

Strategic Investment or Operating Expense?

The Business Case for Fleet Electrification in Battery Energy Storage

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Executive Summary

This report recommends immediate fleet electrification for our battery energy storage company.

Current gas-powered service vehicles create a critical authenticity problem. Installation teams arriving in conventional vehicles undermine customer trust in our clean energy solutions.

Fleet electrification delivers substantial financial benefits. Electric vehicles cost \$485 annually to operate compared to \$1,117 for gas vehicles. This creates \$632 in annual savings per vehicle.

The National Renewable Energy Laboratory documents \$8,300 in lifetime net benefits per vehicle. Real-world corporate fleet studies show operational cost reductions of EUR 370,000 annually. Benefits exceed infrastructure costs by 2.5 times.

Beyond cost savings, electrification creates competitive advantages through authentic sustainability leadership. Research shows 58% of companies implementing ESG initiatives experience positive financial performance. Employee adaptation concerns are manageable since 99% of users develop positive attitudes after direct experience with electric vehicles.

Current Situation

Introduction

Battery energy storage companies have a business imperative to electrify their fleets because it is a strategic investment that reduces costs, increases revenue through enhanced credibility, and demonstrates an authentic commitment to sustainability. When our installation teams arrive at customer sites in gas powered vehicles, we subliminally communicate that we do not believe in

clean energy solutions. While competitors struggle with authenticity using conventional vehicles, we can gain a first mover advantage in demonstrating a genuine commitment to clean energy, especially since 58% of companies see positive financial performance from ESG initiatives.

According to the National Renewable Energy Laboratory's multi state study, this transition offers \$8,300 in lifetime savings per vehicle. However, the benefits of this compounding effect are more than just a way to save money, we will drive revenue growth by enhanced customer trust in our brand.

Financial Inefficiency

The current fleet represents a significant financial drain. Annual fuel costs alone demonstrate inefficiency: electric vehicles cost an average of \$485 to charge annually compared to \$1,117 for gasoline vehicles, according to the University of Michigan study cited by NRDC. This \$632 annual savings per vehicle compounds over a fleet lifetime, aligning with the National Renewable Energy Laboratory's finding of "\$8,300 per vehicle in lifetime net benefits" (National Renewable Energy Laboratory et al., 2024, p. 69).

Real world validation comes from the Polish utility study, which documented "operational costs decreasing by EUR 370 thousand/year" through fleet electrification (Zamasz et al., 2021, p. 1).

With NREL demonstrating that benefits exceed infrastructure costs by 2.5 times, fleet electrification transforms from an expense to a strategic investment.

Customer Credibility Gap

The disconnect between our company's mission and fleet choices creates obvious contradictions. When our teams arrive at energy storage sites in gas powered trucks, we communicate that battery energy storage is good enough for customers but not for the company's operations. This inconsistency undermines the company's leadership role in the energy transition. Research

confirms that companies pursue fleet electrification to "improve their image as being environmentally friendly" (Zamasz et al., 2021, p. 1). This goes beyond the image of a battery storage company, it is about integrity. The NYU meta-analysis shows authentic ESG initiatives deliver measurable returns, with "58% of studies showing positive correlations between ESG initiatives and financial performance" (Whelan et al., 2021, p. 2). By maintaining a conventional fleet, the company actively creates doubt about its commitment to the battery energy storage systems it sells.

Environmental Impact

Despite Poland's electricity grid being 75% fossil fuel dependent, representing a worst-case scenario, the Polish utility study found that "fleet electrification could contribute to a reduction in carbon emissions of 24%" (Zamasz et al., 2021, p. 1). The environmental benefits would be greater for a battery storage company operating in regions with cleaner electricity grids.

This 24% reduction baseline demonstrates that corporate fleet electrification delivers quantifiable environmental results. When customers invest in our battery storage systems to reduce their carbon footprint, our gas-powered service vehicles undermine the authenticity of their sustainability efforts.

Employee Implementation Strategy

Employee concerns about electric vehicle adoption represent a manageable implementation challenge. The German corporate fleet study reveals that employee acceptance evolves significantly over time, with experts noting that "99% of people get out of the car with a smile on their face, and they had so much fun driving the cars" (Roemer & Henseler, 2022, p. 5).

Employee worries about electric cars come from lack of experience. Research shows workers like electric vehicles once they try them. Starting small with volunteers can help convince other employees.

Competitive Positioning

Operating a conventional fleet positions the company at a strategic disadvantage in the rapidly evolving clean energy market. Early fleet electrification creates a first mover advantage by demonstrating a genuine commitment to sustainability. Authentic environmental leadership becomes a competitive differentiator in an industry where customer trust directly impacts contract awards. Fleet electrification creates a competitive advantage that extends to market reputation.

Objectives

Fleet electrification delivers measurable benefits across three critical areas. These benefits justify the strategic investment.

Organizational Benefits

Fleet electrification transforms operational costs into competitive advantages. These savings compound across our entire fleet operation.

Electrification restores market credibility. Authentic sustainability leadership differentiates our company from competitors. Customer trust increases when our operations align with our clean energy mission.

Colleague Benefits

Employee satisfaction improves through electric vehicle adoption. Electric vehicles offer superior driving performance. They require less maintenance. Employee concerns decrease through direct experience and proper training programs.

Community Benefits

Fleet electrification delivers quantifiable environmental improvements. Our cleaner electricity grid would produce greater environmental benefits. Community leadership in sustainability creates positive brand recognition and strengthens our position as environmental advocates.

Deliverables

Fleet electrification needs a simple three-step plan. This basic timeline shows the main steps. Stakeholder input will help create the detailed plan later.

Phase 1: Planning (Months 1-4)

First, we form a team and decide. The stakeholders include fleet managers, facilities staff, finance people, and operations workers. The Department of Energy says fleet electrification works best with "three phases—plan, design, and ZEV active" (U.S. Department of Energy, n.d., para. 12). We need stakeholder meetings to decide who does what and when.

Everyone gets training on electric vehicles. We will figure out which gas vehicles to replace first. We plan the budget and costs. These basic steps will grow into detailed plans after we talk with all the stakeholders.

Phase 2: Design (Months 5-8)

Next, we decide on charging strategy and pick locations. We work with the electric company early to avoid delays. We choose between building our own charging stations or using existing networks like Tesla stations. We pick vendors for equipment and installation.

The exact design details need more stakeholder discussions. Installation time depends on permits and contractors. These plans will become more specific after stakeholder workshops.

Phase 3: Implementation (Months 9-12)

Finally, we buy electric vehicles and install charging stations at the same time. We train employees in how to use the new vehicles. We track how well everything works. We set up maintenance plans.

The final schedule depends on what the stakeholders decide is most important. We need stakeholder agreement on how to measure success. This short timeline is just the starting point for detailed planning with all stakeholders involved.

Costs/ROI

Fleet electrification requires upfront investment. The financial returns justify the costs.

Stakeholders will determine specific budgets and implementation timing.

Implementation Costs

Electric vehicles cost slightly more than gas vehicles. Many models are priced under \$40,000.

Stakeholders will select which vehicles to purchase first.

Charging stations cost \$1,200 to \$6,000 each installed. "Equipment can cost as little as \$400+ for at-home Level 2 EV chargers" (Qmerit, 2024, para. 8). Installation adds \$799 to \$1,999 per charger. Stakeholders will determine charging infrastructure plans.

Training represents additional costs. Employees need education on electric vehicle operation. Software systems may require updates. Stakeholder meetings will establish training priorities.

Financial Benefits

Electric vehicles save \$632 annually compared to gas vehicles. Real companies document "EUR 370 thousand/year" savings through fleet electrification (Zamasz et al., 2021, p. 1). These operational savings accumulate over time.

Lifetime benefits exceed infrastructure costs. Each vehicle provides "\$8,300 per vehicle in lifetime net benefits" (National Renewable Energy Laboratory et al., 2024, p. 69). Benefits are 2.5 times greater than setup costs.

Return on Investment

Federal incentives reduce actual implementation costs. Heavy-duty vehicles qualify for up to \$40,000 credits. Light-duty vehicles qualify for up to \$7,500 credits. Charging infrastructure receives 30% cost credits. Stakeholders will identify available incentive programs.

ROI becomes positive within the first year. Monthly fuel savings compound over vehicle lifetime. Maintenance costs decrease significantly. Stakeholders will establish ROI targets and measurement methods.

This cost analysis provides the financial framework. Stakeholder input will develop detailed budgets and funding strategies.

Conclusion

Converting our fleet to electric represents more than an operational change; it is a strategic imperative. Electrification brings our company's actions into alignment with our mission. The evidence demonstrates clear financial benefits through \$632 annual fuel savings per vehicle, measurable environmental impact with a 24% emissions reduction, and competitive advantages through authentic sustainability leadership. While employee resistance exists, research proves that direct experience transforms skepticism into enthusiasm.

The question is not whether to electrify our fleet but how quickly we can implement this transformation. Every day we delay, we forfeit cost savings, compromise our environmental credibility, and surrender competitive positioning to more authentic sustainability leaders. The

business case is clear, fleet electrification delivers immediate financial returns while reinforcing our commitment to the future of battery energy storage we are building.

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