Based on statistics provided by the Energy Information Administration (EIA), projected US residential sector demand growth at 1.5% will increase electricity demand to more than 2,039 Terawatt hours (TWh) by 2030. The mix of new generation will largely consist of coal, petroleum and natural gas, will add to the intensity of GHG emissions. With greater than 122 million customers, the residential sector was the greatest consumer of electricity in 2006, 1,351 TWh, with 37% of market share. The demand for electricity to power appliances is projected to increase rapidly. Electricity consumption for home electronics, particularly for color TVs and computer equipment, is also forecast to grow significantly over the next two decades. The EIA projects electricity consumption to grow 3.5% annually for color TVs and computer equipment through 2025, to more than double the level of consumption in 2003. There is an urgent need for a GHG emissions management framework complemented by enhanced energy efficiency efforts, since slowing energy demand growth is essential to emissions intensity improvements. In order to seriously address the challenges of energy production, conservation, and self-sufficiency, we need to begin to appreciate electricity as a commodity – similar, in this respect, to petroleum, coal, or natural gas. To appreciate electricity as a commodity, we must have a clear sense of how it is used and how it can be conserved. This means understanding the quality and amounts in which it must be supplied to our homes and businesses.

A Priority Power Distribution (PPD) system seriously addresses the challenges of energy production, conservation and self-sufficiency, and help consumers appreciate electricity as a commodity. A PPD system interfaces with the communicating duplex receptacle (CDR) at the point where electricity is consumed, supported by user friendly supervisory software which collaborates with utilities' existing, and future, demand side management (DSM) technologies with the means to limit maximum current (MC) draw, shed loads during peak periods and reduce total purchased energy costs.

Our mission at Demand Side Technologies, a New Hampshire limited liability company, is to create, demonstrate, deploy and service new sustainable technologies that will integrate economic viability, environmental stewardship and social equity to meet the needs of the present without compromising the ability of future generations to meet their own needs. Our PPD system and CDR peripheral is sustainable technology that has reached the demonstration phases of the innovation chain where the development of a bench scale prototype and full-scale demonstration must be completed to prove system capability that will lead to the phases of technologic viability and market relevance. This development work, performed through the University of New Hampshire, Durham, Computer and Electrical Engineering Department. We plan to develop communicating receptacles that comply with the National Electrical Manufacturers Association (NEMA) Standards NEMA 5-15R, NEMA 5-20R, NEMA 14-30R and NEMA 14-50R configurations. These communicating receptacles will be available separately or as part of a PPD Basic Package – five NEMA 5-15R and NEMA 5-20R receptacles, two NEMA 14-30R and one NEMA 14-50R communicating receptacles, one controller and software, one touch screen and one single-phase smart electricity meter providing bidirectional power line communications between the consumer and electrical service provider.

A new housing unit with our PPD Basic Package installed could save about 25%, in their annual electricity consumption. For example, in 2007 the average residence is estimated to consume 11,198 kWh of electricity. With a PPD Basic Package installed, a household could reduce its consumption and maintain it at a constant 8,398 kWh (a 25% reduction) for years to come. At current rates of above 9 cents per kWh, a household could save $270 in electrical energy costs in the first year. Without adjustments for inflation, average delivered electricity prices are projected to reach 13 cents per kWh in 2030. By 2030 a single household will be saving $540 per year and have accumulated savings of over $9,000 in electrical energy costs.

A PPD Basic Package has socio-economic benefits for people in the way it will help to enhance energy efficiency in homes and businesses, limit peak period energy costs, decrease use of our natural resources with the ultimate goal to reduce GHG emissions intensity. Residential PPD systems could potentially impact the USA in very positive ways as it meets energy efficiency goals. A PPD Basic Package installed in every new residential construction and retrofitted in existing homes at a conservative rate of 0.25% per year, would impact the reduction of electricity consumption in the residential sector. Our conservative estimates show how the residential sector can impact the US economy with savings of 249 TWh of unconsumed electricity in 2030. From now to 2030, unconsumed fossil fuels for electricity generation will total 101,530 short tons of coal, 13,302 barrels of petroleum and 748,742,000 cubic feet of natural gas. This represents electricity provider savings of just over 17 Million dollars and 240,000 metric tons of greenhouse gases not emitted to the atmosphere.

Our Priority Power Distribution (PPD) system and communicating duplex receptacle (CDR) promotes energy efficiency in buildings worldwide, positioned to provide electrical utilities with optimum value as they enhance DSM network load shed control during peak periods, security, monitoring and communication customer services. A PPD system provides business and homeowners with an accurate energy distribution profile of the building in real time. Owners become energy aware of the frequency of use and functionality of their appliances and can implement control measures to save energy, money and the environment. Building owners can justify wiser lighting and appliance purchases that will cut energy bills and building operating costs, make buildings more attractive to potential lessees or buyers, enhance economic growth, and reduce emissions of conventional air pollutants as well as greenhouse gases.