

# ELECTRIC DREAMS

Batteries are being touted by many as a potential power source for not only vehicles, but also some other components.

John Challen investigates their possible use in tail-lifts

Following the COP26 conference, the world is looking for plans, solutions and ideas that will make the world a cleaner and more sustainable place. In transport and logistics, the big push has come from the government's plan to reach net zero. Specifically, this status will only be reached, say those in charge, if all vehicles - including trucks - are running on fossil-free fuels by 2050.

Getting the vehicles required to run on battery power could be argued to be the easy (or, at least, easier) part. Equipping these big trucks with the necessary range required is another matter.

And then there is the question of ancillary equipment. Construction firms will need to run truck-mounted cranes on battery power; while, for distribution companies, the big issue is the tail-lift.

Typically operated by electro-hydraulic means, tail-lifts have the potential to be more environmentally friendly and easier to operate. However, in terms of products on the market, it's slim pickings at the moment.

Go back to 2015, however, and there was evidence that the tide could have been turning. Back then, Palfinger introduced what it was calling 'the world's only high-efficiency electromechanical tail-lift' that ran without hydraulic oil. The MBB C1000 E, pictured top right, was designed to make operations easier - a specific benefit was the ability to maintain lift performance in extreme temperatures



- and to ease environmental concerns over use of conventional products.

The lift used Palfinger's E-Drive cylinder, which was described as producing cleaner energy than conventional products. It also enabled up to 63% of the energy used to be recovered during loading and unloading.

At the time, it was reported that three units in operation completed over 30,000 cycles in nine months. More favourable service intervals and the use of maintenance-free components (no need for oil additions/

changes) were keys to achieving these figures. But the transport industry - like many others - is quite a conservative one, where development can move at a pedestrian pace. Since Palfinger announced the MBB C1000 E lift, there doesn't seem to be any evidence of the technology behind it being used in other products, or any updates to the existing item. Despite numerous queries, the manufacturer remains tight-lipped.

## RENEWABLE RESURGENCE

Elsewhere, other companies have made steps into the world of electric tail-lifts - one example being Marshall Fleet Solutions. Through the company's recent renewables division, a hybrid

***“One of the first projects that the team looked at was using alternative power sources on the vehicle. Typically, it was for refrigeration units at first, but there was also discussion about running other different components, such as tail-lifts, on a battery”***

Adam Jones

power system has been added to its portfolio. The Titan technology is capable of providing power to different applications onboard trucks. Within the new division, a team of people has been looking into electrification options and ways in which it – and the wider industry as a whole – can move away from fossil fuels.

The Titan hybrid system (pictured left) combines power produced from lightweight, high-power solar panels, with a kinetic energy recovery system. This recovery unit converts braking energy into electrical energy, which is stored – along with the solar energy – in long-life lightweight lithium batteries.

“One of the first projects that the team looked at was using alternative power sources on the vehicle,” says Adam Jones, senior technical sales manager at Marshall Fleet Solutions. “Typically, it was for refrigeration units at first, but there was also discussion about running other different components, such as tail-lifts, on a battery.”

It’s certainly been a popular move from Marshall and has generated a lot of interest. Some products are out in the marketplace and being used by household supermarket names.

“We’re now working through a wave of requests from different customers who are asking what we can and can’t do,” says Jones. Away from tail-lifts, for example, the Marshall team is looking at technology that could charge electric vehicles while they sit on a transporter, instead of using a conventional charger.

Jones explains that some of the tail-lift work is at the prototype stage, adding that the company is keen to work with partners to progress the technology. “We are talking to a lot of operators to find out their operational details of using tail-lifts,” he says, adding that some of this work is progressing well. “With one customer, we worked out the daily procedures, how many hours the vehicles will be



working and how many times they are loading and unloading. Then we went to the tail-lift manufacturer to work out specific power usage for the lift. Then we worked out that we would need to build a system that could cope with the specific amperage on a day for a five- or six-hour period.”

Jones adds that each application is likely to be bespoke, given the number of lifts and drops that are scheduled into a daily cycle. “There’s only so much we can say without giving anything away at the moment,” Jones teases. “But just from a Titan point of view, we can work on either solar only power or solar and kinetic power that is on the vehicles.” (See also [www.is.gd/wudupi](http://www.is.gd/wudupi).)

#### **POWER OF THE SUN**

The results from a field trial that began in December 2020 are impressive. Jones reported in autumn 2021 that one of the supermarket’s home delivery vehicles hadn’t used any diesel to run its fridge since the beginning of the second week of December. That example shows the potential of the technology for tail-lifts, given the solar and kinetic energy that has kept the refrigeration unit going over the winter months.

In addition, operators shouldn’t be concerned with the outlay or

maintenance of solar panels. While refrigerated trucks using the Titan system can have almost all of the 13.6m-long trailer covered in panels, it’s not the case for those running just a tail-lift.

“For a tail-lift, you could probably get away with just one – maybe two – panels,” says Jones. “We’re using the latest technology items and they have improved a lot. They used to be fine when the sun was high in the sky, but not so good at the end of the day. These panels have a ripple effect like a prism, as opposed to being flat. So when the sun is low and it hits the solar panel from the side, which then bounces off that prismatic effect, it bounces.

“Like everything as years go by, they are improving and becoming more powerful, smaller and more effective. It’s the same with our battery pack – the ones we use are the latest lithium ion batteries. They are so lightweight and very powerful.”

Jones reports that two trials using the Titan system were successful. “That supermarket has actually moved on and started to purchase our Titan system for its vehicles,” he reveals. “They’ve retrofitted existing vans that are already on the fleet, and we’ve also started to fit them to some new vehicles.” **TE**