

Thesis Portfolio

Capacity Planning and Investment for Electrification of Maritime Container Ports

Impact of Electrification on the Economy and Environment

Presented to the Faculty of the School of Engineering and Applied Science
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Bachelor of Science, School of Engineering

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Sociotechnical Synthesis

This pressing sociotechnical topic investigates the general economic feasibility of electrification, its impact on emissions, and the implied social impacts of climate change as a whole, while the technical topic takes electrification as a given, finding an optimal way to implement it in a real-life scenario, on large-scale industrial sites. Both the STS and technical research presented provide different insights into electrification of machinery and vehicles. The interconnectedness of the topics allows research to apply to both my technical and STS research, despite completely different applications of the knowledge. New insights found from diving into both research areas strengthen the validity of each argument, specifically when the sociotechnical research supports the technical goals for the Port of Virginia.