be able to save money by operating his/her device at hours when the system demand for power is low (3). Thirdly, a customer can alter cost significantly by onsite generation of power. Installation of solar panels and backyard wind turbines can help a customer significantly. A consumer may no longer need to alter his/her energy consumption practices according to peak hours. However, from a utilities perspective, electricity demand patterns will not see significant changes unless an entire residential community adopts onsite generation practices.

**Understanding Energy Storage:** Energy storage is defined as the conversion of electrical energy from the power grid into a form that can be stored until used again when converted back into electrical energy [6]. Research in different technologies has made available an array of storage options. While energy storage is a heavily researched subject, breakthroughs made in the field have potential to heavily reduce costs and maintain stability in the power grid. Figure 1 describes the potential benefits of energy storage systems.

**A Smarter Home**

**Building a Smart Home:** This section focuses on building a home that has various appliances that can be found in a typical house. The appliances are divided into three distinct load profiles: critical, deferrable and interruptible. Loads that fall under critical loads run irrespective of time of day or peak hours. These are critical to a household and operate at all hours. Loads that fall under deferrable loads run at certain hours in continuity. They can however, be shifted to off-peak hours to reduce cost from functioning during peak hours for the homeowner. Loads that fall under interruptible loads can be run and discontinued without consequence and negligible discomfort to the homeowner.

One may note that the household demands peak load between 12pm-3pm and between 7pm-10pm. It must also be noted that households pay more money during peak hours than off-peak hours. This sort of pricing option falls under Time of Use (TOU) or Real Time Pricing (RTP).

To keep with varied pricing options, the smart meters/advanced metering in-