



## 48V100 Case Studies

**Location:** India

**Year:** 2012

**Application:** Backup power for telecommunications wireless base stations

### Site #1:

#### **Grid Power Conditions:**

The grid supply was reasonably good, typically in excess of 16 hours of grid power per day.

#### **Site Configuration:**

The site consisted of a single outdoor BTS consuming around 25 to 27A of current. In addition, the site hosted a remote monitoring solution along with an FCU inside the shelter that hosted the power plant, PIU, microwave radio, etc. The total site power consumption was around 30A.

#### **Situation:**

Due to the poor performance of VRLA batteries, the backup at the site from VRLA was reduced to 5-10 minutes of run time. Consequently, the diesel generator was turned on during any power outage scenario. In total, the diesel generator run time during the observation period was 63 hours leading to a consumption of 107 liters of diesel fuel.

#### **Action:**

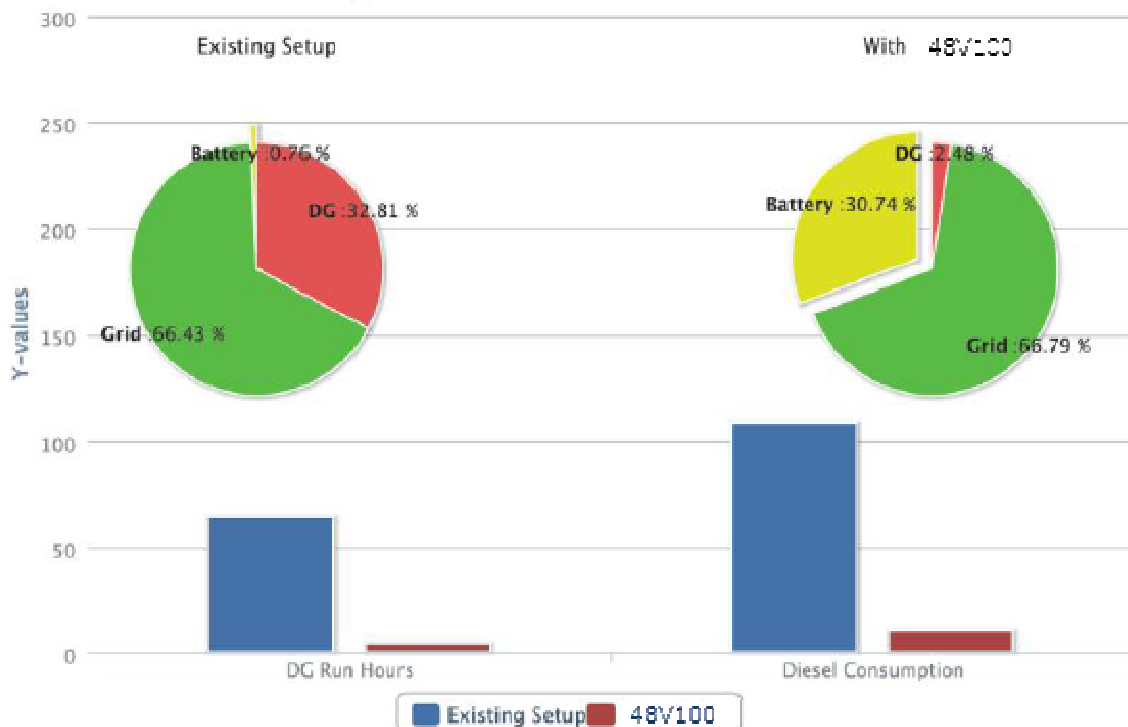
A123 48V100 battery systems were installed at the time of the observation period. The diesel generator control was passed on to an energy management controller to ensure optimal diesel generator run time.

#### **Results:**

Due to the fast charging capabilities of the A123 technology the 48V100 battery systems were optimally charged within 48 minutes. Consequently, most of the power outage was handled using the 48V100s leading to minimal diesel generator run time. The diesel generator only operated when the outage duration exceeded 3.5 hours. During the similar observation period, it was noted that diesel generator run time was 4.6 hours, while the fuel consumption reduced to 11 liters. It was noted that with the 48V100:

- Diesel Generator run time was reduced by 92%
- Diesel consumption was reduced by 90%
- The 48V100 is expected to last for 6+ years with the proposed usage pattern for this site

### **Trial Results #1: Average Breakdown of Power Source**



**Site #2:**

**Grid Power Conditions:**

The grid supply was erratic and was typically available for 12 to 14 hours per day.

**Site Configuration:**

The site consisted of a single BTS consuming around 18 to 20A of current. In addition, the site hosted a remote monitoring solution along with an FCU inside the shelter that hosted the power plant, PIU, microwave radio, etc. The total site power consumption was around 22 to 25A.

**Situation:**

A brand new VRLA battery plant was installed at the time of the trial. During the observation period of 8 days, it was noted that diesel generator run time was 5+ hours per day leading to a consumption of 8+ liters of diesel fuel. As noted, the VRLA batteries were brand new. With the current pattern of usage the life of the VRLA batteries will be limited to 1 year.

**Action:**

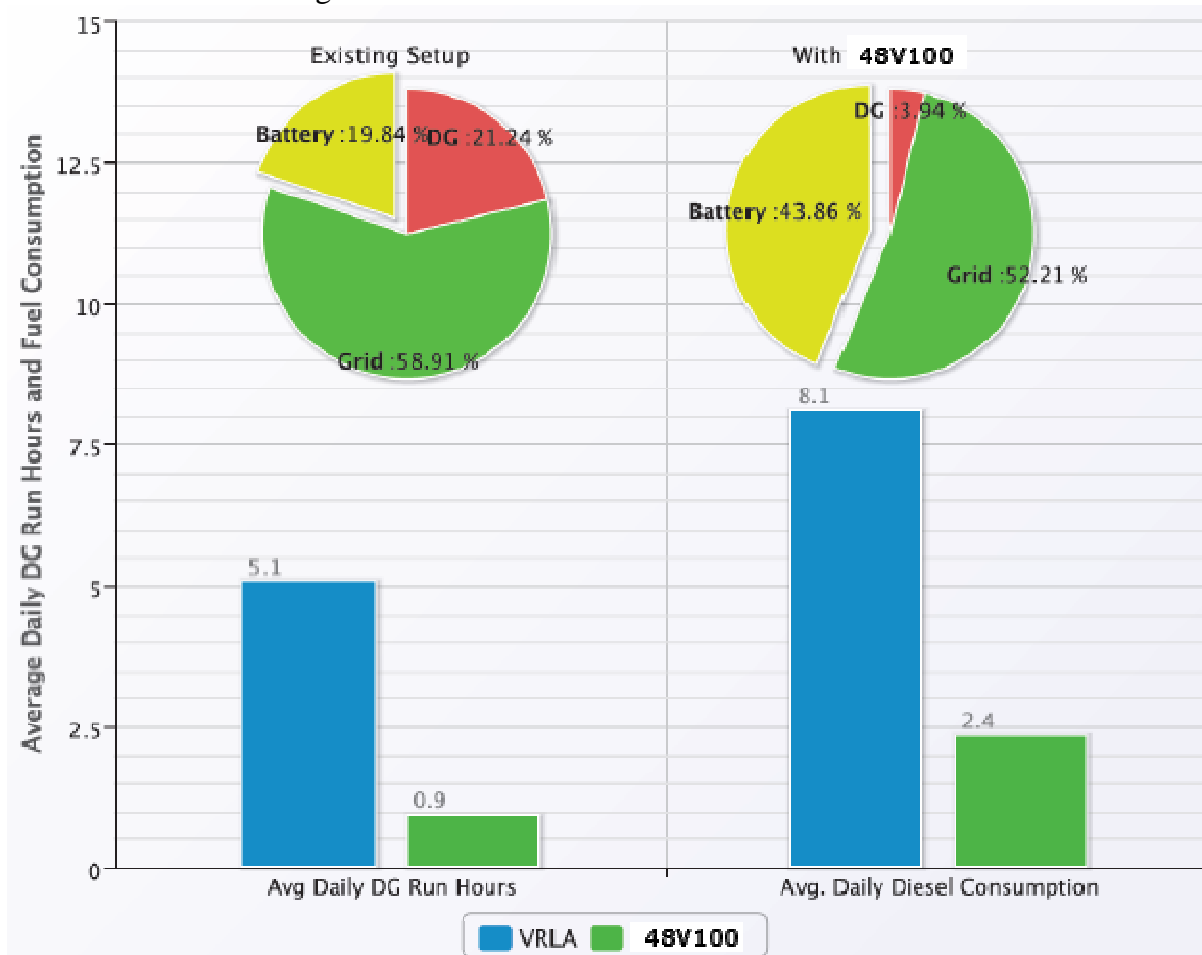
A123 48V100 battery systems were installed at the time of the observation period. The diesel generator control was passed on to an energy management controller to ensure optimal diesel generator run time.

**Results:**

It was observed that during 48V100 trial, the grid availability went down by more than 10%. In spite of reduction in grid availability, the daily diesel generator run time was reduced to 0.9 hours and the fuel consumption was reduced to 2.3 liters. It was noted that with the 48V100:

- Diesel Generator run time was reduced by 81%
- Diesel consumption was reduced by 70%
- The 48V100 is expected to last for 5+ years with the proposed usage pattern for this site

**Trial Results #2: Average Breakdown of Power Source**



For additional information, contact A123 Systems

<http://www.a123systems.com/telecom-battery.htm>

<http://info.a123systems.com/contact-us-commercial/>