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Great Lakes Energy:
Ethical Choices for Powering the AI Race[1]

Case Study: Introduction

Sarah Miles, the Director of Strategic Planning at Great Lakes Energy[ii] (GLE) walked out of the CFO's office with a distressing assignment. Her boss, Betsy Johnson, the Great Lakes CFO, had just asked Sarah to prepare a deck of slides to propose a new strategy at the upcoming Board meeting. Sarah's role as head of planning was to communicate and endorse the strategy to the Board. Although GLE was a nationally recognized leader in sustainability, its stock price had lagged those of its peers in recent years. Johnson was a high-powered energy banker who was hired recently by the Board to improve the company's valuation. The new CFO envisioned a growth strategy focused on attracting data centers. Sarah was impressed by the financial upside of the new direction, but as a committed environmentalist, she was concerned about delaying climate commitments. Sarah's goal had always been to do the right thing for the company and the environment. But now that the two seemed to conflict, she wondered if she was missing something. Investors, regulators, and other stakeholders were increasingly considering climate commitments, public response, and shifting policy expectations when judging a company's long-term performance. Perhaps the real question was not simply whether the strategy was the right thing to do from an ethical or financial perspective, but whether it fully accounted for the range of broader risks that accompanied rapid artificial intelligence (AI)-driven growth. Sarah had a sinking feeling as she pondered her choices in this delicate situation. She had a two-week deadline to provide her draft presentation to Johnson . . . . . and the clock was ticking.

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Director of Strategic Planning

Sarah Miles grew up in a small town in rural Michigan and loved everything about being outdoors. She joined GLE after graduating summa cum laude from a top university with a BS in electrical engineering. She was attracted by GLE's commitment to the environment. Sarah was one of the first women ever hired into an engineering position at an electric utility. Based on her outstanding performance in engineering, she was given a professional role in Regulatory Affairs and then named to run the customer call center. Three years ago, the CEO, Ben Wright, who had become her mentor, suggested Sarah pursue her Executive MBA degree. Upon graduation a year ago, she was named Director of Strategic Planning reporting directly to the CFO, Fred Kramer. With twenty years of service at GLE, Sarah was a prominent senior executive in the utility industry.

Chief Financial Officer

Betsy Johnson was hired six months ago to replace GLE's long-term CFO when he retired. She was enticed by the Board to join GLE with a significant grant of Restricted Stock Units (RSU)iii and the potential to succeed its CEO. Johnson graduated Phi Beta Kappa with a BA in finance at a distinguished university. She worked in the Utilities Group at a premier investment bank in Chicago for five years and then returned to school to earn her MBA. After graduation she took a job at a private equity firm that focused on power generation projects. After five years, she was a highly respected professional who was the architect of financing a recent AI data center. At the age of thirty-four she was one of the youngest female CFOs in America. She had a reputation for getting things done.

Case Study

After a sleepless night, Sarah called her team together to explain their assignment to create a 15-page presentation for the Board meeting. She briefly outlined Johnson's proposed strategy. The company would delay for four years its previously announced commitment to close all its coal-fired power plants. This would provide sufficient existing capacity to power two proposed AI data centers until new electric generation facilities could be constructed. The shift would seal a major deal for a 1-Gigawatt[iv] AI data center with a developer who had worked with Johnson on a previous financing project. A second 1 Gigawatt facility was already in the pipeline. These two new projects were projected to boost annual earnings per share growth to achieve the stated 5-7% goal. The shift from a climate-focused strategy to one driven by growth would be welcomed by equity analysts. It was likely to boost the company's share price significantly. Johnson told Sarah that delaying the environmental commitment was a reasonable compromise to achieve the returns shareholders expected. Betsy noted that the delay also would provide a greater reserve margin[v] to meet GLE's reliability commitment until sufficient clean energy capacity could be added.

The room was silent as Sarah delegated the financial, operational and industry analysis to her team. Then Mary Thomas, a long-time member of the team, asked how the regulators who had applauded GLE's commitment to phase out coal-fired generation would respond. Sarah responded, "I know you think this is backtracking on our climate commitment, but let me focus on the regulatory and ethical issues. We'reprofessionals and need to set aside our personal opinions toanalyze the risks and opportunities of this strategy. In particular, I want to learn everything good and bad about AI data centers from our industry contacts. We'll draw conclusions when we've considered all the facts." She concluded, "Let's get to work and reconvene in one week to discuss a draft document. I'm available in my office if you have questions."

Company Profile

Great Lakes Energy (GLE) is a regulated electric utility serving parts of Michigan and Wisconsin. It both generates and distributes electricity to over 7 million residential and 500,000 commercial customers. It is owned by investors and has a market capitalization of $30 billion. Because GLE was granted a monopoly to serve a given geographic territory, it is a heavily regulated entity. Its primary regulators are commissions in the states where it operates; Michigan Public Service Commission (MPSC) and Wisconsin Public Service Commission (PSC). These regulators are appointed and confirmed by elected officials who also establish policy priorities. States regulate customer prices, infrastructure projects, access to the electric power grid[vi] and service quality. For example, the MPSC mission is to serve the public by ensuring safe, reliable, and accessible energy and telecommunication services at reasonable rates.[vii] Many states in recent years had established goals for renewable energy. Michigan had adopted one of the most aggressive mandates in the country.[viii] But it provided an offramp to delay those goals or build new fossil fuel generation if growing demand threatened electric reliability.[ix]

GLE's grid is connected to those of other utilities in the region by Midcontinent Independent System Operator[x] (MISO). This non-profit, member-based organization ensures reliable, least-cost delivery across 15 Midwest states. It operates a wholesale market for electricity among its member utilities. At the National level, the Federal Energy Regulatory Commission (FERC) regulates the transmission and sale of wholesale electricity. But the new Administration in Washington was exerting influence as it shifted policy priorities away from environmental issues and toward AI. At the local level, GLE is subject to various community and county regulations including permitting. Good relationships with regulators and elected officials are key to navigating these multiple overlapping regulatory jurisdictions.

The valuation of investor-owned utilities like GLE is in transition. The market values most companies in the S&P 500 Index based on earnings per share and growth potential. Utility earnings are regulated and revenue historically increased modestly, in line with population growth. As a result, GLE's stock traditionally traded at a Price/Earnings Ratio[xi] below the stock market as a whole. More recently, utility stocks have seen valuations rise as new demand from data centers has driven expectations of higher revenue growth. But GLE's stock has not kept pace with its peer utilities over the past two years. If its P/E ratio matched the average of the utility sector Exchange Traded Fund XLU[xii], its stock price would be 12% higher.[xiii] At the same time, growth expectations brought new scrutiny. Industry analysis has suggested that capital-intensive utilities face multiple categories of risk when environmental and stakeholder impacts are not carefully managed. These include risks to operations, price volatility, regulatory uncertainty, reputational damage, and potential legal exposure. For GLE, the strategic choice was not simply about accelerating earnings growth, but also how much of this broader risk profile the company was prepared to accept.

Stock Market Comparisons

	GLE	XLU	S&P 500
P/E Ratio	18.8	21.1	27.9
% Price Appreciation			
2021-2023	-10.7	-9.8	-1.4
2023-2025	11.7	33.8	46.0

GLE's long term commitment to the environment has made it a leader in the transition to renewable energy. It generates 42.8% of its electricity from renewable sources vs. 21.2% for all utilities in the US. Notably, GLE has committed to close all its coal fired generation by the end of 2027.

Percentage of Electricity by Fuel Source [xiv]

	GLE		USA - Utility Scale	
Coal	20.0		15.1	
Natural Gas	32.1		43.4	
Nuclear	5.1		18.1	
Hydro	12.0	42.8	5.6	21.2
Wind	18.6		10.5	
Solar	12.2		5.1	
Other	0		2.1	
Total	100.0		100.0	

Data Centers

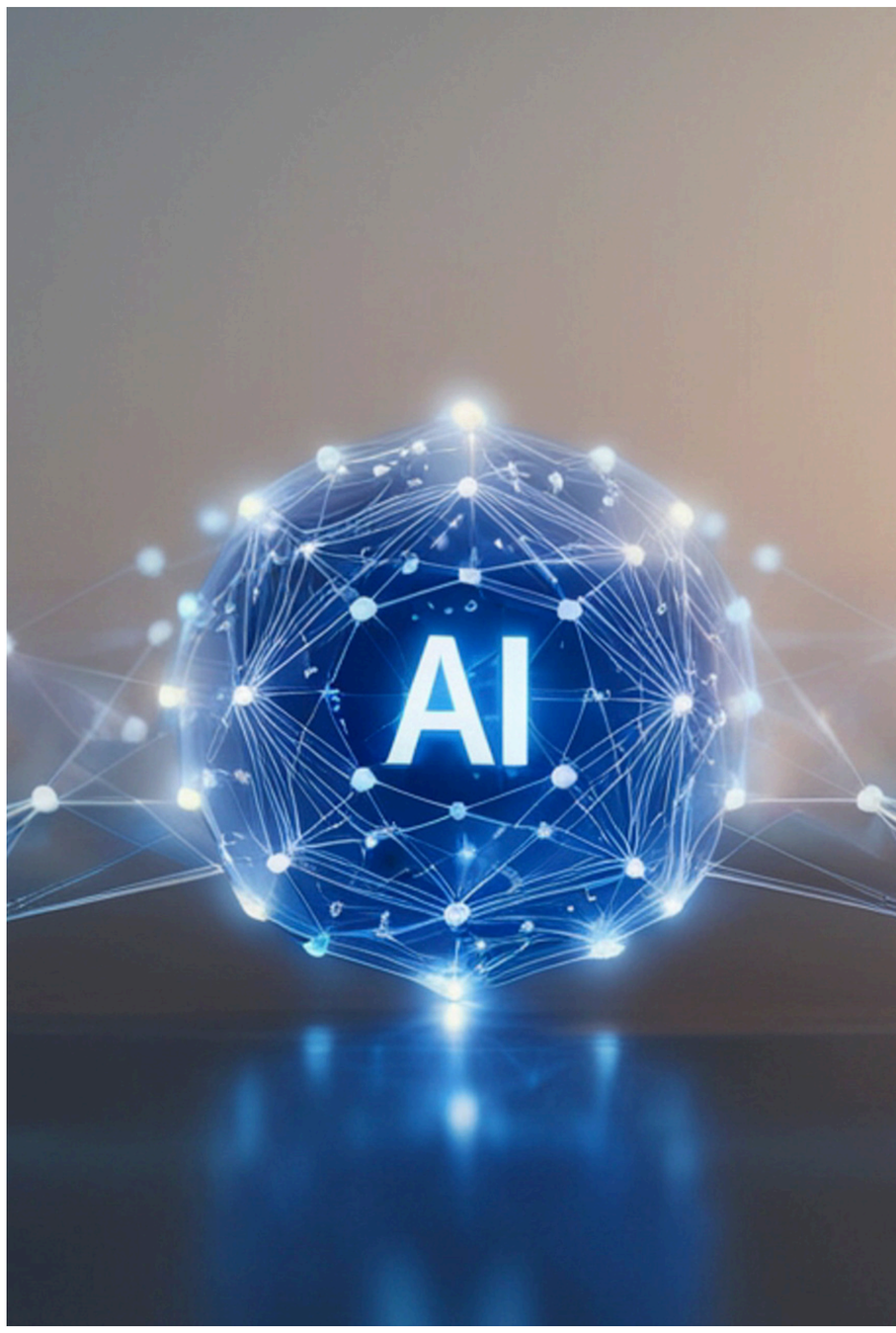
Data centers have become a major source of growth for electric utilities. Significant power is needed to run the vast arrays of connected computers that provide cloud computing services offered by companies like Amazon and Microsoft. These operations generate considerable heat while they are running, so cooling to protect the equipment requires almost an equal amount of electricity. A normal cloud data center can use enough electricity to power up to 35,000 homes.[xv] States seeking to boost their economic growth have sought to attract data centers by providing tax abatement and other investment incentives.[xvi] But the jobs created have come primarily from construction with fewer employees required once the centers are operational.[xvii] There are hundreds of cloud computing data centers across America. They need a constant, reliable source of electricity so their operations don't crash. Each data center must have onsite back-up generators in case of a power failure.

The emergence of AI data centers is a relatively recent development. AI data centers are used to train and then operate generative AI tools such as ChatGPT. AI is already generating high quality graphics and promises enormous productivity gains in many fields. Despite warnings about the need for safety guardrails, developers are proceeding rapidly because of the groundbreaking innovations and impacts that generative AI promises. The power demand of an AI data center is much greater due to the number and type of specialized chips. The cooling requirements are so large that traditional air conditioning is insufficient. Water cooling is required which has created environmental concerns.[xviii] It is estimated that a typical AI search requires 10 times as much energy as a traditional Google search.[xix] The energy needs of these AI data centers vary depending on the stage of development. It can take six months to a year to train a new model. During that period the power demand is huge but reasonably stable. Then, once a model goes into production, power usage frequently spikes in line with user demand.[xx]

Data centers used 4.4% of all power in the US during 2023 and its share is projected to increase to 12% by 2028.[xxi] Utilities have struggled to add generation and transmission capacity fast enough to meet this explosive demand. That is one of the reasons residential electricity prices increased 6.5% over the past year and have become a political issue.[xxii] Initially, many data centers negotiated deals that guaranteed to pay for 60% of peak demand at all times, even if they didn't use it. But that pricing formula has proven inadequate. In a recent Ohio dispute before the Ohio Public Utility Commission, American Electric Power was able to force large data centers to pay for 85% of contracted usage.[xxiii] Other proposals have suggested the tech companies cover 100% of the costs.[xxiv]

For GLE, the rapid expansion of AI demand introduced new risks. Adding large new loads while reserve margins were tightening could increase strain on the grid and complicate reliability commitments. Greater dependence on coal generation might expose the company to fuel cost volatility at a time when residential prices were already rising. Regulators who had supported GLE's renewable transition could respond adversely to any perceived retreat from prior commitments, affecting future approvals and cost recovery. Communities facing higher rates or increased water usage might react negatively, shaping the company's public standing. What appeared to be a clear growth opportunity therefore carried tradeoffs that required careful considerations.

Hyper-scalers are in a race to achieve Artificial General Intelligence (AGI). This is the point where a computer can reason as well as a human but has infinitely more capacity and speed. It has generally assumed that whoever reaches AGI first will have enormous revenue opportunities and reap the lion's share of profits. The capital required to compete is enormous. As a percentage of GDP it is costing more than it did to land on the moon.[xxv] It is estimated that $41 billion was invested to build data centers during 2025.[xxvi] As a result, data centers are typically built and owned by intermediary companies such as Coreweave (CRWV), which issue a combination of debt and equity to finance the project. The facility is then leased to hyper-scalers such as OpenAI, Amazon, Google and Microsoft who guarantee rent for a period of time.



The major constraint in the AI race appears to be access to electricity from regulated utilities which are not accustomed to rapid growth. Some developers are looking to build their own sources of power, possibly using emerging technologies like Small Modular Reactors[xxvii] (SMR). Hyperscalers are becoming more sensitive to the environmental issues they create and are active in trying to mitigate them. One creative approach to reduce data center power usage may also benefit the environment. The excess heat from a data center was transferred to meet the heating needs of a university campus in Dublin, Ireland.[xxviii] These and other innovative approaches will be required for power generation to keep pace with AI.

Case Study: Sarah's Dilemma

The following week, Mary Thomas, the financial member of the strategy team, came to see Sarah.

Mary glumly asked, "What fuel sources should I assume will ultimately replace our coal facilities? Michigan mandates 50% renewables by 2030 so we can't add new gas generation. And federal consumer subsidies for wind and solar are going away. Nuclear will only help us toward our clean energy goal in 2035. Should we hope that the regulators will give us more time to meet the 2030 goal?"[xxix]

Sarah did her best to ignore Mary's dejected tone as she asked her to prepare two generation scenarios, one with aggressive investment in wind and one with a combination of wind, SMRs, and wholesale purchased power.

Then Mary, who was a long-term climate activist like Sarah, spoke up, "You can't possibly consider recommending this betrayal of our environmental principles. Are you going to resign?"

Following a long pause, Sarah replied, "I'm not sure."

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Mitch Jones, the operational member of Sarah's team dropped by to see her the next day. She had recruited Mitch from engineering where they had worked together. He asked a few basic questions and then got to the point.

"I know you're upset, but you can't possibly fight your boss and win. It's just a delay in closing the coal facilities, not a permanent reprieve. Give Johnson what she wants, and if this strategy blows up, she's the one who will take the fall. If something bad happens to you, the rest of us will likely be out of our jobs too."

Sarah winced when she thought about what might happen to her old friend. "I understand your situation and I'll think carefully about what you said," she replied.

Later that day, John Williams came to see Sarah. He was the team member in charge of industry analysis. He always trusted reason and was the most even-keeled person she knew. His preliminary findings were not encouraging. The negotiating leverage seemed to belong to the developers and hyper-scalers who would reap all the profits. AI data centers tended to be located in rural areas where land was less expensive and officials could be persuaded to cooperate by huge investments in the community.

Three issues had emerged for further discussion. First, electric rates seemed to go up for all customers of a utility that added a data center. Second, AI data centers created more instability in the power grid as the reserve margin shrank. And third, the vast amount of water used for cooling data centers could strain local aquifers creating environmental issues.

He summarized his concerns, "Perhaps these issues can be managed and negotiated along the way. Data centers and power plants take years to permit and build. But it feels to me like we're moving too fast."

These comments struck home with Sarah, who was raised in rural Michigan. "The scales seem to be tipped against the little guy here. We need to make sure we treat everyone fairly," she replied.

Then John suggested, "if you present our findings in a reasonable way, Johnson has got to recognize the risks. She might even agree to hire a consultant to do a strategic review to manage her exposure."

Sarah replied, "You make a good point. That's a possibility." But she remembered overhearing Johnson say to the CEO, "we are paid to get things done, not to hire consultants."

A few days later, Sarah reviewed the first draft of the presentation prepared by her team. It highlighted the financial opportunities, but didn't sugarcoat the negatives of the proposed strategy.

The ability to raise sufficient capital and build the infrastructure would present major challenges. The environmental impact was negative and would require careful handling to avoid public relations and regulatory issues. And the impact on local communities and prices paid by other customers was an issue of fairness.

Sarah knew that in its current form her boss would not be happy with the presentation.

But how far could she go in modifying her team's conclusions without alienating them?

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Although the business opportunity was meaningful, it seemed to be at odds with the ethical approach Sarah had always tried to follow. It also prompted her to consider whether the strategy adequately accounted for longer-term risks that might emerge from regulatory pressures, rising costs, and community impact. She pulled a folder out of her desk and found the list of questions she had saved from business school for such situations.

Sarah's notes on decision-making....

1) Who has a stake in this decision and what's at stake for each?

2) What are the values-based considerations associated with the decision?

3) Are these obligations in conflict with mine as a company executive?

4) Is this a situation where a code of conduct or laws provide guidance?

5) To whom can I turn for wisdom and advice?

As Sarah considered her options, she began to wonder if the issue was symptomatic of an even bigger concern. Is her current job at GLE still a good fit for her? Unlike her past bosses, Betsy Johnson's values appeared to clash with Sarah's. Was that assumption true, or did Johnson simply need more information to change her mind? If their values actually differed, did Johnson represent the future of GLE? If so, should Sarah consider finding a new job? She would certainly be an attractive hire for another utility, but that would require moving away from her community and friends. Could her husband find a new job somewhere else? And how would her two children, ages 8 and 11 react? This was not going to be an easy decision.

Discussion Questions

- What are the most important advantages and disadvantages associated with AI data centers?
- Who are the important stakeholders and what are their specific interests?
- What should Sarah do and why?

Notes

ii This case study is fictional. The company, organizations, individuals, and events do not represent real entities or persons. The authors made good faith effort to represent accurate information but as a fictionalized case, any errors are ours.

iii Restricted Stock Units are a common executive incentive employed by utilities. Shares of the company stock which are granted as RSUs, typically vest over time or based on corporate performance hurdles.

iv A Gigawatt is a measure of electric power capacity. 1 Gigawatt equals 1,000 Megawatts and 1 Megawatt equals 1,000 kilowatts. In order to make these measures relatable, they are often translated into how many homes they could support. It is estimated that 1 Gigawatt could power between 300,000 and 700,000 homes. The range is based on peak seasonal cooling demand and average annual usage.

v Reserve Margin is an industry term for the percentage of unused available capacity above peak demand. Reserve Margin = ((Capacity – Demand) / Demand) x 100. The higher the margin the lower the risk of power blackouts.

vi Electric Power Grid – an interconnected network that generates, transmits and distributes electricity from power plants to customers. The grid is designed to have excess capacity to ensure reliability when demand surges.

vii MSPC Mission, Homepage, https://www.michigan.gov/mpsc

viii Michigan Department of Environment, Great Lakes and Energy, Michigan becomes a national leader in climate action, November 28, 2023, https://www.michigan.gov/egle/newsroom/mi-environment/2023/11/28/michigan-becomes-a-national-leader-in-climate-action-with-new-legislation

ix King & Spalding, Legislative Review, August 25, 2025, https://www.kslaw.com/news-and-insights/michigan-data-center-proposals-threaten-to-trigger-offramp-clause-in-state-climate-law

x The US power grid is divided into geographical regions where non-profit Independent System Operators or Regional Transmission Organizations coordinate electric reliability and conduct wholesale electric markets.

xi P/E multiple is a common measure of stock valuation. It is the stock price divided by the earnings per share. Higher stock multiples are typically awarded where investors expect earnings per share to grow faster.

xii XLU is an Exchange Traded Fund (ETF) created by State Street to track the performance of select utility stocks. As such, it is a proxy for GLE's peers.

xiii The XLU P/E ratio of 21.1 is 12% higher than the GLE P/E of 18.8. So, applying the 21.1 P/E ratio to GLE would increase the stock price by 12%

xiv US Energy Information Administration (EIA) – Net Generation by fuel source statistics are based on 2024 taken from its website https://www.eia.gov/electricity/data/browser/ accessed 1/24/26.

xv SolarTech, "How Much Electricity Does a Data Center Use? Complete 2025 Analysis," Independent Alliance of the Electrical Industry, 1/1/26 How Much Electricity Does a Data Center Use? Complete 2025 Analysis – IAEI Magazine

xvi For example, Michigan exempted data centers from its 6% sales and use tax on all hardware, software and construction materials through 2050.

xvii Dotan, Tom, "The AI Data-Center Boom is a Job Creation Bust", Wall Street Journal, 2/25/25, https://www.wsj.com/tech/ai-data-center-job-creation-48038b67?mod=Searchresults&pos=1&page=1 accessed 1/25/26

xviii Silverstein, Ken, "America's AI Boom is Running into an Unplanned Water Problem", Forbes, 1/11/26, https://www.forbes.com/sites/kensilverstein/2026/01/11/americas-ai-boom-is-running-into-an-unplanned-water-problem/ accessed 1/25/26

xix Taft, Molly, "How Much Energy does AI Use? The People Who Know Aren't Saying", Wired, 6/19/25, https://www.wired.com/story/ai-carbon-emissions-energy-unknown-mystery-research/ accessed 1/25/26.

xx Chen, Xin; Wang, Xiao, Colacelli, Anna; Lee, Matt; Xie, Lee, "Electricity Demand and Grid Impact of AI Data Centers: Challenges and Prospects, Arvix.org, 11/26/25, chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://arxiv.org/pdf/2509.07218

xxi US Department of Energy, "DOE Releases New Report Evaluating Increase in Electricity Demand from Data Centers", 12/20/24, https://www.energy.gov/articles/doe-releases-new-report-evaluating-increase-electricity-demand-data-centers accessed 1/25/26

xxii Chernikoff, Sara, "Which States Have Rising Electricity Costs?", USA Today, 8/4/25 accessed 1/25/26

https://www.usatoday.com/story/money/2025/08/04/electricity-prices-risen-why-states-map/85511712007/

xiii Gearino, Dan, "Consumers (and a Utility) Get a Win in Ohio, While Data Centers Take the Loss", Inside Climate News, 7/17/25 https://insideclimatenews.org/news/17072025/inside-clean-energy-ohio-data-centers-penalties/ accessed 1/25/26

xxiv McCabe, David and Plumer, Brad, "Trump Announces A.I. Industry Pledge to Pay for Power," New York Times, 3/4/26 https://www.nytimes.com/2026/03/04/technology/ai-energy-pledge-white-house-trump.html, accessed 3/6/26

xxv Bobrowsky, Meghan, An-Pham, Drew and Pipe, Alana, "Big Tech AI Push is Costing a Lot More than the Moon Landing: Wall Street Journal, February, 7, 2026, https://www.wsj.com/tech/ai/ai-spending-tech-companies-compared-02b90046

xxvi Bellefontaine, Ryan, "US Data Center Investments: 2014-2025" Visual Capitalist, 1/22/26, https://www.visualcapitalist.com/sp/bhp01-visualized-u-s-data-center-investment-2014-2025/ accessed 1/25/26

xxvii Small Modular Reactors are nuclear power plants built on a small scale with standardized components manufactured elsewhere and assembled on site. As a result, the time and cost to build is significantly lower than traditional nuclear power facilities.

xxviii Roach, April and Lockwood, Tamsin, "This University Campus is Heated by an AI data center," CNBC, January 27, 2026.

xxix Michigan passed a law in 2023 requiring that investor-owned utilities generate 50% of their electricity from renewables or nuclear by 2030.