




The Cost of Ownership  
When Procuring a Static UPS (SUPS)



In the selection of a UPS system for a critical power application utilizing a SUPS (SIPS) system, there are a number of factors that should be considered. The commercial market recognizes the distinction between the procurement of a UPS system (acquisition cost) and the long term Total Cost of Ownership.


There are a number of factors that should be considered in the acquisition of a SUPS system. Many of these factors have long term implications in the ownership, design, and implementation of the SUPS system. Advancement in design and technical advances has created significant gaps between SUPS. The total cost of ownership model combines several of these factors to develop the long term cost of a SUPS. The initial design criteria and selection should be based on total cost of ownership vs. the acquisition cost.

## **Factors in Determining Total Cost of Ownership**

**Open Architecture:** Many of the major manufacturers of SUPS systems utilize Manufacturer specific Proprietary Software with closed architecture. As an evaluation factor it is important to consider the implications of closed architecture. If the system being implemented will be limited to service only by the manufacturer of the equipment a competitive solution may not be achieved. By limiting the access to the equipment by third party maintenance organizations, OEMs ensure long term reliance on themselves as a service support mechanism to that system. It is common that the manufacturer will indicate that the only qualified service capability is the OEM, thereby, largely eliminating competitive bidding on service contracts for the equipment. It is not uncommon to see savings in service contracts between independent maintenance organizations and OEMs to be greater than 30%. As the life cycle of SUPS can be in excess of 20 years, the service costs are an essential element of the **Total Cost of Ownership**.

**Energy Efficiency:** Today a recurring theme that we see in the data center is the effort to take into consideration the electrical costs associated with operating the data center. The greening of the data center takes on several aspects, but one large factor that needs to be considered is the electrical efficiency of the UPS systems. In many of the UPS configurations designed today redundancy will be part of the design of the UPS system. As such the correlating loads that those systems will be carrying often times is well below the total capacity of the UPS system. For that reason it is important to consider not only the electrical efficiency of the system at full load, but consider the efficiency at partial load. More commonly the UPS system will be operating at a 50% load. When doing calculations on the energy usage of the UPS system compare the efficiency at partial load as well as the operating costs associated with the additional cooling requirements as a result of inefficiencies (Heat). Consideration of inefficiencies will create a more realistic picture of what the systems **Total Cost of Ownership** is.

**System Control Cabinets:** Many of today's UPS systems are designed around multi-module applications. Redundancy and the design factors that go into this will require the UPS systems to be able to share load. To accomplish this many of the OEM's will require System Control Cabinets. The system control cabinet not only represents a



space consideration in the data center environment but it also represents additional costs, for the system itself and the installation of that system. The system control cabinet also represents a single point of failure and an additional device requiring periodic maintenance. Advancements in the marketplace today eliminate system control cabinets. Elimination of the system control cabinet represents additional savings in space, maintenance and installation, reducing the **Total Cost of Ownership**.

**Equipment Footprint:** Some of the most expensive real estate today is allocated within a data center. As such it is important to consider the cost of space when choosing a SUPS. In many retrofit scenarios that exist today, using existing infrastructure to encapsulate the UPS systems requires a great deal of ingenuity and thought. Often, expansion requires an older, smaller capacity SUPS be replaced with a larger capacity SUPS with out allotting additional space. As the footprint of the UPS expands it robs space from the footprint for the data center IT infrastructure. In new construction the space considerations given to the UPS systems takes away from the total available raised floor space. In existing infrastructure there is the consideration of removing walls, changing design and the costs associated with making a larger system fit into the existing space. For that reason it is very important to consider the footprint of the UPS as a component of the **Total Cost of Ownership**.

**Scalability:** Design parameters for most SUPS systems today need to consider future growth and expansion. Scalability should be a consideration in the selection of a SUPS system today. Many of the design factors selected in the original consideration of the UPS system are hedged towards an eye to the future and what the demands may increase to as time goes by. It is for this reason that we will see electrical infrastructure design be influenced in the terms of the UPS systems being implemented. When looking at a SUPS system you want to size the UPS for the initial load but also consider the level of redundancy and future expansion requirements. Many of the UPS systems today require that forethought be given to the ultimate sizing of the UPS system in the original design, as the UPS system will not be able to communicate with the other UPS systems. SUPS designed to easily accommodate additional modules to achieve capacity or redundancy represents value in projecting the **Total Cost of Ownership**.

In conclusion, a model of the total cost of ownership should consider all of the factors that impact the long term cost of operation. The delta in total cost of ownership can be far more significant than making a purchasing decision based largely on the acquisition cost of the UPS system itself.

While often times there is a disconnect between procurement and facilities in the procurement of large capital projects such as this, it is nevertheless important to consider the long term costs associated with the selection process that greatly effects the total cost of ownership.