

T016rev2 – Battery Recommendation  
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March 24, 2009

#### Main Storage:

The main storage is going to be a LiFePO<sub>4</sub> based battery array at 204.8V nominal. We are stringing 64 3.2V 10Ah cells in series to form our high voltage battery. We need to support the George Foreman grill for enough time to cook for 24 people (22 students and two professors) at the demonstration would require a run time of 1.2 hours at least. If everyone gets one burger and assuming the grill can cook 4 at a time, we would need to go through at least 6 cook cycles at 10 minutes each. This comes to 60 minutes of cook time. An average grill consumes 1000W of power (120VAC @ 8A). Adding in warm up time comes to about 70 minutes. This means we will need to have an array with at least 10Ah to run the system drawing 8A for 1.25 hours. We will barely make it through the demonstration, but due to cost restraints, a higher Ah rated battery pack is not feasible.

#### LiFePO<sub>4</sub>

- 24.8V 10Ah pack = \$2560 (forsenusa.com) + \$400 shipping
- LiFePO<sub>4</sub> charger from batteryspace.com for testing purposes = \$22
- **Total = \$2982**

There is no longer an auxiliary storage for the system power due to its unnecessary risk and complexity, so the system power will be run off the main storage batteries. WE predict that the batteries will be able to support the system power budget of 40W over night if the batteries are at 50% charge. This is the worst case which occurs in January when insulation is lower and the nights are longer so we expect better results during the summer.