Maximizing Cost Savings & Emission Reductions: Power Market Options for the Southeast United States

Prepared By:

Vibrant Clean Energy, LLC

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Prepared For:

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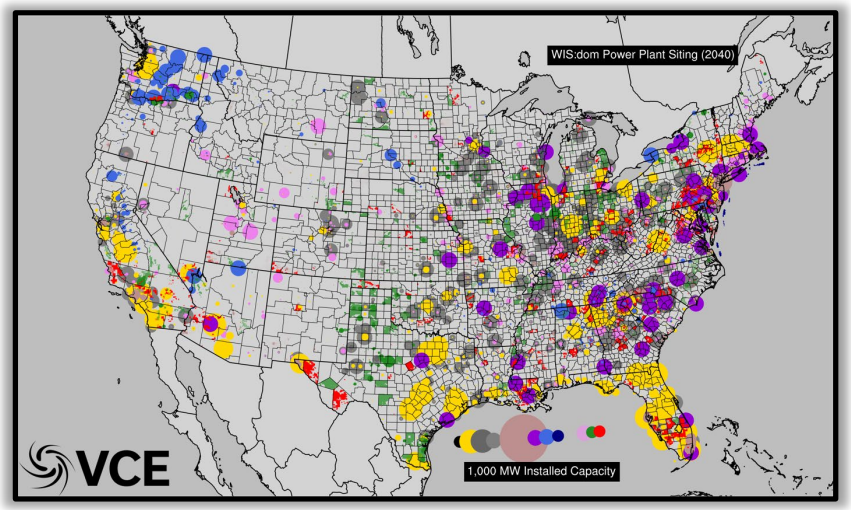
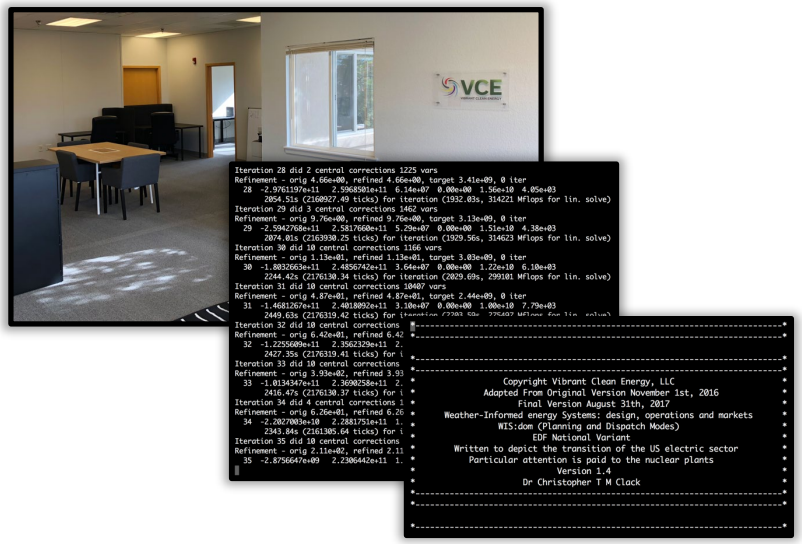
Who Are We: Vibrant Clean Energy





Purpose of Vibrant Clean Energy, LLC:

- Reduce the cost of electricity and help evolve economies to near zero emissions;
- Co-optimize transmission, generation, storage, and distributed resources;
- Increase the understanding of how Variable Generation impacts and alters the electricity grid and model it more accurately;
- Agnostically determine the least-cost portfolio of generation that will remove emissions from the economy;
- Determine the optimal mix of VG and other resources for efficient energy sectors;
- Help direct the transition of heating and transportation to electrification;
- License WIS:dom optimization model and/or perform studies using the model;
- Ensure profits for energy companies with a modernized grid;
- Assist clients unlock and understand the potential of high VRE scenarios, as well as zero emission pathways.

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Overall Summary

1. The Southeastern United States could reduce the cost of electricity over the SEEM geographic footprint if it were to transition to an EIM or full RTO rather than the current SEEM proposal;

2. The full RTO realizes the most savings ($119 billion through 2040) and enables much deeper decarbonization of the electricity sector;

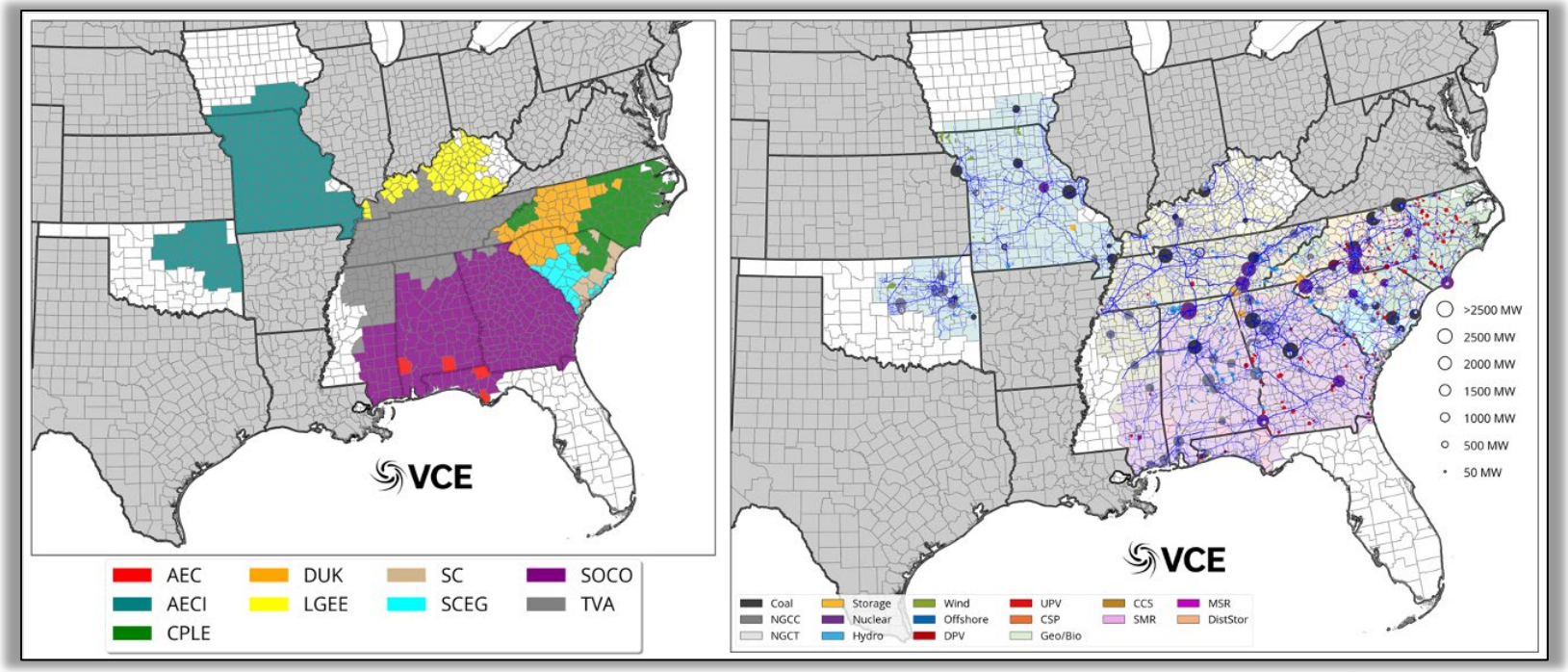
3. The SEEM scenario does not achieve the GHG emission goals set by the member utilities – but, the EIM and RTO scenarios do achieve the necessary cuts to put them on a path to 100% decarbonization by 2050;

4. The RTO scenario creates a million new net jobs by 2040.

5. Almost completely decarbonizing the electricity sector in the Southeastern United States if an RTO is formed could result in $100 billion in cumulative savings and avoiding almost one billion metric tons of GHGs through 2040 compared with the SEEM proposal.

Scenarios

1. The Southeast Energy Exchange Market (SEEM);
2. Optimal Energy Imbalance Market over SEEM footprint (EIM);
3. Form Regional Transmission Organization over SEEM footprint (RTO);
4. Form RTO & decarbonize electricity over SEEM footprint (RTO+decarb).



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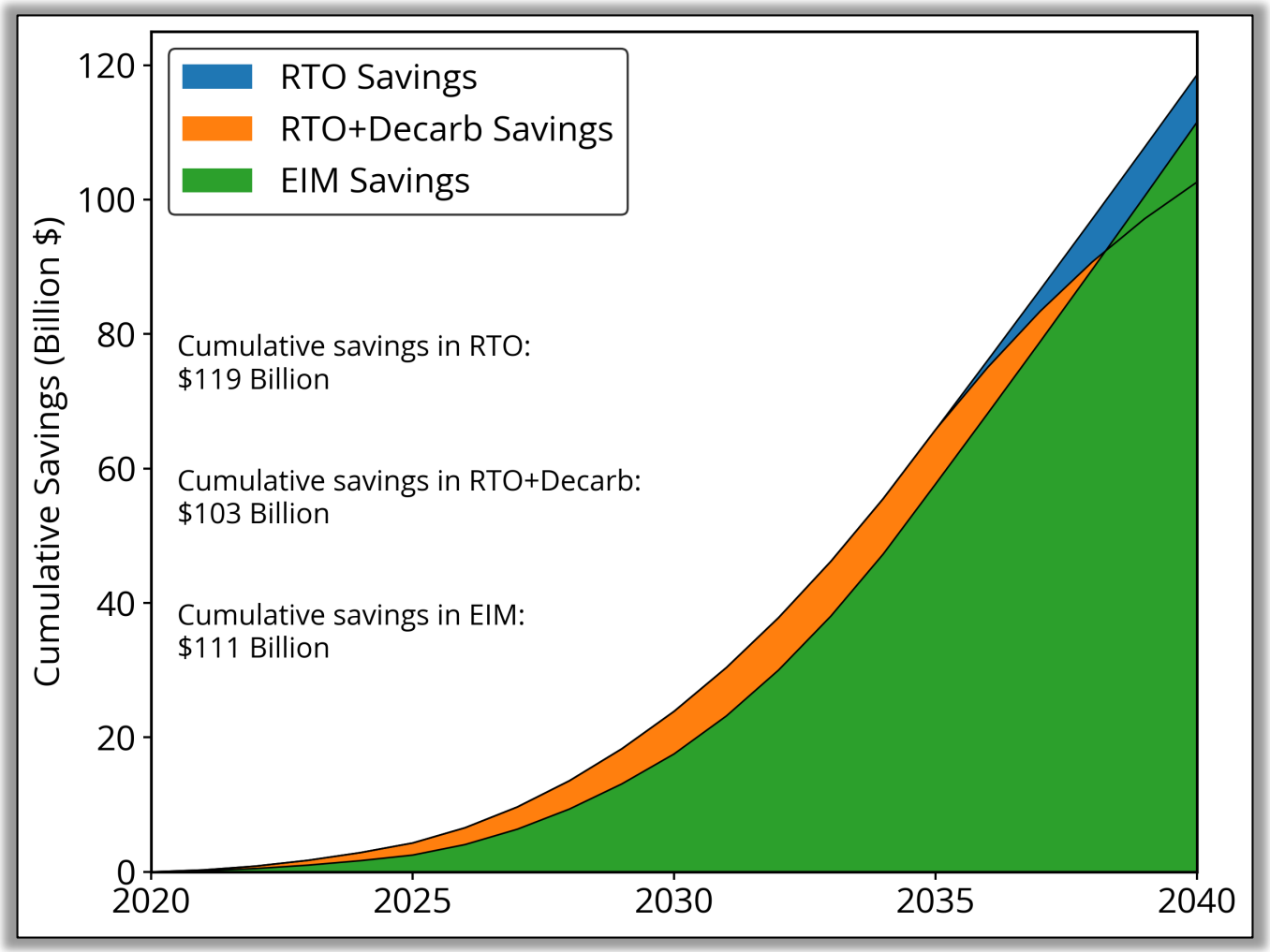
Cumulative Electricity Savings



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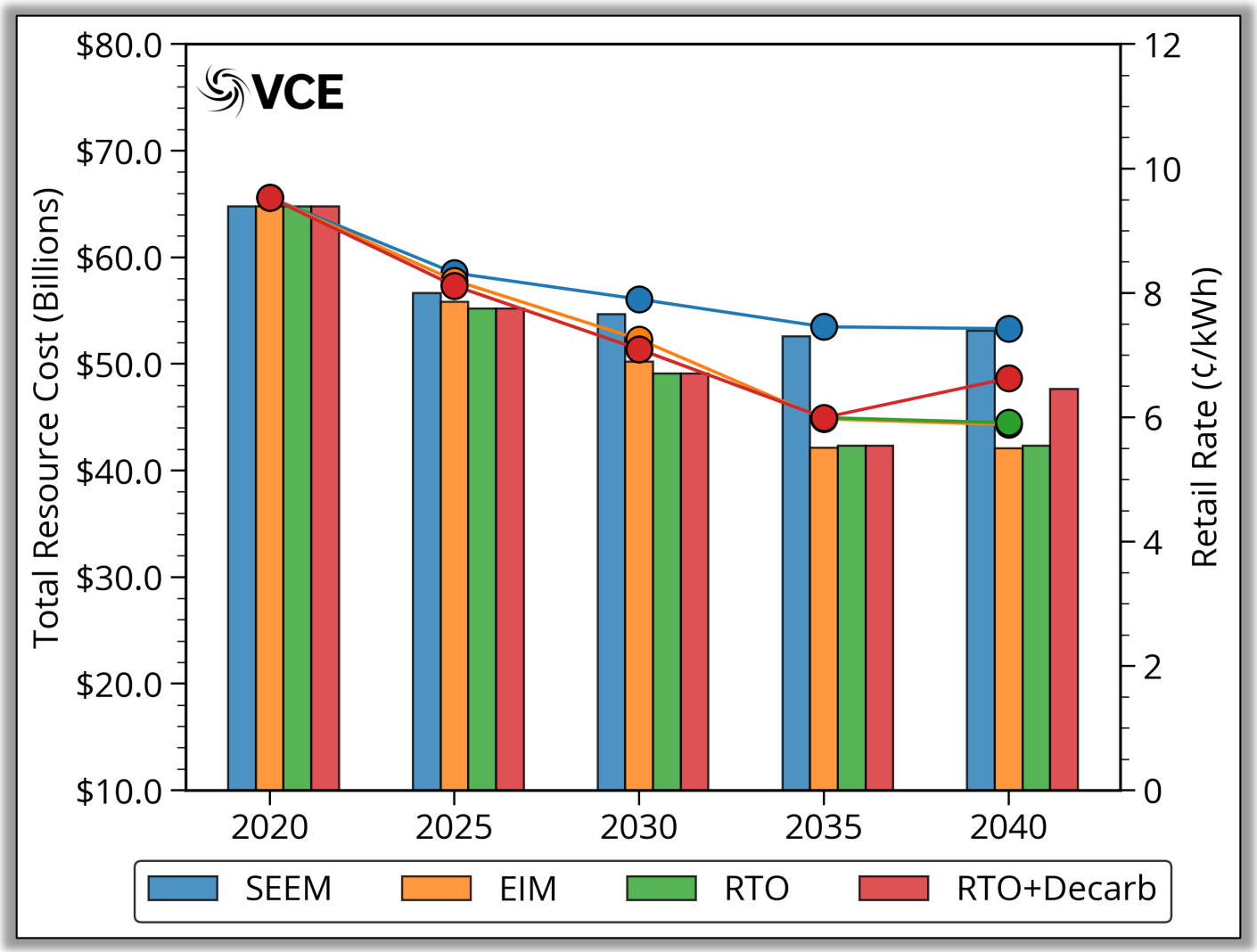
Retail Electricity Costs



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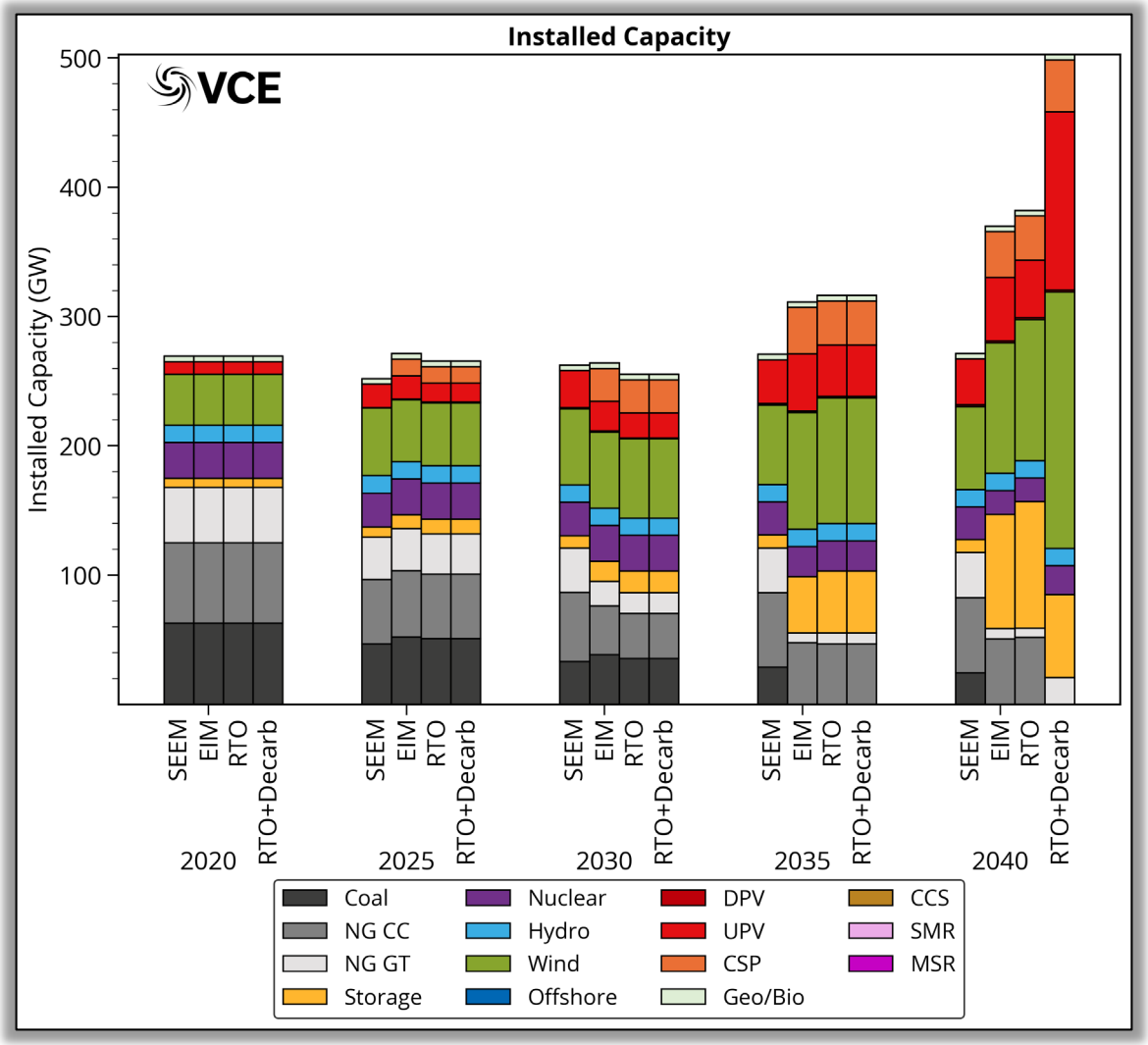
Generation Capacity



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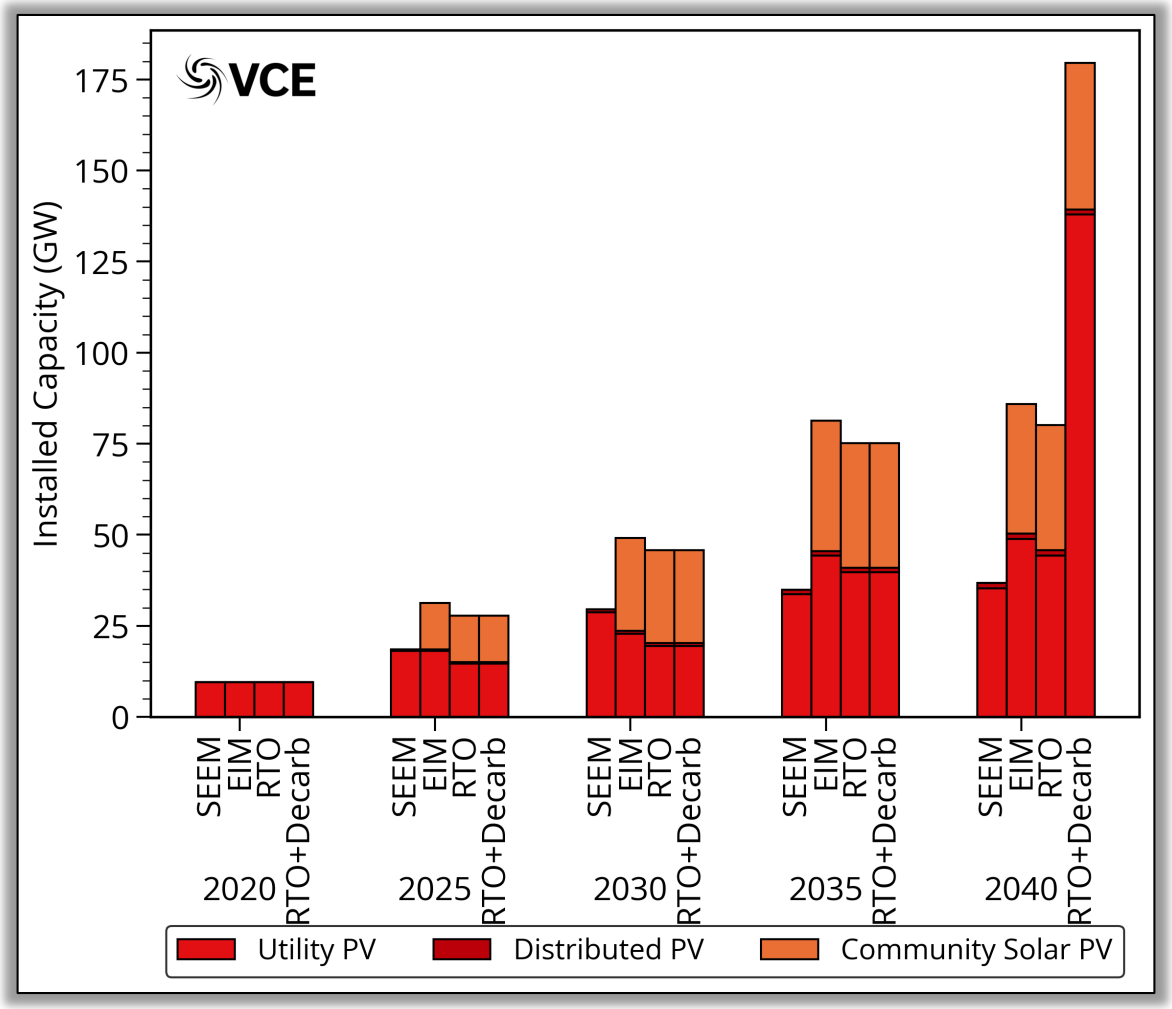
Solar PV Capacity



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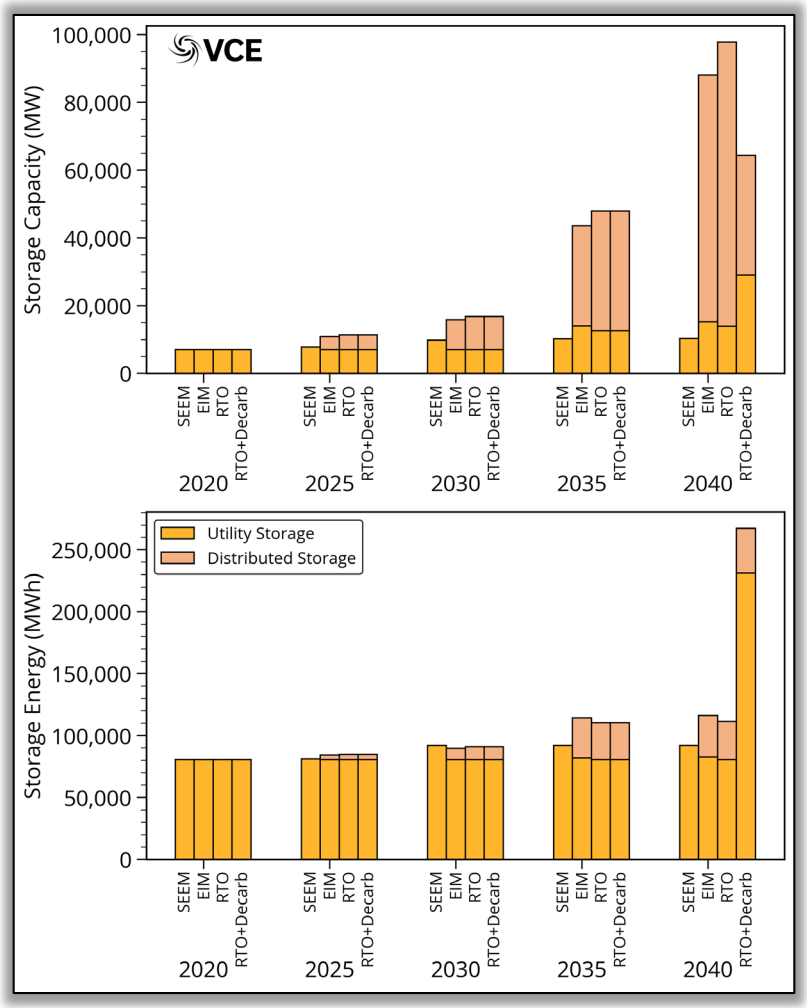
Storage Capacity



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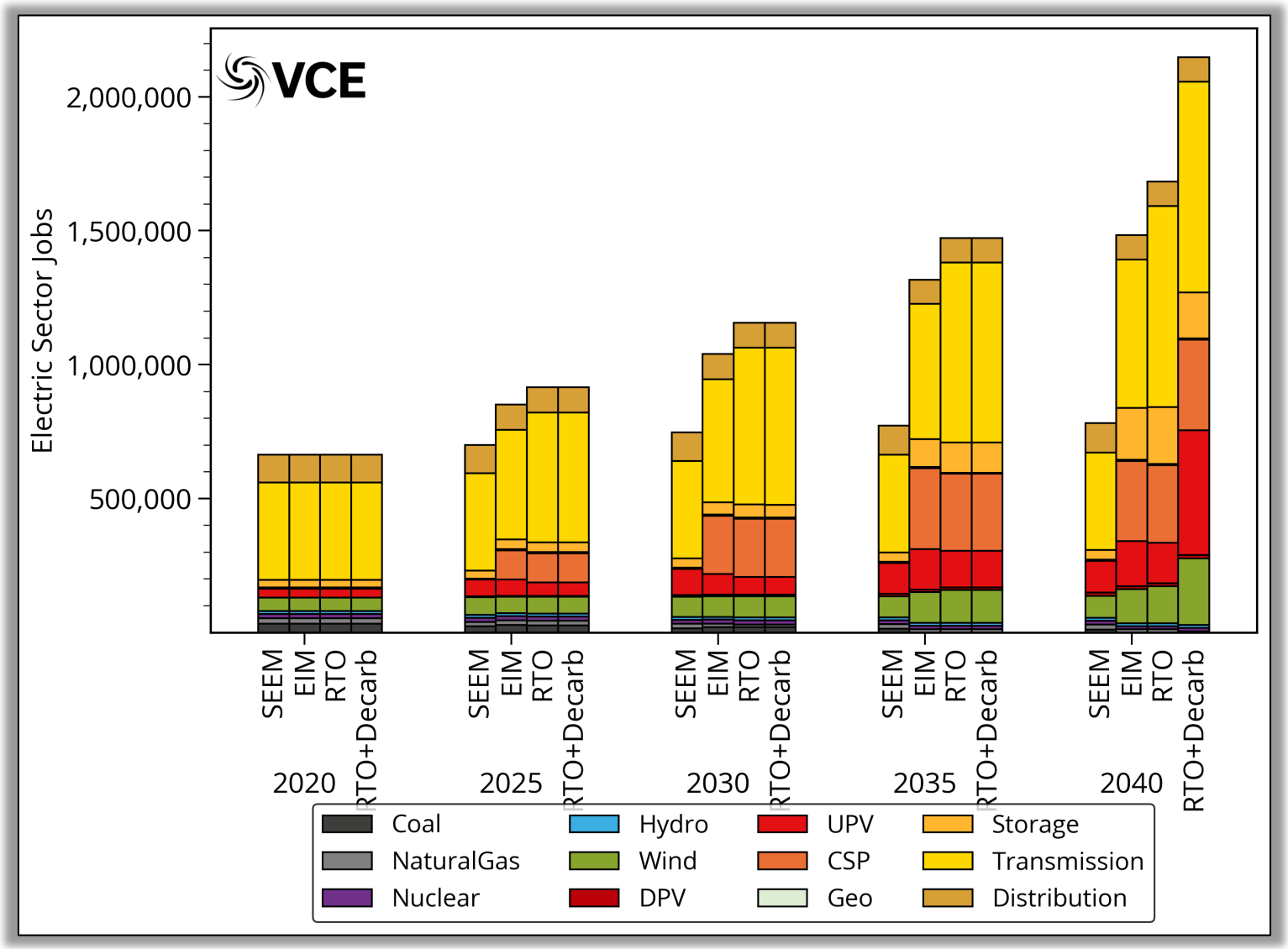
Electricity Sector Jobs



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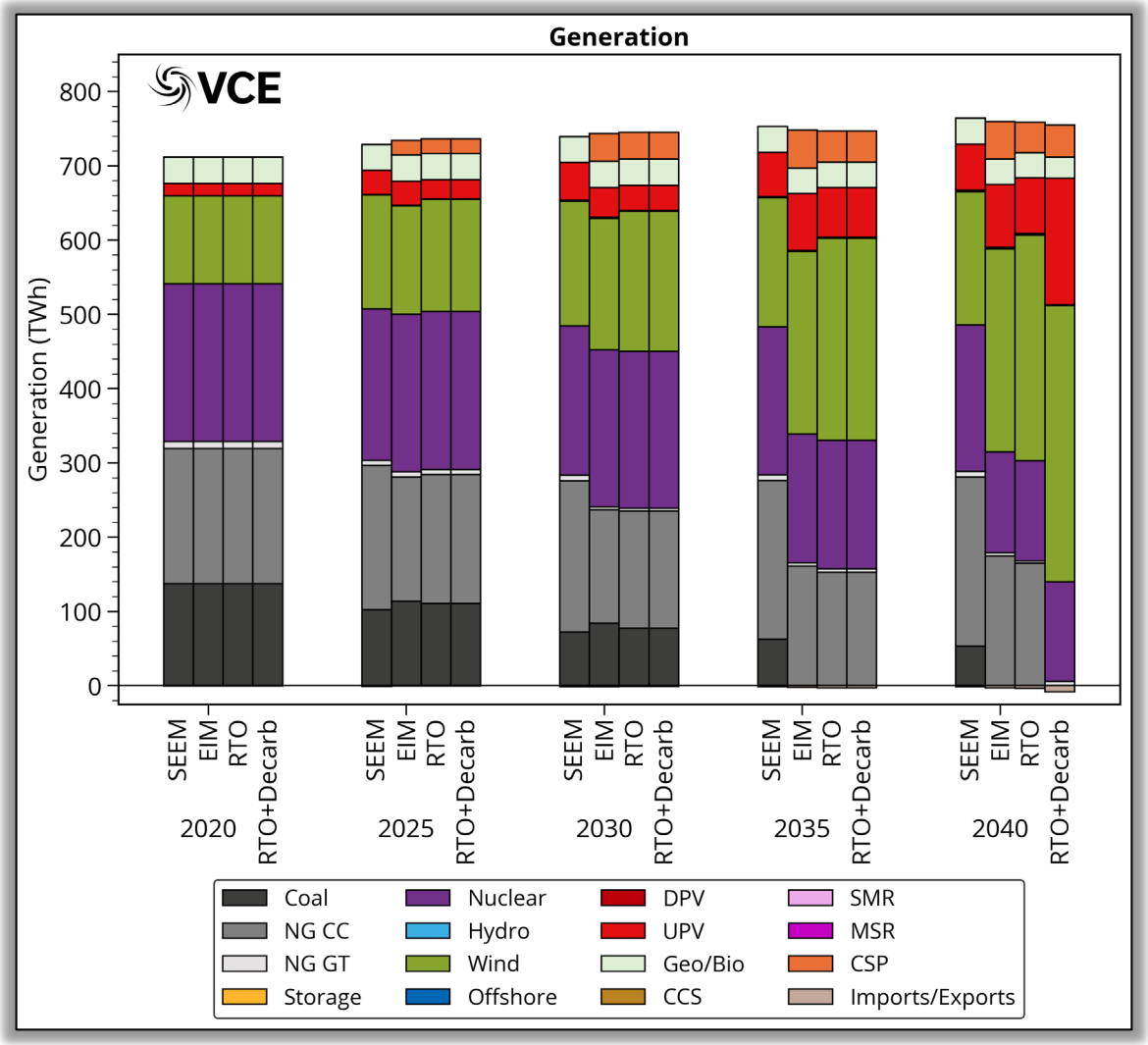
Generation by Technology



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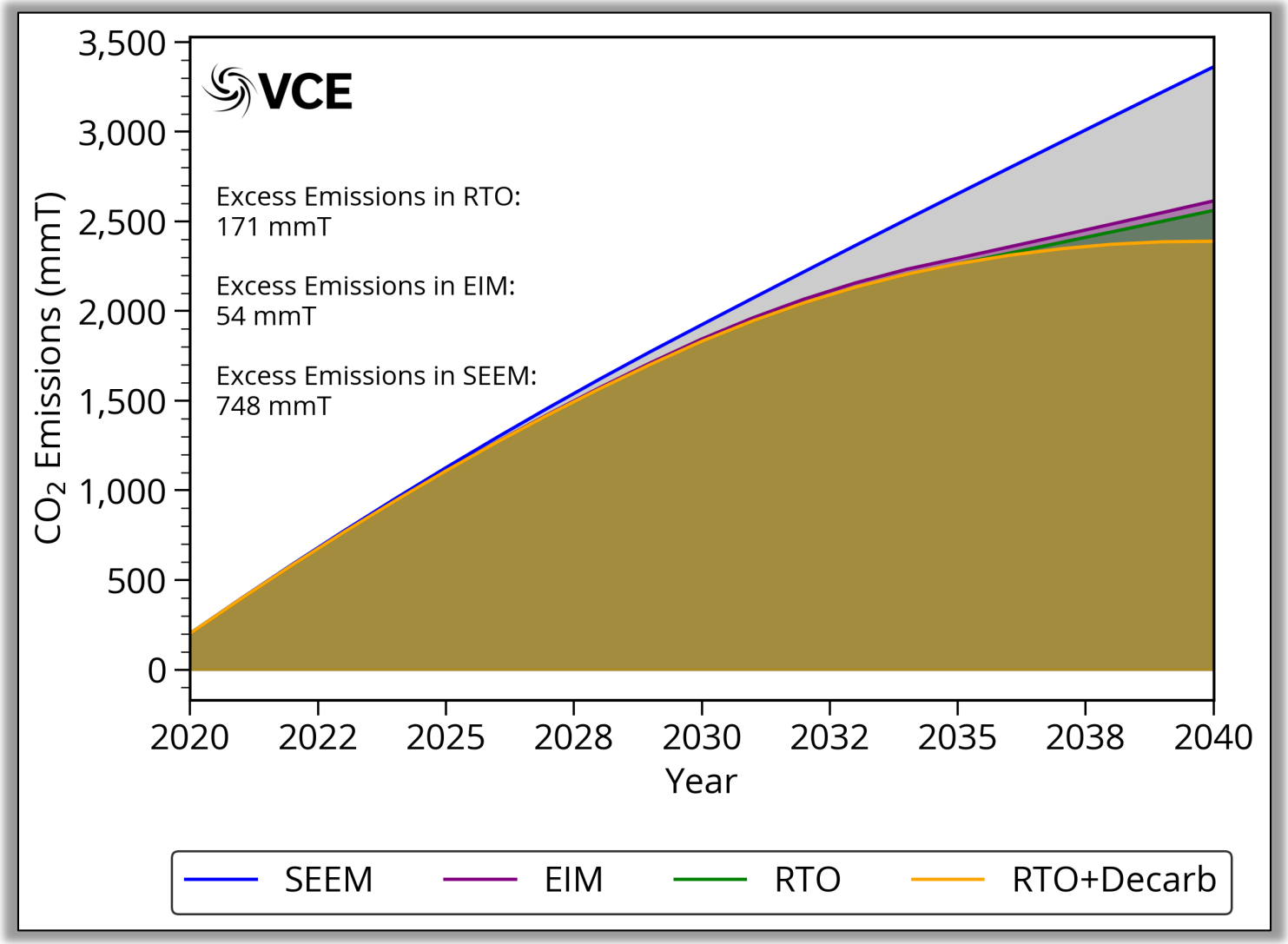
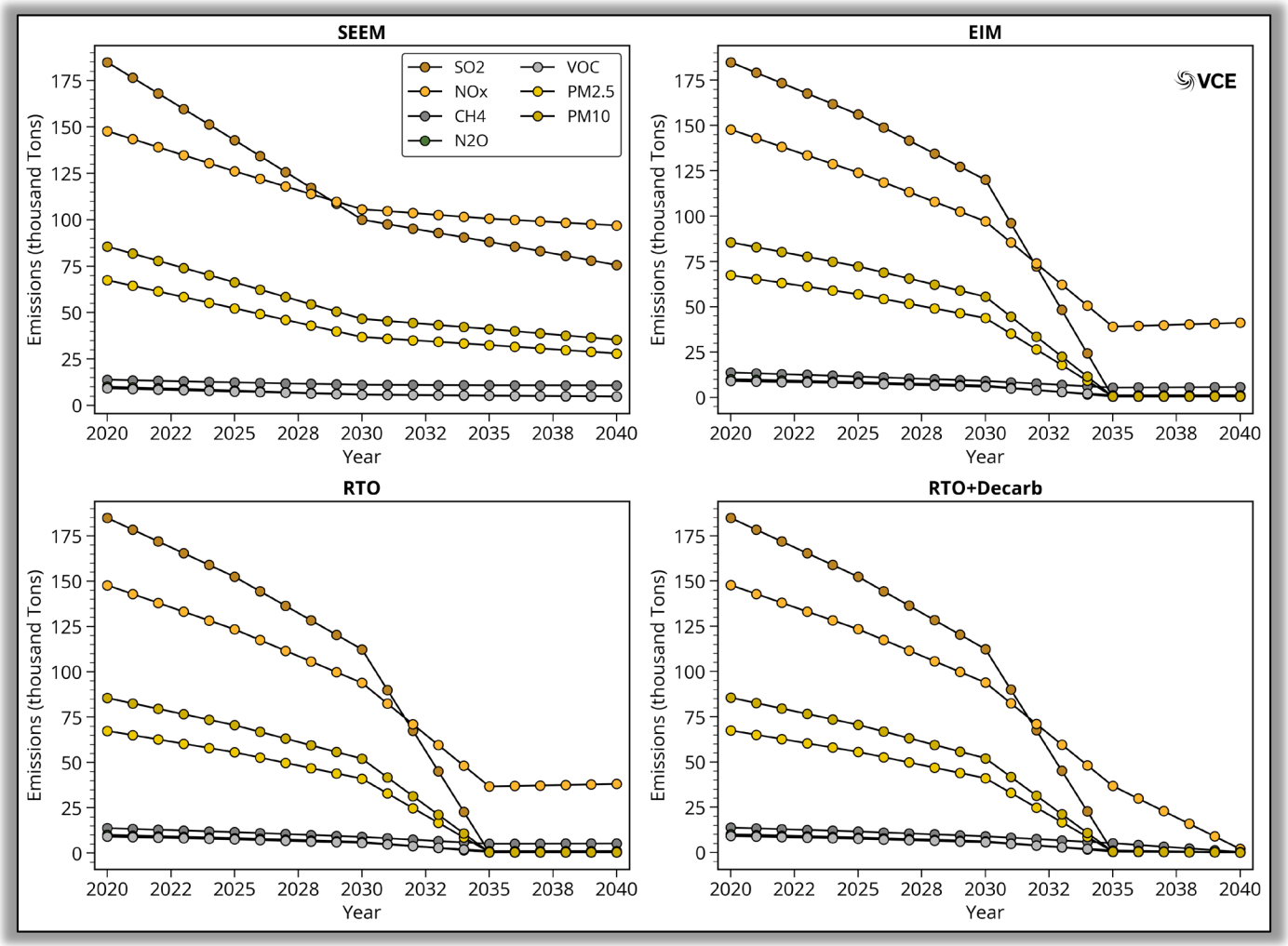
CO_2 Emissions



Other Pollutants



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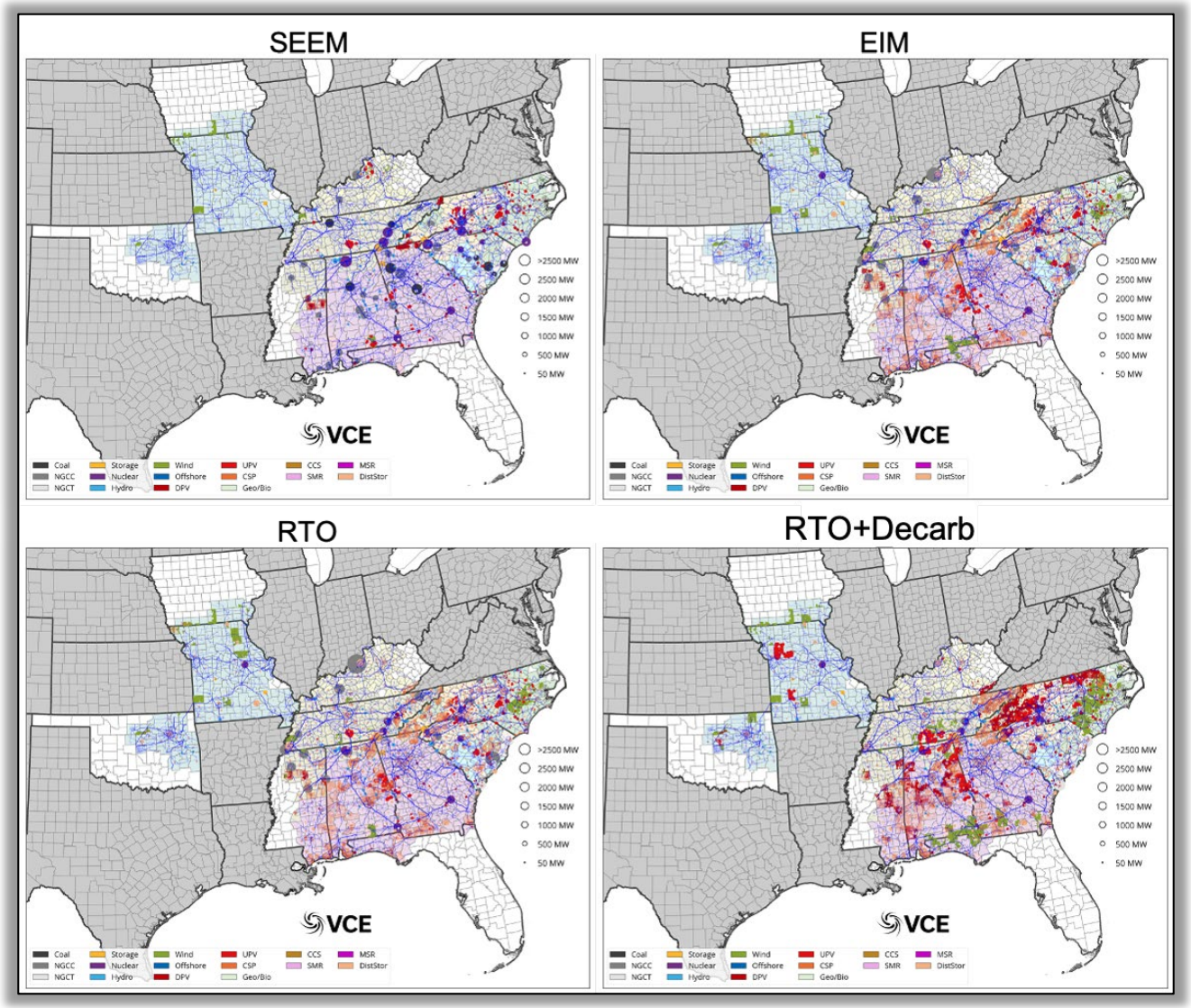
Detailed Siting (2040)



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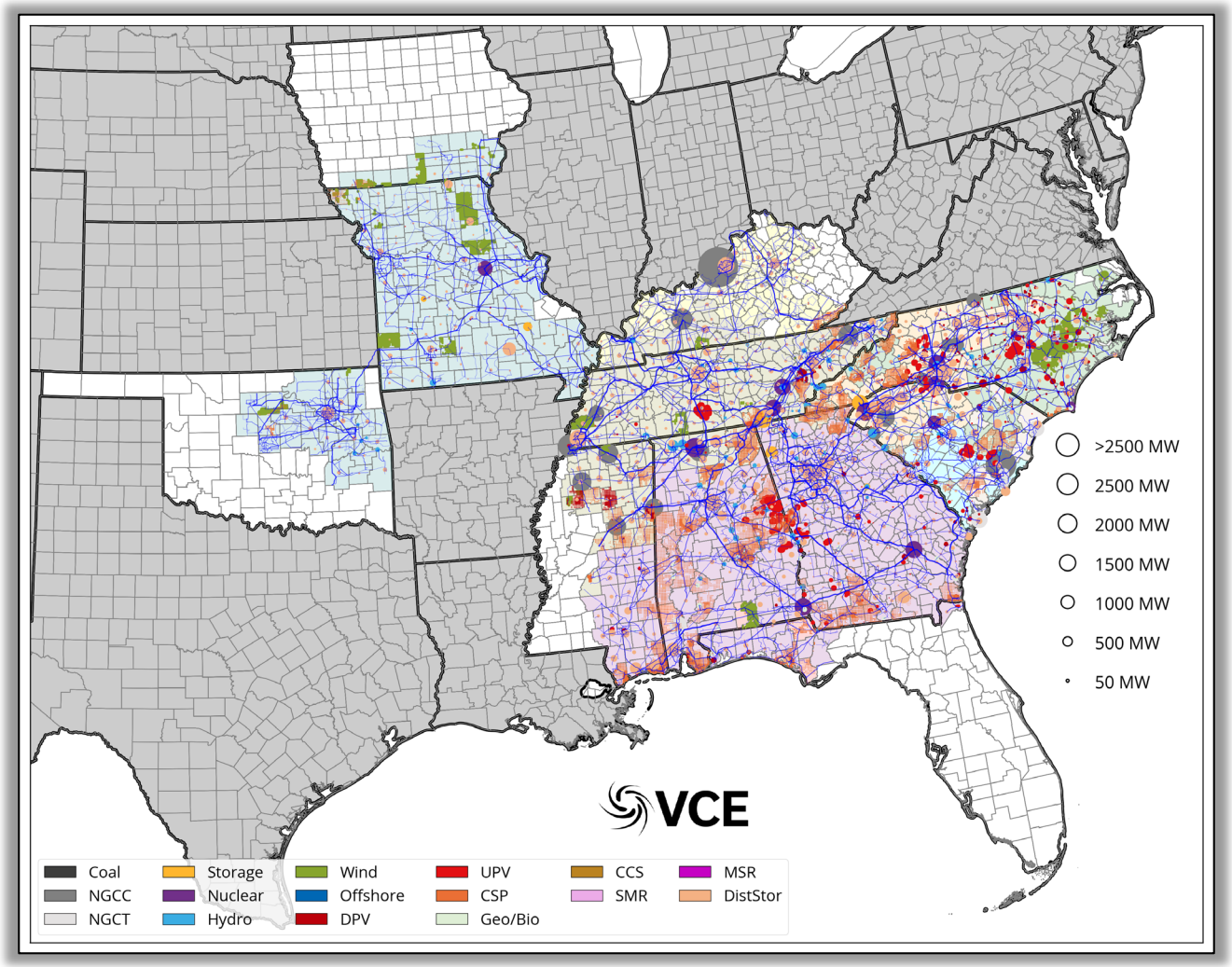
Detailed RTO Siting (2040)



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Thank you

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