Lithium Iron Phosphate batteries (labeled LFP in the chart on the next page but most commonly shown as LiFePO4) are right in the sweet spot for our use as house batteries in a bus conversion. They offer three times the energy density of lead-acid batteries, are safe, easily managed, widely available, and can handle the large loads we often require when running household appliances through a large inverter.

They also recharge six times faster than lead-acid batteries of a similarly rated capacity, exhibit very slow self-discharge, and last five to ten times longer than the lead-acid batteries we are now using.

In fact, many manufacturers advertise them as “drop-in” replacements for lead-acid batteries in RV applications. While I don’t agree that they are directly drop-in replacements for our buses for reasons I will detail later, they are the right, the safe, and the economically reasonable chemistry for our use.

You will often hear that while LiFePO4 batteries offer many advantages, they are much more expensive so are of questionable value. I want to put this notion to bed and will offer a number of reasons why as we go along.

Suffice it to say that while they cost more to acquire in the first place, they last five to ten times as long so are a much more economical investment when viewed over the life of your bus.