



## 3 'Make Or Break' Secrets About Your COW's Mobile Power System

*Clinicians depend on a cart's power system to provide ample runtime while requiring minimal charge time, and three critical factors can lead to success or failure.*

By Patricia Moore, President of CompuCaddy

**M**obile computer carts with power systems have played an integral role in the implementation of electronic medical records in healthcare facilities. By now, we all know the importance of equipping carts with the right features for clinicians. Equally significant and often times disregarded, is the importance of understanding all the dynamics involved in selecting the right power system. Clinicians depend on their cart's power system to provide ample runtime as well as minimal charge time in order to do their job. The following 3 factors must be considered in order to achieve optimal results from your power systems.

### 1. DC POWER VERSUS AC POWER FOR COWS (COMPUTER ON WHEELS)

The first consideration in selecting a power system for a COW is whether to use a DC-power-based or AC-power-based system. The essential differences between the two approaches are in run times, safety and ease of use.

A DC-powered COW experiences a 90% level of efficiency by eliminating energy losses with fewer conversions. The power to provide runtime for your computer starts with DC power (direct current) coming from the cart battery. Using a DC to DC adapter, the power from the cart battery is then converted into acceptable and streamlined power for the computer. This conversion results in a minimal loss of 10% of power.

Conversely, an AC-powered COW is only 40% energy efficient because more power conversions are needed. Just like a DC Computer, the power for your AC computer also starts with DC power coming from the cart battery. However, the power must then be converted into AC power via an AC Inverter. This required conversion depletes approximately 30% of power from your cart battery. Next, it is necessary to plug the computer's AC adapter into the AC inverter (which basically turns that AC power back into DC power). This final conversion results in another 30% loss of power.

Simply put, a DC-powered COW is the equivalent of going from point A to point B by walking in a straight line (DC to

DC). The AC-powered COW is more like walking from point A to point B in a zigzag pattern (DC to AC then back to DC). The diagram below illustrates how the CompuCaddy DC COW provides twice the runtime of an AC COW in a scenario using the same computer and same amperage battery. The runtime is severely affected with the required power conversions in an AC COW.

### 2. CHOOSE COMPUTER EQUIPMENT INTENDED FOR MOBILE APPLICATIONS FOR LONGER RUNTIMES

It is crucial to choose a computer for your COW that is designed for mobile use and therefore pulls minimal power. For example, compare a DC powered all-in-one computer or laptop that typically uses only 40 - 60 watts versus an AC powered desktop computer & monitor which is meant for stationary purposes that requires 200+ watts. By minimizing the amount of power that is drained from the battery, the runtime and overall life expectancy is greatly increased.

### 3. SELECT LITHIUM PHOSPHATE BATTERY CHEMISTRY FOR A FASTER CHARGE TIME

In the past, end users didn't give much consideration to which battery chemistry was most suitable for their application until they became dissatisfied with SLA's need for frequent maintenance. With the recent emergence of Lithium Iron Phosphate (LiFePO<sub>4</sub>) batteries in the market, the once impossible features like ultrafast recharging capability (2X as fast as SLA), a cycle life in the thousands, increased safety, lightweight, zero maintenance and low overall TCO are now a reality. Clearly, LiFePO<sub>4</sub> battery chemistry can have a major impact on the performance of a COW's Power System.

In summary, the fundamental advantage in using CompuCaddy's Power System is that it was designed specifically for this application. It maximizes run times by skipping a step in the "transfer of power", eliminates time consuming maintenance, eliminates safety hazards, displays information that is intuitive for Nurses and reduces life cycle costs.