Home Lighting and Appliances

In 2015 electricity demand for home lighting and appliances was 1.17GWe. This breaks down as follows: 0.35GW for lighting, 0.23GW for refrigeration, 0.29GW for electronics, 0.29GW for cleaning and cooking.

We assume a population growth of 1.5% per year.

The lighting sector has the most potential for savings. Switching entirely to LED lighting would reduce energy consumption for lighting in a home by 90%.

For refrigerators we assume 30% extra energy saving per refrigerator could be accomplished by 2050.

Given our increasing reliance on gadgets of all sorts we assume that electricity demand per capita will not change for electronics resulting in an increased demand of 70% due to increasing population.

For cooking and cleaning we assume that 15% gains in efficiency are possible.

The pathways to 2050 are then computed as follows:

Level 1
We assume that electricity demand per household does not change over time. We thus take the electricity consumption in 2015 and scale it up by 1.68 due to population growth of 1.5% per year.

Level 2
We assume the electricity demand per household declines by 20% between 2015 and 2050.

Level 3
We assume that electricity demand per household declines by 33% by 2050.

Level 4
We assume that electricity demand per household declines by 42% by 2050. This is a result of applying all known savings to the four categories of usage. This results in a roughly constant electricity demand despite the population increase.