

Industrial Range Anxiety and Options to Help Ease Fears

It's no secret that the automotive market is moving towards electrification, so it shouldn't be a surprise that the industrial mobile market is also headed that way. Whether the driver is energy costs, environmental concerns, or even the need to comply with new regulations, the move to electric can be daunting. One of the common concerns that we hear is range anxiety. If you have an off-highway vehicle that could be miles from shore power, the idea of running off of a battery all day might sound like a troubling prospect. We get it, and we have some solutions to help ease your mind.

1. Generator

Maybe the most obvious solution is adding an onboard generator. Having a generator out in the field ensures that if you find your battery is running low you can charge it onsite. You may ask, what's the point of electrifying if we put an engine right back onto the machine? Generators allow us to operate the engine in its most efficient range at a constant speed which results in fuel savings and reduced wear. Range extending generators can be programmed to automatically turn on when your battery gets below a set level of charge. We can help you size an onboard generator properly for your needs. Some things to consider are that with a larger generator, you can charge your battery faster but will make your equipment heavier and thus less fuel-efficient. On the other hand, a smaller generator will be lighter but will take longer to charge your battery.

2. Duty Cycle Sizing

Properly sizing your battery for the application is an often overlooked but extremely important step. The reason that this is extremely important is that the battery in an electric system is the most expensive component, by far. Oversize your battery needs, and you can make your electric machine cost-prohibitive for your market space. Undersize your battery and you risk not meeting your customer's expectations. We have found that most OEMs think they know how their machines are operated, but either they overestimate their needs, or do not understand the load requirements during operation. Varying loads can dramatically change your duty cycle needs. Installing telematic sensors on the equipment and collecting data on how the machines are actually used in the field, enables us to ensure the batteries will handle your most demanding tasks. . Whether you are overestimating the power needed and spending unnecessary money on batteries that are too large or underestimating and running the risk of the battery dying in the field, proper duty cycle sizing can help.

3. Higher Voltage Alternator

Another option is utilizing a higher voltage alternator to charge batteries while your vehicle is moving. For example, if you have an electric cart that is carried from location to location, you can use a 48-volt alternator to charge the cart between work sites by converting the rotating power of your vehicle's engine into DC power to charge your batteries. Obviously, this isn't a solution for all applications but is a great alternative for some situations.

Industrial Range Anxiety and Options to Help Ease Fears

4. Solar

While solar power tends to get a lot of buzz, the low wattage panels that you'd put on a work truck provide only a small fraction of charge power compared to an onboard charger or generator. If used to charge your higher voltage batteries, it would end up taking days to charge instead of hours. That being said, they are helpful in charging smaller 12V auxiliary batteries that are used for lighting, to start your vehicle and turn on the higher voltage battery. This is particularly useful in situations where a vehicle might sit out in the field for months at a time. If these batteries are left untouched for too long they will eventually drain all of their energy. Solar panels can help to keep these lower voltage batteries charged until they are needed again, reducing the likelihood your equipment is stranded

Hopefully, these options help to make the idea of electrification sound a little less daunting. If you are interested in electrifying your mobile equipment we'd love to chat with you. We have a team of electrification engineers as well as mobile equipment engineers with years of experience here to help you properly size your batteries and make sure your equipment performs just as well if not better when electrified. Contact us today to start a conversation.