

## RE SERIES VS. REGULAR DEEP CYCLE BATTERIES

### TOTAL COST OF OWNERSHIP COMPARISONS

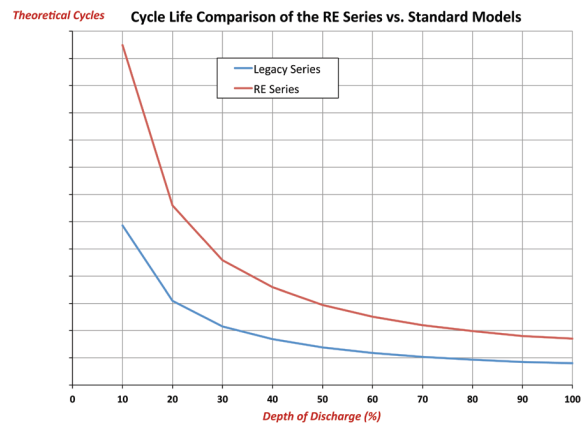
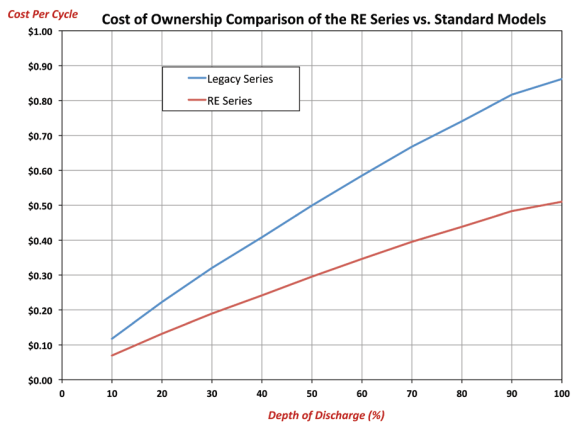
#### Background & Introduction:

Trojan Battery Company introduced the Premium Renewable Energy (RE) Series product line to meet the specific needs of the rapidly growing RE industry where long life, low maintenance, high charge efficiency, and good performance are of prime concern to end-users. RE applications present unique challenges that can affect the performance of a battery. These challenges include coping with extreme temperatures, operating with varying loading conditions, unpredictable weather that affects charging and operating at low states of charge for prolonged periods.

Engineered specifically to handle the harsh conditions of renewable energy applications, Trojan's RE Series provides rugged durability, outstanding performance and long cycle life. In order to fully understand the limiting performance factors and failure modes commonly seen in RE applications Trojan conducted extensive field testing, laboratory testing, and market research. Once the specific challenges were characterized, appropriate measures were implemented into the current designs where they deliver outstanding cycle life and performance.

The RE Series features the following attributes and components:

- DuraGrid™ technology which provides a 10-year design life and excellent charge efficiency
- Maxguard® XL Advanced Design Separator which is 30% thicker and stronger, resists stratification, extends life and lowers overall maintenance costs
- Alpha Plus® Paste formulation which promotes longer life and optimum performance
- Polyon™ container – ultra-rugged case design which stands up to the harshest of environments
- Lower specific gravity which improves charge performance and extends life



#### Total Cost of Ownership – RE Series versus Regular Deep Cycle Batteries

In most RE systems the battery is the first component needing replacement and in many RE installations batteries are located in remote locations; making moving batteries in and out difficult and costly. Choosing the right battery for an RE application will not only provide extended performance but also considerable savings throughout the life of the battery, which is why looking at Total Cost of Ownership is critical. Trojan manufactures a full line of batteries suited for deep cycle applications; however Trojan's RE Series is optimized exclusively for renewable energy applications providing even greater performance and long term savings over standard models.

The cycle life graphs below point out the cost difference of the RE Series versus standard Trojan batteries over the life of the battery. This same theory can be used for comparing Trojan's RE Series to any other manufacturer's deep cycle battery not specifically designed for RE. At 30% DOD, using MRSP pricing as of December 2010, the standard Trojan battery costs approximately \$0.14 more per cycle than the equivalent Premium RE Series battery. Considering how many cycles are expected, the cost per cycle difference can add up

over the lifetime of the battery, increasing the Total Cost of Ownership of the RE system dramatically. While the upfront cost for the RE Series products may be higher than regular deep cycle batteries, the long term benefits over the life of the battery and RE system are clear.

The RE Series line of products also come with a best-in-class limited 5-7 year warranty which means that, over the lifetime of the RE system, fewer battery replacements are needed when comparing to standard models. With the volatile price of lead in the past few years and its impact on battery pricing, minimizing the number of battery replacement cycles for a RE system is critical in minimizing future system costs; all the more reason to choose a battery with longer life to help reduce the number of replacements needed over the life of the system.

Trojan Battery is confident that customers who choose the RE Series will enjoy long life and excellent performance from our batteries. The Trojan RE Series batteries are the ideal investment and sound economic solution in RE applications.