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The complex issues of energy procurement, energy saving, and the optimisation of energy usage are occupying companies and whole industries all over Europe - and of course this also includes FEM.

Intralogistics must find answers and solutions quickly and sustainably to answer the questions of how the energy consumption of industrial trucks can be reduced and how the energy consumption of the future can be greener.

We also need to understand which technologies we can use to support customers in achieving their own energy goals in a time where the climate change is challenging all of us. Since the macroeconomic upheavals in the wake of the global Corona-19 crisis, and the more recent outbreak of war in Ukraine with all its consequences, the need for solutions for improving our energy consumption has become even more acute.

The good news is that the industry already has answers. This is because intralogistics has always been a pioneer in the use of innovative technologies and has been intensively pushing important topics such as resource conservation and alternative drive concepts for many years.

Early on, suppliers in the material handling sector offered vehicles that ran on batteries. At Linde Material Handling, for example, the first electric truck was produced in 1923 by Fenwick in France. If you look at today's truck portfolio, you quickly realise that electric drives power the majority of industrial trucks, up to the largest counterbalance trucks.

At STILL GmbH, the electric company gene can be traced back to the company's foundation as the company originally offered the construction and repair of electric generators. At the KION Group, already more than 88% of all newly manufactured forklift trucks and warehouse equipment are now electrically powered.

In addition to this, we also set standards early on in the field of IC engine-powered industrial trucks and worked with a wide range of technologies. With the introduction of the hydrostatic drive in the forklift truck in 1959, Linde Material Handling founded a whole family of high-performance and extremely efficient IC engine-powered industrial trucks. This technology has led to a significantly improved use of our resources and is still the benchmark today when it comes to efficient energy usage.

However, the technological perspective of our trucks is just one component in this approach. For us, as a partner of our customers developing their individual intralogistics solutions today, our starting question is always, how to reduce their energy consumption while at the same time guaranteeing the optimal intralogistics flow. In that sense, the best transport is the one we can avoid right from the start. That is a guiding principle for my colleagues when creating solutions for customers. The solution that was then designed uses the best possible technologies for efficient energy consumption.


For Linde Material Handling, focusing on its performance range, two factors play a key role when it comes to the realisation of a solution: (1) selecting the right energy system, and (2) energy management solutions that optimise the use and saving of energy. In both areas, Linde Material Handling acts as a holistic solution provider as well as a developer of technological solutions and has recently achieved decisive milestones in energy efficiency and alternative drive systems. This includes not only the supply of own produced Lithium-Ion batteries but also the partnership between Linde and the energy consultancy ifesca.

Through the Linde Energy Manager, ifesca enables energy consumption optimisation based on artificial intelligence and helps companies manage their energy network and optimise their consumption – a real AI application for tangible cost savings and process improvements. On truck level, one example for highest energy efficiency is the innovative X-series, with which Linde Material Handling is setting new standards when it comes to offering high-performance, robust, and potentially CO₂-free electric forklift trucks on a par with internal combustion engines. This is achieved, among other things, by high-performance synchronous reluctance motors, which are additionally equipped with permanent magnets in the X models.

STILL, as another example, offers customers a full electric portfolio with ready-to-use solutions based on innovative hydrogen technology. To date, at STILL's site in Hamburg, Germany, the company builds up the production of its own fuel cell system and cooperates with Hydrogentle, a Hamburg-based expert for hydrogen infrastructure, to provide a comprehensive range of hydrogen technology products. For customers, this means hydrogen-powered industrial trucks from a single source - from the truck to the fuel cell and service to the necessary infrastructure.

The question of more efficient use of energy also moves us internally in our own energy consumption.

In the last five years, we as a group have almost halved our emissions and reduced our water and energy consumption by around a quarter. We are continually optimising and investing in our own facilities and processes, from the manufacture of industrial trucks to our customer service.



At STILL, a pilot project is currently running, testing how customer service can be run using electric service vans. The initial results are very promising and thus point to a further milestone in being able to operate emission-free along the entire value chain.

Have we reached our destination yet? Certainly not. For the future, we will continue to work on processes and technologies such as the use of green hydrogen as an energy carrier.

To share one more final example: As we recognise that hydrogen plays an important role in the energy mix of the future, Linde Material Handling has developed its first own fuel cell system (24-volt). A 48-volt system will follow as the relevant funding has been granted and the development team has already begun work. Linde Material Handling therefore can provide the full range of energy technologies.

In addition to this, at Linde Material Handling's production site in Aschaffenburg, Germany, the company recently developed its own hydrogen infrastructure with refuelling. The plant is the only one of its kind in Europe and supplies hydrogen for 21 electric forklifts in the factory fleet with a fuel cell hybrid system.

With this project, Linde Material Handling wants to understand the use and potential of hydrogen for its customers and partners even better and explore optimisation opportunities.

I am happy to start an exchange on new approaches to tackle such questions around energy management led by our industry and its strong companies!
