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HOS conversation shifts

For the first time in recent history, truckers – not so-called safety groups and litigation – are driving changes to hours of service.

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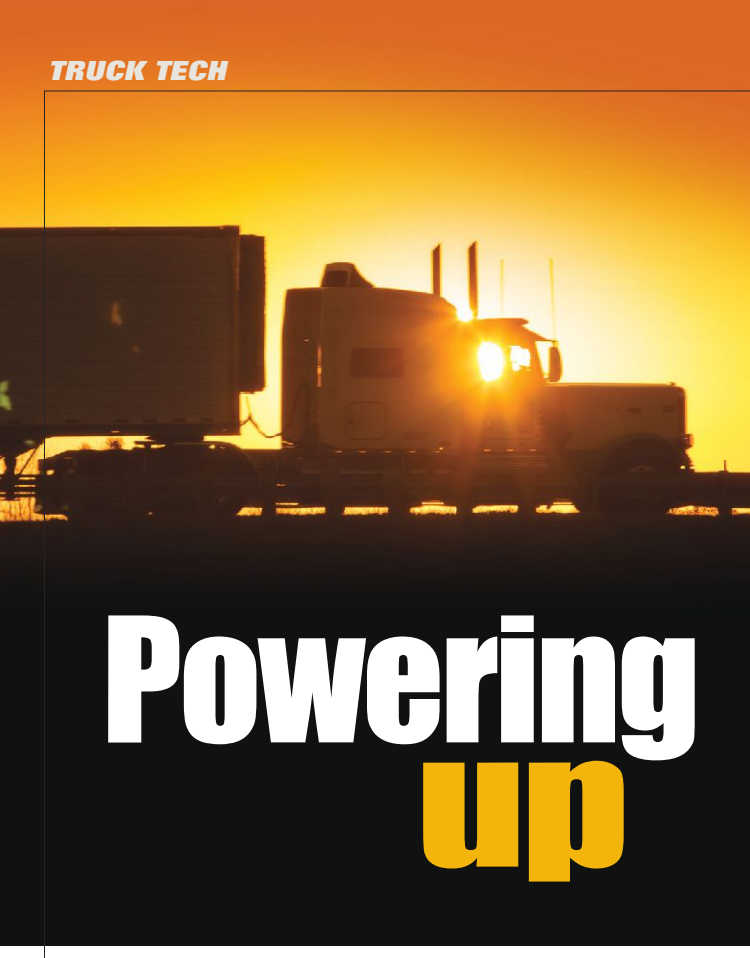

Powering up

Lithium ion batteries are a hot item for truckers.

Special to Land Line

Life as we know it runs on power. Truckers are getting even more nowadays with lithium-ion (li-ion) batteries. That's the word from Xantrex director of sales and business development Steve Carlson, who calls the technology game changing in the trucking industry.

"Li-ion batteries supercharge your power supply, which is great news for those running electrical devices off the battery and inverter, or running battery-powered APUs," he said.

According to Carlson, battery-powered APUs have historically been at a disadvantage – especially when operating in the hot days of summer.

"They simply run out of power. Idling the engine is then the only way to keep cool and recharge the batteries. What's more, it can take six to 12 hours to recharge the batteries for an all-electric APU, either by running the truck engine or plugging directly into an outlet (if the inverter used has a battery charging feature). With li-ion batteries running the APU, you can increase your APU run time by 300 percent."

The biggest benefit of li-ion batteries is that you can use the entire capacity.

"The maximum you can discharge a traditional lead acid battery is 50 percent – many battery manufacturers in the truck market are going so far as to recommend not going past 80 percent," said Carlson. "With li-ion, you can use the whole battery."

Life cycles are a big factor too. A li-ion battery can provide 3,000 cycles. A traditional battery might only last 600 cycles, requiring it to be replaced every year.

"Li-ion may cost more initially, but is a better investment in the long run as it offers five times more cycles than a traditional battery," Carlson said.

Another benefit of li-ion batteries, according to Carlson, is in voltage stability and weight. As the world's lightest metal, lithium provides a huge weight savings – they are 60-80 percent lighter than their lead counterparts. A typical Group 31 battery weighs about 75 pounds while a similar li-ion battery only weighs 28 pounds.

"When you use a lithium-ion battery, you don't notice the battery losing power or having an effect on your appliances. It will run at the same strength at 30 percent capacity as it will at 100 percent. Conversely, an (absorbed glass mat battery's) voltage dips when the battery capacity hits 70 to 80 percent – that makes the engine difficult to start, and everything else powered by the battery will progressively draw more amperage and be less efficient."

Drivers thinking about using li-ion batteries might ask about safety. There have been documented cases of fire. In years past, accidents related to li-ion batteries have occurred involving cell phones and laptops – even cars and planes.

"When li-ion batteries were first adopted, users often overlooked the fact that they required different charging algorithms than a traditional battery and, because of that, the batteries often failed," explains Carlson. "That's why we advise only using li-ion batteries listed with the UL 1973 rating for auxiliary vehicle power applications."

Manufacturers have also improved the safety of lithium-ion batteries by embracing li-ion technology over pure lithium devices and giving closer scrutiny to the actual chemical compounds used within these batteries.

When it comes to pairing li-ion batteries with inverters, it's a green light in most cases.

"If it is just an inverter, then all you're doing is taking power from the battery and turning it into AC power," Carlson said. "As long as the voltage is at the right level, the inverter doesn't care what type of battery is being used. It's going to perform best with a lithium-ion battery

because the voltage is going to remain steady through the cycle."

One thing to note, the majority of new trucks straight from the factory are equipped with an inverter/charger. In that case, you need to verify that the unit is capable of being adjusted for the specific charging needs of a lithium-ion battery.

Photo courtesy of Xantrex

"Even if there is a lithium-ion setting, you should check what voltage it is set at. Saying all that, for example, the newer Xantrex inverter/chargers, can be configured easily to work with lithium-ion batteries."

When it comes to installing li-ion batteries, "where" is often a question. Since lithium-ion batteries work best when they are in an environment between 32 degrees and 95 degrees, installing the battery inside your vehicle helps to control the operating temperature. Adding temperature controls to an outside battery box is also an option.

While li-ion batteries offer more power, Carlson says some truckers are going a step even further.

"That's solar power," he said. "By adding solar panels you enhance battery life, and installation is not that difficult. Once they're installed, the charge controller just needs to be connected to the battery. While adding solar panels won't provide your battery with a quick full-charge, it does give a stable charge. Adding a solar panel – even a small one that can trickle charge and offset parasitic load – helps to keep charge levels stable.

"With li-ion batteries running the APU, you can increase your APU run time by 300 percent."

– Steve Carlson, Xantrex director of sales and business development

"Solar alone isn't going to run your air-conditioning unless you've got the entire roof of your trailer covered with panels," Carlson said. "Adding a couple of 100-watt panels can, however, provide enough power back into the battery to give you a couple more hours of usage and can keep batteries from draining as quickly, potentially eliminating one to two battery replacements over five years." LL