

SharedGround

<u>Team Member Name</u>	<u>Year</u>	<u>Major</u>
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Topic Title: AI Growth and Community Impacts

Audience: PJM Interconnection

Sustainable Development Goal

SDG # 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Executive Summary

With the rapid expansion of AI data centers comes a sharp rise in electricity demand. U.S. data centers consume about 176 terawatt-hours annually—roughly 4.4% of total national power use. A single large-scale facility can require up to 100 megawatts, enough to power around 80,000 homes. Because this energy is drawn from the public grid, it places increasing strain on infrastructure and contributes to rising electricity costs for surrounding communities. Residents are therefore left paying more for power they do not control and from which they receive limited benefit.

This problem is especially evident in Virginia’s “Data Center Alley,” the world’s largest concentration of data centers, hosting companies like Amazon, Microsoft, Google, and Meta. The region handles a significant portion of global internet traffic, and its energy demand already accounts for about 25% of Virginia’s electricity supply. As demand continues to grow, the regional grid—managed by PJM Interconnection—faces pressure.

PJM’s ethical dilemma lies in ensuring reliable, affordable electricity for the public while supporting economic growth driven by large technology companies. Continuing to meet unchecked demand risks that overload the grid and increase costs for residents, could hinder innovation. Currently, the burden falls disproportionately on local communities by way of higher energy bills, which raises concerns about fairness.

To address this, PJM should require large data center operators to take responsibility for their energy impact. This includes mandating limits on excessive energy consumption and requiring direct investment in sustainable energy sources. Regulating energy consumption by the data centers enables PJM to control strain on the grid, stabilize prices for the local community, while also ensuring AI growth is beneficial to all.