



## TIME TO RETHINK YOUR LIFT TRUCK POWER

**F**orklifts depend on strong, reliable power to move materials for manufacturing, pipe in steel operations, crates in agriculture and other payloads in demanding applications. These intense operations have historically depended on internal combustion engines (ICEs) and their consistent power delivery and high performance – but with the expansion and advancement of electric options like lithium-ion and thin plate pure lead (TPPL), the motive power landscape is shifting.

Lithium-ion batteries in particular are gaining traction when it comes to industrial warehouses and other heavier-duty lift truck applications. Electrification is no longer a pipe dream, as advanced electric power sources are now available on more lift truck models and capacities than ever before, delivering the long-lasting high performance that intensive applications require. While traditional ICE or even lead acid batteries may still be the best-fit for some jobs, these advanced electric options make more applications legitimate candidates for electrification than

ever – helping overcome common challenges related to sustainability, productivity, labor efficiency and more.

Rather than simply accepting the status quo of lift truck power, it might be time to rethink your power source. This white paper explores four signs it's time to make a change in your material handling operations.

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*Electric is gaining traction in heavier-duty applications. In 2023, adoption was at an all-time high, with electric accounting for more than a third of all sit-down counterbalanced forklift purchases, an 8% increase in a single year, according to Industrial Truck Association (ITA) factory booking data.*

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### 1 // YOU ARE COMMITTED TO SUSTAINABILITY

State and federal regulations are putting pressure on industries to reduce environmental impact, while many businesses have their own green initiatives that seek to reduce fossil fuel emissions. From manufacturing to large-scale construction or port operations, this shift puts emissions from powered industrial trucks in the bullseye of sustainability targets.

For managers charged with finding ways to meet those targets, forklifts powered by lithium-ion or TPPL batteries are practical solutions. Neither produces harmful emissions in operation or during charging and they deliver the performance to keep business moving.

### 2 // DEMANDING CONDITIONS CAN'T SLOW DOWN PRODUCTIVITY

Extreme temperatures, environments and duty cycles can push equipment to the limit, resulting in wear and tear that can lead to a spike in equipment downtime and all kinds of productivity bottlenecks. To manage this risk, operations can explore power sources that are proven to perform in the harshest settings.

ICE lift trucks have been the tried-and-true option for demanding outdoor applications. They offer remarkable durability and have a proven record of standing up to the hottest, dirtiest and coldest environments. These trucks power through multiple shifts without depending on the electrical grid – an especially important consideration if local utilities cannot provide sufficient electricity to keep electric fleets moving.



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But electric trucks can handle tough temperatures, too. For example, lithium-ion batteries offer strong performance in hot and cold environments, helping lift trucks run reliably and consistently over multiple shifts, no matter the season. Whereas lead acid batteries require equalizing, watering and off gassing, lithium-ion batteries do not involve battery maintenance and can be plugged in without any special pre- or post-charging steps and charge rapidly, meaning lift truck drivers are able to spend more time being productive.

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### 3 // YOU STRUGGLE TO FIND AND RETAIN LABOR

Lift truck operators are in short supply. With competition so fierce for a limited labor pool, good help is not only difficult to find – it's hard to hang on to, with high employee turnover in manufacturing, warehousing and other logistics sectors. To keep lift truck operators engaged and performing at their best, ergonomics and comfort are key. Electric-powered lift trucks produce less noise than those powered by ICE and transmit fewer vibrations to the operator, offering a smoother ride. Because they do not produce tailpipe emissions, they can also help improve air quality and create a cleaner work environment.

Difficulty finding and retaining labor can sometimes force companies to hire forklift operators with little experience. In the case of working with traditional lead-acid batteries and liquefied petroleum gas (LPG) tanks, lack of experience can potentially increase safety hazards related to battery handling and charging or LPG tank changing. Unmotivated or fledgling operators may also have poor charging habits, leading to shorter battery life over time for certain battery types.

With a crew of less-experienced operators, it's best to have forklifts that are very simple to operate and maintain. Advanced electric power sources typically require less maintenance and less charging time in a shift, so you can make the best use of the operators you have. These inexperienced operators may also benefit from operator assist technologies that can help support adherence to safety best practices, but are only available on electric lift trucks.





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### 4 // YOU NEED TO CONTROL COSTS

On average, approximately 80% of the total cost of a forklift comes after the initial capital investment, so it's important to understand how each power source influences lift truck maintenance requirements and energy spend.

All forklifts have some level of planned and unplanned maintenance – whether on a weekly, monthly or quarterly basis. However, ICE power means a whole host of powertrain items that require periodic service or replacement, including fluid, filters, spark plugs, belts or other items prone to wear. Electric powertrains offer greater simplicity and fewer service items, which for some operations can drive thousands of dollars of savings annually through reduced maintenance and parts expenses.

Some operations can also achieve significant energy cost savings by switching from LPG or diesel to electric, particularly with the charging efficiency and regenerative braking capability of lithium-ion.

### // CLEAN POWER MEANS BUSINESS

Advanced electric sources like lithium-ion power started small, powering walkie pallet trucks. But now, lift trucks carrying heavy loads in harsh conditions can be powered by lithium-ion batteries. For demanding applications, counterbalanced lift trucks with integrated lithium-ion power are available from the factory with capacities up to 36,000 pounds and the performance operations expect from an ICE-powered truck.

But to make the best choice when evaluating lift truck power, operations need specialized expertise across the whole range of industrial trucks and available motive power options. An understanding of the unique challenges of your industry is another important piece to making a best-fit recommendation that accounts for the unique characteristics of your operation. The right fit can make fleets more efficient, help retain forklift operators and help reach productivity targets all shift long, day after day.