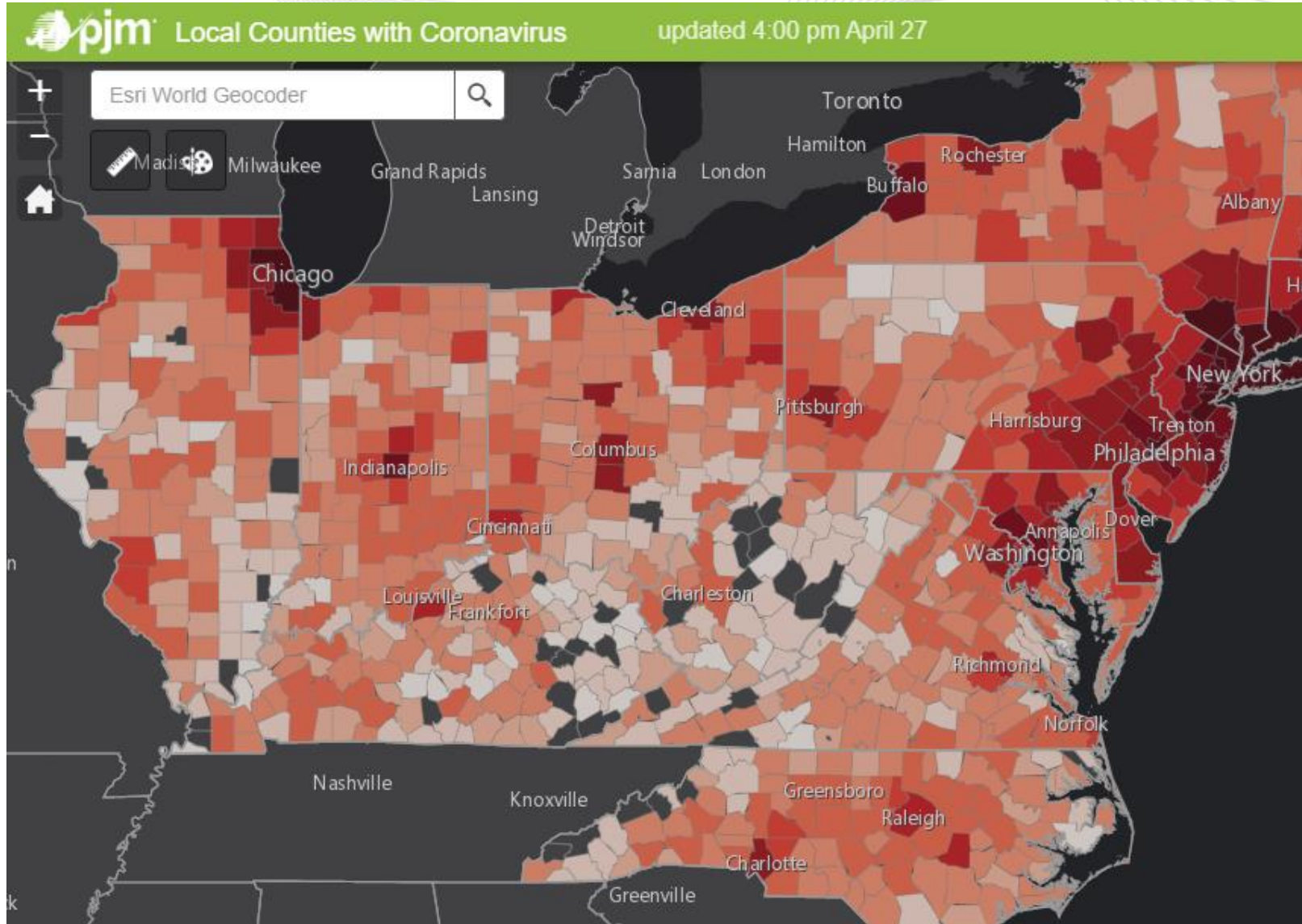


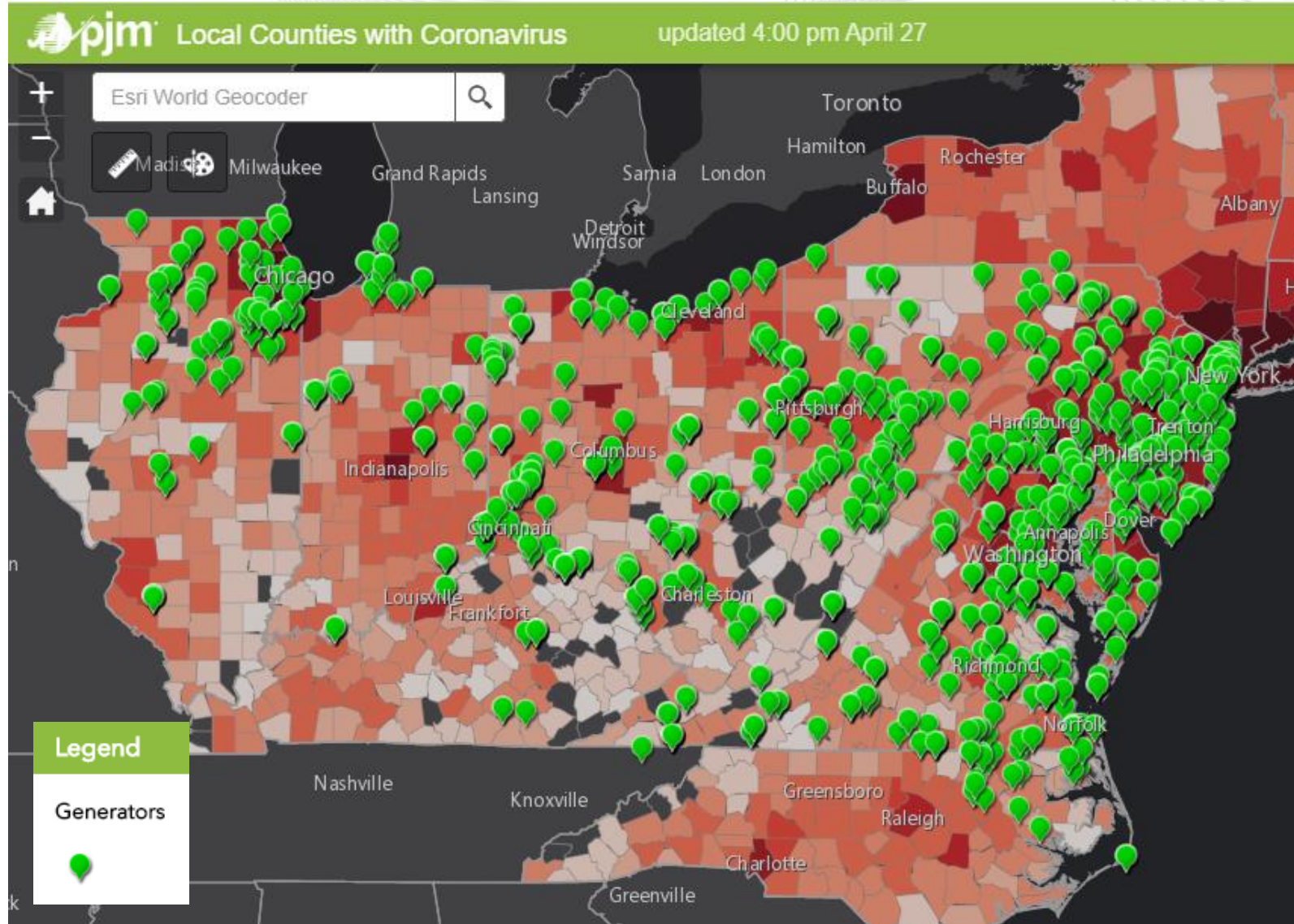
COVID19 Generator Availability Analysis

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- Develop 'worst case' generation loss scenarios based on potential COVID-19 impacts.
- Analyze the impacts under varying load conditions including spring and summer peak period.
- Identify any areas of major risk.





Identify areas w/ high concentration of infections & proximity to generation

- New Jersey
- I-95 Corridor
- Illinois



Identify list of generators most likely to be impacted by infections

- Common plant operators or maintenance crews
- Workforce needed to operate various plant types (Combined Cycle, Coal, Nuclear, etc)



Define Study Timeframe(s)

- Due to unknown duration of pandemic, studies performed at Spring and Summer peak loads.
- Results can be used to define outage thresholds where PJM should consider proactive actions such as limiting future outages

- Three scenarios considered
 - #1 – NJ non-renewable generation
 - #2 – I-95 corridor non-renewable generation
 - #3 – Illinois non-renewable generation
- Two load levels: Spring (118,00MW) and Summer (148,000MW)
- Apply various combinations of identified generator outages ranging from 3,000 MW to 17,000 MW in 1,000 MW increments
 - Probability of a generator being selected was the same for all generators
 - Total of 5,200 cases were analyzed.

- In general, we found that we could support outages up to 40% of the area's installed capacity during summer time frame and up to 60% of ICAP in the spring time frame before major issues.
 - These numbers are about twice as many outages as typically occur during these time frames
- In the spring, thermal issues were more prevalent
- In the summer, voltage collapse issues were more prevalent
- Currently PJM is not seeing a trend towards these worst case scenarios