Software

AI Evolution: Cost Savings > Revenue Opportunities for Utilities

Industry Overview

Utilities & AI? Cost savings yet to be realized

We hosted a call with Christopher Ricciuti, founder and CEO of Noteworthy AI, an AI infrastructure company that monitors utility poles and identifies defects by mounting autonomous smart cameras with AI capabilities on fleet vehicles. As we wrote in our AI Primer and Software Year Ahead reports, we expect AI applications to catalyze a technological evolution that disrupts every sector globally, even the sleepy regulated utilities sector, but not all evolutions begin with or generate incremental revenue (Exhibit 1). Client conversations indicate that utilities investors are optimistic about the potential for AI to produce incremental electricity load growth, but our view is that the more sizable opportunity will likely emerge from integrating AI into processes that drive operational efficiencies and increased productivity (Exhibit 2).

Potential to reduce pole inspection costs by 75%

Noteworthy AI's product helps utilities companies drive efficiencies by replacing scheduled and labor-intensive inspections for the 150mn poles in the US with inspections triggered only when a fleet vehicle-mounted camera identifies an issue.[1] Traditional visual inspections are labor intensive and costly with two-person crews annually inspecting 10-20% of inventory. Noteworthy AI estimates sub-$50 per pole inspection costs, ~75% cheaper than the traditional labor- and fuel-heavy approach used currently.[2] Pole inspections today are typically 100% expensed as operating and maintenance costs, but AI tools may shift some costs to capitalized software, making them eligible for a return, while also reducing costs overall.

Innovation for the sleepy regulated utilities sector

Some investors may be skeptical that utilities companies will lean into the newest technology, but many have already adopted innovative technologies to reduce operating costs, automate processes and fight wildfires. For example, right-of-way pole monitoring and inspections have shifted over time from visual to helicopters to drones. The newest AI wave represents a paradigm shift in corporate efficiency and productivity that could boost S&P operating margins by 250bps, equivalent to ~$65bn in cost savings, over the next five years. Across covered utilities companies globally, 58% have articulated plans to implement AI strategies that drive operational efficiencies (Exhibit 3), which could boost operating margins by 2.8% over the next five years (Exhibit 4).[3]

Only the beginning for AI applications

Utilities companies have been relatively slow movers with past AI investment close to zero (Exhibit 5) and low expectations for future AI investment (Exhibit 6). It is easy to forget that AI applications emerged largely within the last 12 months and are really version 1.0. We expect utilities companies to gradually embed AI tools into their processes as the potential to realize cost savings becomes more apparent, but AI implementation strategies initially focused on efficiencies may ultimately generate incremental revenue or new revenue streams as displaced workers are reallocated to higher-value tasks (Exhibit 7 & Exhibit 8). For example, additional compute from AI data centers requires new infrastructure and may generate incremental revenue.

22 January 2024

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AI = Artificial Intelligence

[1] The 150mn utility poles in the US have an average age of 40-50 years.

[2] Increasing pole inspection efficiency is just one example of how utilities companies may implement AI tools into processes. We expect customer service roles across sectors to be largely automated in the intermediate term as companies look to reduce the ~$118.6bn in annual costs paid to ~2.9mn customer service agents in the US (Data from Bureau of Labor Statistics).

[3] We surveyed 114 fundamental equity analysts on corporate AI strategies across ~3,500 covered companies globally. Only 6% of covered companies have not articulated an AI strategy (6%). See page 3 for additional survey details.

Utilities: Slow and steady wins the race

Cost savings > revenue opportunities but still early innings

When asked by investors how AI may benefit the utilities sector, we point to cost savings rather than revenue opportunities. We note that the shift to smart meters didn't necessarily generate incremental revenue or new revenue streams, but instead resulted in cost savings by eliminating the need for meter readers. AI can similarly help reduce operating costs from vegetation management and call centers. Some companies, such as Sempra (SRE), discussed utilizing AI back in 2020, but AI implementation strategies are rarely a centerpiece of current investor discussions.

Focusing on AI implications beyond incremental electricity load growth

Most investors focus on potential incremental demand from AI data centers, but few focus on other clear use cases. Utilities companies have integrated some AI tools into their operations already, but have been slow movers relative to other sectors. We see numerous avenues for enhanced, but also meaningfully cheaper, operations that leverage technology to monitor equipment. Visual inspections of poles, equipment and preventative maintenance could significantly change in the intermediate term. We anticipate a *faster* ramp into AI-enabled solutions that reduce truck rolls, man-hours and overall resource allocation in a more difficult interest rate environment.

Potential to capitalize expenses (and on otherwise "wasted" travel time)

Noteworthy AI's product passively monitors distribution poles as utility trucks drive by, examining quality and vegetation cover. There are over 150mn distribution poles in the US with an average age of 40-50 years. Traditional visual inspections are labor intensive and costly with two-person crews annually inspecting 10-20% of inventory. Importantly, inspections are typically 100% expensed as operating and maintenance costs, but solutions like Noteworthy AI's may shift some costs to capital, making them eligible for a return on invested capital [i.e. rate base], while reducing costs overall. Autonomous smart cameras with AI capabilities can be mounted on a wide range of utility vehicles and capitalize on otherwise "wasted" travel time between jobs.

The nature of maintenance should meaningfully change on a three-year view across the entire utilities sector. Higher interest rates, rather than stalling progress in this sector, are encouraging given a reinvigorated need to drive cost savings. During the early days of the pandemic, we saw many utilities companies accelerate their use of technology, part out of necessity (social distancing), but also to drive costs savings when there was significant uncertainty into the magnitude of electricity load reduction.

What do we expect in 2024? AI pilots accelerate

We expect utilities companies to begin AI pilots for inspections and within call centers, two areas with high operating costs. Some investors may be skeptical that utilities companies will lean into the newest technology, but companies have already adopted a suite of technologies to reduce operating costs. Perhaps the best example is right-of-way inspections and monitoring that have shifted over time from visual inspections to helicopters to drones. Some utilities companies we speak to are already utilizing AI to automate drafting documents, which may enable employees to spend more time on higher-value tasks, but the need for heavy manual review remains. Other related angles include monitoring technology in stationary applications to identify preemptive maintenance opportunities alongside drone-enabled technology for other sites.

Who does Noteworthy AI work with today?

Noteworthy AI lists FirstEnergy (FE), Constellation Energy (CEG), Alabama Power (Southern Company [SO] subsidiary) and Florida Power & Light (NextEra Energy [NEE] subsidiary) as customers. Nvidia (NVDA), Dell (DELL) and Dominion (D) are also partners.

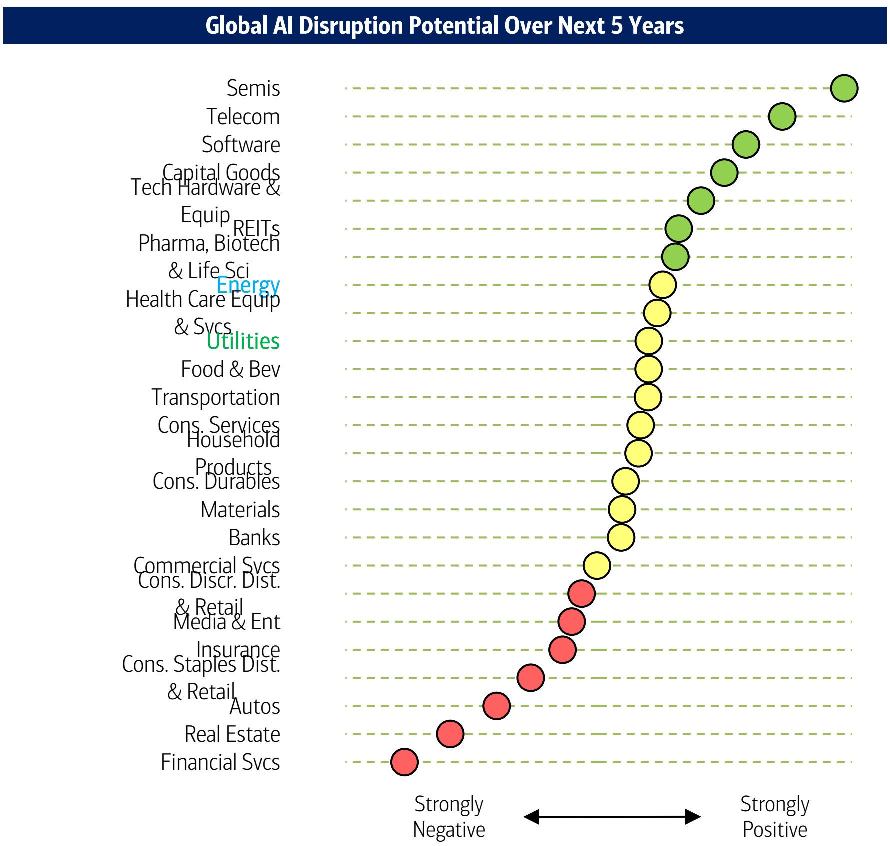
> "The rise of generative AI is requiring more powerful inference computing platforms [but] the number of applications for generative AI is infinite, limited only by human imagination."
>
> –Jensen Huang, Nvidia founder & CEO, Mar'23

Survey: Broad AI disruption within five yrs (for Utes too)

We surveyed 114 of our fundamental equity analysts on corporate AI strategies across ~3,500 covered companies with an aggregate market capitalization (cap) of ~$72tn across the 25 GICS2 Industry Groups. Our colleagues answered 20 survey questions, which focused on 1) corporate strategies for AI implementation, 2) the potential implications of these strategies on the operating and financial performance of their covered companies over the next five years, 3) the degree to which specific industry groups are likely to be positively or negatively disrupted over the next five years and 4) risks that may slow corporate AI adoption.

Note that percentages throughout this report that originate from survey responses refer to the aggregate market cap of specific covered companies relative to the aggregate market cap of all covered companies.

Exhibit 1: We expect AI to produce mildly positive disruption for the utilities sector
Global AI disruption potential by industry group



Source: BofA Global Research
Green/red shading indicates the top/bottom 25% of industry groups most likely to be positively/negatively disrupted by AI.
Results are based on survey responses.

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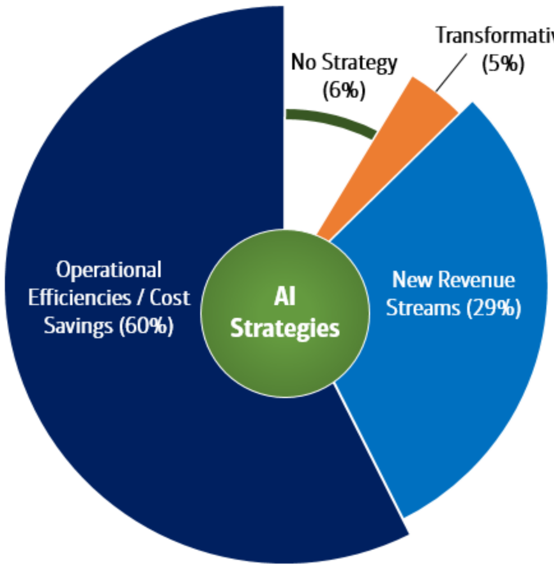
Exhibit 2: AI strategies across sectors globally skew toward operational efficiencies
Only 6% of covered companies do not have an AI strategy



Source: BofA Global Research. Results are based on survey responses.

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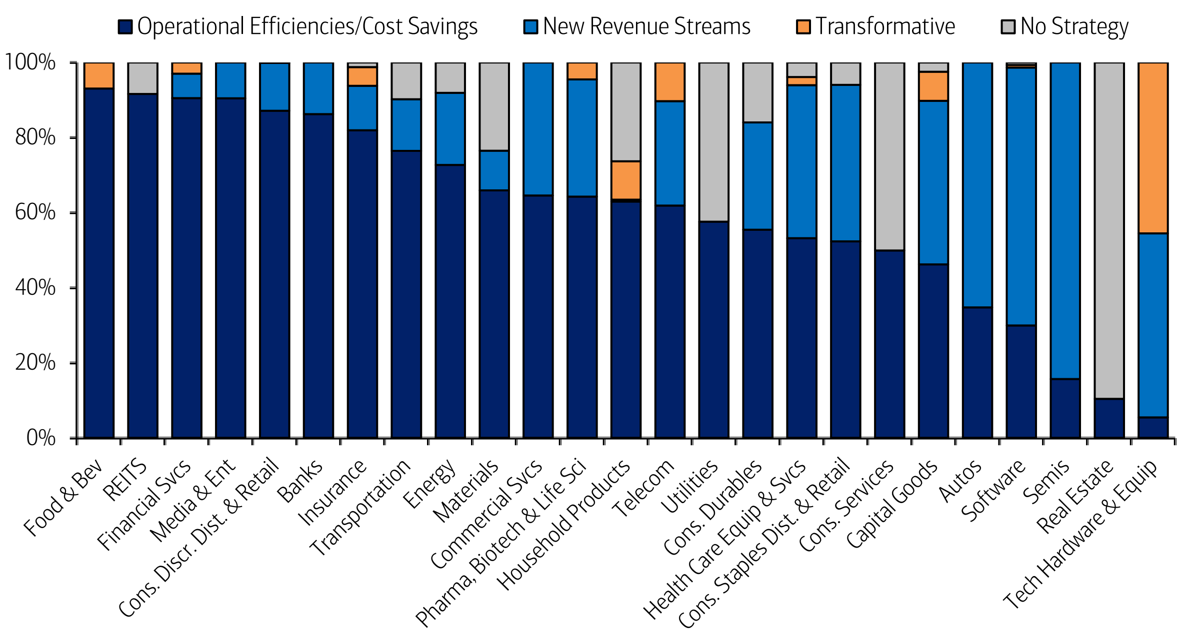
Exhibit 3: We expect utilities companies to integrate AI tools into processes to drive operational efficiencies
Corporate strategies to leverage AI may target new revenue streams initially but ultimately transform businesses



Source: BofA Global Research. Results are based on survey responses.

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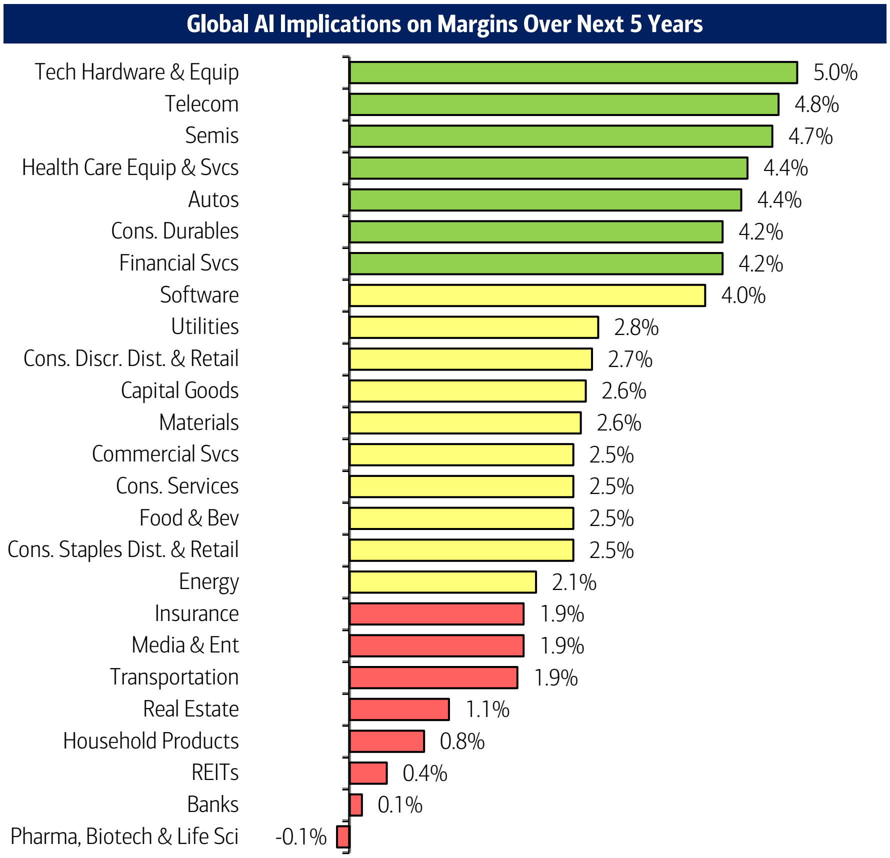
Exhibit 4: AI likely to drive margin expansion for the utilities sector

AI-driven operating margin expansion/contraction (% change)



Source: BofA Global Research

Note that 5% indicates operating margin expansion from 20% to 21%. Green/red shading indicates the top/bottom 25% of industry groups by expected operating margin expansion/contraction. Results are based on survey responses.

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Exhibit 5: Utilities companies have yet to invest meaningfully in AI

Past investment in AI as a percentage of revenue

Industry Group	AI Investment as % of Rev
Semis	6.2%
Tech Hardware & Equip	4.5%
Software	3.7%
Banks	2.5%
Food & Bev	2.5%
Pharma, Biotech & Life Sci	2.5%
Financial Svcs	2.5%
REITs	2.5%
Media & Ent	2.5%
Autos	2.4%
Insurance	2.4%
Health Care Equip & Svcs	2.4%
Commercial Svcs	2.4%
Cons. Discr. Dist. & Retail	2.3%
Capital Goods	2.1%
Household Products	2.0%
Energy	2.0%
Materials	1.7%
Telecom	1.4%
Cons. Services	1.4%
Cons. Staples Dist. & Retail	0.6%
Transportation	0.5%
Cons. Durables	0.5%
Real Estate	0.3%
Utilities	0.0%

Source: BofA Global Research

Green/red shading indicates the top/bottom 25% of industry groups by past investment as a percent of revenue. Results are based on survey responses.

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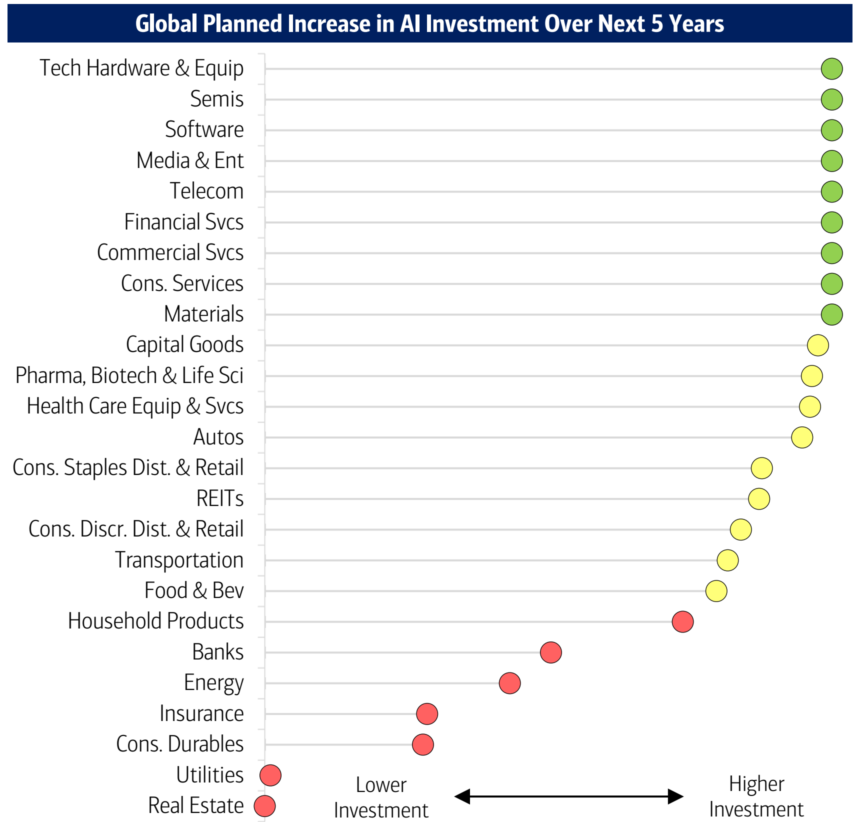
Exhibit 6: Expectations for future utilities investment in AI are low

Industry group intentions for future AI investment are skewed toward "higher"



Source: BofA Global Research

Green/red shading indicates the top/bottom 25% of industry groups by planned increase in AI investment. Results based on survey responses.

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Exhibit 7: Utilities companies currently derive an insignificant % of revenue from AI

Corporate revenue derived from AI products as a % of revenue

Industry Group	% Revenue from AI
Semis	Moderate
Capital Goods	Moderate
Software	Low-to-Moderate
Health Care Equip & Svcs	Low
Tech Hardware & Equip	Low
Household Products	Low
Materials	Low
REITs	Low
Banks	Low
Commercial Svcs	Low
Cons. Durables	Low
Cons. Services	Low
Energy	Low
Food & Bev	Low
Cons. Staples Dist. & Retail	Low
Media & Ent	Low
Pharma, Biotech & Life Sci	Low
Real Estate	Low
Telecom	Low
Transportation	Low
Utilities	Low
Autos	Low
Financial Svcs	Low
Cons. Discr. Dist. & Retail	Low
Insurance	Low

Source: BofA Global Research

Moderate = 6-20% of revenue from AI, Low = 0-5% of revenue from AI. Results are based on survey responses.

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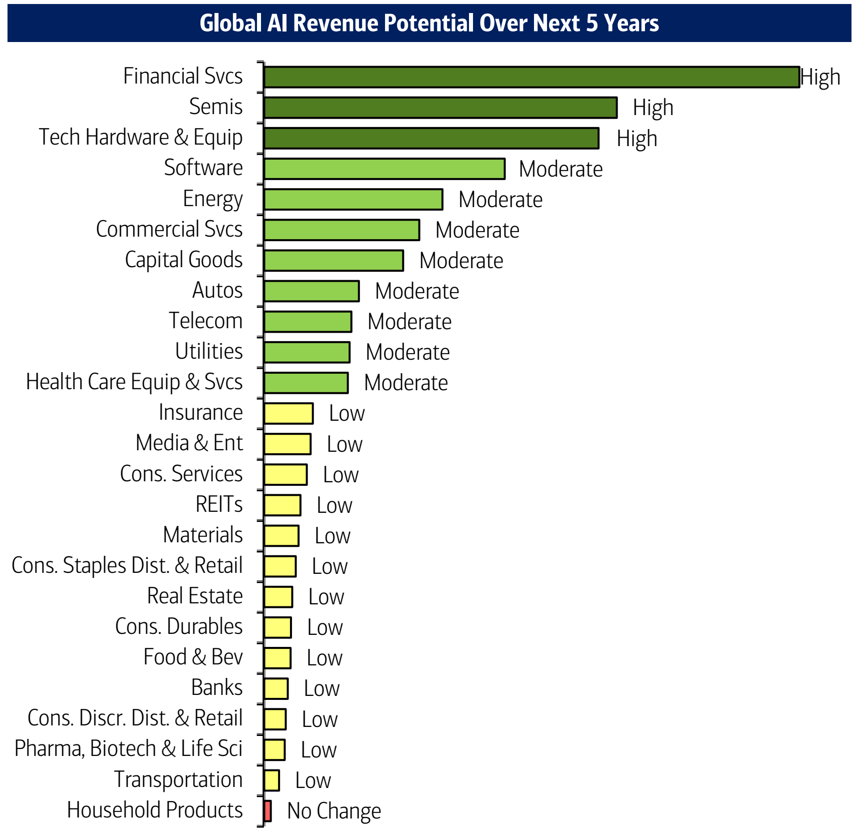
Exhibit 8: AI-driven revenue may increase 6-20% for utilities companies

High / Moderate / Low Increase = +21-50% / +6-20% / +1-5%



Source: BofA Global Research. Results are based on survey responses.

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