

Considerations for selecting a 12VDC 24VDC or 48 VDC battery bank

Selecting a system voltage.

The PV industry really began with the 12V radio communications market. These systems were typically small (1-2 [solar modules](#)) and had all 12 VDC loads. As the solar industry matured and entered the home market, systems became much larger (16+ solar modules) and no longer used DC loads exclusively. Most home systems today are 24 or 48 VDC since the higher system voltage gives you a lot more flexibility as to how far away you can place your [solar modules](#) from the [battery bank](#) as compared to a 12V system. For a given power output, a higher system voltage reduces your amperage flow (but not your power) which allows you to use a smaller and less expensive gauge wire for your solar to battery and battery to inverter [wire runs](#). Of course, if you already have a lot of 12VDC loads, that may be your deciding factor as to what voltage you set your system up at. Most grid-tie systems operate at 48 volts or higher.