The DC Micro-Grid House
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Retrofitting an existing home using DC power to improve energy efficiency and consumption.

Project Description

- To improve the energy efficiency and consumption of an existing home by means of a complete AC to DC retrofit of wiring, appliances, and energy systems.

Approach

- Instrument a baseline under the current AC-power scheme, and transform the home into a ‘living lab’.
- Develop and install new DC technologies, appliances, and power delivery systems through collaboration with industry partners.
- Retrofit the AC powered home to DC power, and perform an energy analysis/efficiency comparison to the baseline data.

Discussion

- Expect to observe increases in energy efficiency and reduction in consumption.
- Reduced complexity and cost of electrical systems.
- Demonstrate a successful occupation of a DC powered home.

Results

- AC vs DC Grid Implementation in a Data Center

Figure 1: Solar Integration in a Conventional AC Data Center [2]

Figure 2: Solar Integration in a DC Data Center [2]