



**WHITE PAPER**

# Alternative Power Vehicles, Can Companies Afford to Wait?

*Many companies hesitate at the cost and risks associated with integrating alternative fuel vehicles into their fleet and often default to waiting, leading companies are concerned with the costs and risks of waiting and default to action.*

**John Obenhaus and Tim Murphy**

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## Leading companies are proactively adding alternatively fueled vehicles into their fleets to smooth and flatten the technology adoption learning curve.

*“Even if you’re on the right track, you’ll get run over if you just sit there.”*

– Will Rogers

Technology risks and rewards have emerged as maybe the most significant corporate challenges and opportunities of the 21st century. The rapid pace of technological evolution demands continuous adaptation, which often disrupts existing operational structures and workflows. Resistance to change, lack of familiarity with new technologies, and cyber security issues complicate the process further. Moreover, the capital investment required for technology acquisition and implementation can be substantial, making it a high-stakes endeavor that is rarely future-proof. Despite these challenges, technology adoption is essential for businesses to stay competitive, improve efficiency, and meet customer expectations in the digital age. Therefore, mastering the art of smooth and successful technology transitions is a critical competency for modern corporations.

Just like implementing other new technologies, introducing alternatively fueled vehicles (AFV) into a company’s operations presents its own set of challenges and requires meticulous planning and strategy. Electricity, hydrogen, natural gas, or propane, instead of petroleum diesel or gasoline, power alternative fuel vehicles with the purpose of reducing or eliminating greenhouse gas (GHG) emissions. Zero emissions vehicles (ZEV) include plug-in battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV) powered by hydrogen.



Alternative fuel vehicles, particularly ZEV variants, incorporate advanced features and technologies that employees must be trained to use, maintain, and integrate into existing fleet operating models. Long planning horizons and protracted lead times of 6-12 months for vehicles and 18-24 months for grid connections in the case of BEVs are the norm. Employee apprehension can arise due to unfamiliarity with charging management and new software platforms. The integration of new vehicles might disrupt existing logistics and supply chain workflows, mirroring potential compatibility issues when adopting other new technology. There will be initial technical issues or performance inconsistencies with the new vehicles, hardware and software, much like the bugs and glitches often seen in new tech implementations. Therefore, like other technology implementations, firms should develop a comprehensive approach for the identification, selection, and integration of alternative fuel vehicles into an existing fleet.

***“I believe the future is electric. The road to emissions-free driving will be driven by battery-electric vehicles.”***

*– Roger Nielsen, CEO Daimler Trucks North America*

Unlike many technology innovations, full adoption of ZEV technology by commercial truck and van fleets may be a mandate and not a choice in the long run. The choice may in fact be whether to adopt early or late. Led by California and the California Air Resources Board (CARB) and likely joined by up to 16 other states and the district of Columbia, mandates of ZEV production through the Advanced Clean Trucks rule (ACT) and purchase mandates through the Advanced Clean Fleets rule (ACF) are already going into effect as early as 2024 for several fleet types. ACT and ACF should accelerate both adoption and advancement of ZEV technology, ushering in the sunset of diesel fleet vehicles and the rise of diesel's replacement by BEV and FCEV technology. While diesel trucks will be around for many years, all major heavy duty truck manufacturers have multiple power train lines now which include expanding development and production capacity for BEV and FCEV technology. The largest truck manufacturer in North America, Daimler Trucks North America, indicated it will develop just one more new diesel engine, while major truck manufacturer Navistar has announced that the newly developed diesel engine currently scheduled for release will be the company's last.

In addition to regulatory compliance, integrating alternative fuel vehicles into a corporate fleet offers several compelling advantages. The shift to alternative fuel vehicles reduces emissions and reduces noise pollution in the case of EVs. It underscores a company's commitment to sustainability, aligning it with global efforts to

reduce greenhouse gas emissions. This enhances brand value, serves the growing demand among consumers and partners for environmentally aware practices and increases employee satisfaction. Electric vehicles can often perform at the same level or better than internal combustion engines (ICE) in many applications while offering substantially lower fuel costs for BEV's and maintenance costs at or below diesel vehicles. Timely adoption of alternative fuel vehicles of any type is an opportunity to gain insights and a competitive advantage while smoothing the significant learning curve. Learning to manage and maintain these new technologies provides a valuable exposure opportunity that will become increasingly important in the future. Furthermore, the transition to alternative fuel vehicles necessitates the formation of new supplier relationships, broadening the corporation's network and potentially opening doors to additional partnerships and opportunities. The integration of alternative fuel vehicles into a corporate fleet can provide both immediate and long-term benefits, enhancing operational efficiency, organizational



learning, building capacity, expanding networks, and promoting sustainability.

Often when companies evaluate a new technology or capital investment there are clear benefits and risks. In this case, the risk situation is more nuanced. Integrating alternative fuel vehicles involves significant upfront investment in terms of 3x-5x vehicle acquisition costs for BEVs, charging equipment costs and infrastructure development for refueling or recharging. There is potential risk associated with grid capacity and resiliency. Residual value is unknown. Electric vehicle, battery and charging technology has been advancing exponentially for several years, and the risk of being too early to adopt was very high. The technology is still advancing, but at a more moderate and predictable pace now, lowering the risk of being too early and increasing the risk of being too late to properly onboard the new technology and capitalize on current government incentives.

Government incentives and policies are subject to change, and businesses need to navigate the uncertainties associated with the shift to zero and near zero emissions. Failing to embrace this shift carries the real risk of falling behind and having to catch-up, at increased expense, with fleets who adopted and scaled early and smoothly. As the inevitable global push towards sustainability and alternative fuels strengthens, companies that do not invest in greener options may find themselves increasingly out of sync with consumer preferences and regulatory mandates. Their outdated practices could lead to damaged brand reputation, lost business opportunities, hiring challenges and ultimately, reduced market share. Integrating alternative fuel vehicles is a delicate balancing act

that requires careful consideration and strategic planning.

Through this paper we will explore four key elements of the integration of alternative fuel vehicles into an internal combustion diesel fleet:

1. Organizational learning
2. Cultivating new supply chain relationships
3. The global drive to sustainability
4. Technology hedging

### **Organizational Learning**

Understanding new and disruptive technologies is crucial for businesses in today's rapidly evolving economic landscape. Mastery of these technologies can offer companies a competitive edge, enabling them to streamline processes, improve productivity, and drive innovation. Advanced technologies, such as artificial intelligence and machine learning, can automate routine tasks, thereby freeing up employee time for more strategic, value-adding activities. However, it is essential to note that the adoption of these technologies entails considerable costs, including financial investment, employee training, and possible restructuring of existing systems. The potential benefits of technology implementation need to be weighed against these costs to determine whether the investment would yield a satisfactory return. Therefore, embracing new technologies is not just about staying current; it's about strategic planning, careful cost-benefit analysis, and relentless pursuit of operational excellence.

Gradually integrating alternative fuel vehicles into an existing fleet of internal combustion engines can be a beneficial strategy for organizations seeking to



adopt sustainable practices while keeping up with the evolving fleet industry. The incremental incorporation of these technologically advanced vehicles provides an opportunity for organizations to familiarize themselves with new automotive technologies and understand their practical implications. Moreover, it allows for the optimization of vehicle routing and deployment, as alternative fuel vehicles may have different operational characteristics such as range and weight. Developing new maintenance programs is another advantage, as alternative fuel vehicles will require different servicing procedures. This learning curve also extends to the training of drivers and mechanics, further building the organization's internal capabilities. The gradual transition approach also helps organizations to tread the path of sustainability and innovation without a significant disruption to their existing operations, thus ensuring business continuity and customer satisfaction as they scale.

### **Cultivating New Supply Chain Relationships**

The vitality of supply chain relationships to fleet operations cannot be overstated. These relationships are the backbone of every successful fleet management operation, enabling the smooth acquisition of vehicles, parts, and services, and even influencing vehicle

resale values. Strong supply chain partnerships can also foster innovation, with fleet managers and suppliers collaborating to explore new technologies. These connections can help to mitigate potential risks such as supply disruptions, price volatility, and legislative changes, ensuring that the fleet can adapt and continue operating optimally. Maintaining robust supply chain relationships is a strategic necessity in the fleet industry, underpinning operational efficiency, innovation, and risk management.

Adopting a gradual integration approach and moving early with alternative fuel vehicles can fortify key supplier relationships. It can lead to tighter collaboration with suppliers, as both parties work together to navigate the intricacies of integrating new technologies. The mutual effort can result in stronger partnerships and foster an environment conducive to co-development of key programs. By moving early, organizations can potentially influence the strategic direction of suppliers towards alternative fuel vehicles, making them better positioned to meet future demands. A gradual approach allows companies to provide suppliers with regular feedback, fostering continuous improvement and thus enhancing the quality of goods and services. These factors can all contribute to cultivating robust supplier relationships, crucial for long-term success in fleet management.

## The Global Drive to Sustainability

Sustainability is here to stay as a business reality. Evidence of the growing importance of sustainability to companies of all size include:

- 92% of the S&P 500 and 70% of the Russell 1000 published sustainability reports in 2020 and these companies are increasing their supply chain sustainability targets
- According to a 2023 Nielsen IQ poll, sustainability is important to 78% of US consumers
- A 2021 IBM study cited 70% of employees and job seekers found companies with sustainability programs more appealing employers
- Shareholders, including institutional investors like BlackRock, are increasingly prioritizing sustainability in their investment decisions

Alternative fuel vehicles are an important component for reaching corporate sustainability goals due to their potential to significantly reduce the carbon



footprint of fleet operations. In the context of increasing pressure from stakeholders and tightening environmental regulation, such vehicles can provide an effective solution to meet corporate objectives of reducing greenhouse gas emissions. Furthermore, the integration of alternative fuel vehicles into the fleet can help demonstrate a corporation's commitment to environmental responsibility, positively influencing its reputation and public perception. A move towards greener vehicles aligns corporations with global trends in sustainable transportation, ensuring they remain competitive and future-ready in a rapidly evolving business landscape.

## Diversification and Hedging of Fleet Costs

The integration of alternative fuel vehicles into the fleet brings about an important advantage - it offers opportunities for technology diversification and fuel cost hedging. By diversifying the fleet with a mix of vehicles powered by different fuel types, organizations can better insulate themselves from pricing volatility of a single fuel type. This diversification allows companies to hedge against potential fuel cost increases and assure a level of cost predictability. For example, a rise in oil prices might be offset by stable or lower prices for electricity or biofuels, mitigating the overall impact on the fleet's operating costs. Moreover, alternative fuels, such as electricity, are often cheaper and more stable in price compared to conventional fuels. This could mean increased cost predictability and significant savings for companies, particularly those operating large fleets. Therefore, the integration of alternative fuel vehicles can be a strategic move, not only for environmental sustainability but also for financial resilience and cost-efficiency.

## A Balanced Approach

As with other technology adoptions, alternative fuel technology adoption comes with a steep learning curve, fast paced advancement, risks and rewards. The tradeoffs between the clean drivetrain technologies in different stages of development and deployment do not support a one-size-fits-most solution to the lowest TCO fleet asset mix. Instead, the lowest TCO mix depends on internal factors like the organization's strategic objectives, sustainability targets, capabilities and opportunity costs as well as external factors like current and future regulations, public incentives, grid access and capacity, renewable fuel access, supplier capability and customer expectations. Moreover, the large investment, long lead times, incentive deadlines and mandate of clean drivetrains adoption necessitates exceptional cooperation and interoperability of all suppliers, stakeholders and project managers.

At New Dominion Consulting, we have the fleet knowledge and expertise to help our clients find the right balance.

CONTACT TIM MURPHY TO LEARN MORE ABOUT OUR FIRM, ARRANGE A DISCUSSION WITH OUR EXPERTS,  
OR EXPLORE YOUR FLEET EVOLUTION OPTIONS.



**Tim Murphy** is an experienced consultant with over 25 years of experience helping clients capture value across their supply chains. He has extensive experience in procurement operations, sourcing, spend analysis, and category management. Tim believes that business process innovation is critical to the advancement of procurement and supply chain to survive and thrive in evolving global markets.

[tim@newdominionconsulting.com](mailto:tim@newdominionconsulting.com)



**John Obenhaus** has over 25 years of experience leading large fleet and transport organizations and transformations. He directed PepsiCo's global center of excellence for fleet and transport as well as strategic sourcing for PepsiCo fleet in the United States. John has extensive experience in fleet and transport operations, best practices, innovation and continuous improvement.



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New Dominion Consulting strives to provide extraordinary value to clients through the development of innovative, tailored solutions to meet today's challenges. We specialize in supply chain, procurement, operations, and sustainability where we help our clients improve outcomes and optimize realized value.