

Commercial cooking, lighting and appliances

Commercial ownership of lighting and appliances such as refrigerators, ovens, TVs, computers and related equipment is steadily increasing. Over the years, technological advancement has made many of these gadgets much more energy efficient. Major manufacturers in Japan have put significant efforts into producing energy efficient appliances. For example, Toshiba’s E-core LED lighting system is assumed to use 80% less energy than incandescent lamps (Toshiba, 2014).

Commercial lighting and appliance sector’s future energy use is influenced by the five society scenarios of the Low Carbon Navigator. In addition, energy use for lighting and appliances is determined by several factors: total floor space required for commercial activities, energy demand per floor space, and energy efficiency of appliances.

Energy service demand per floor space

Energy service demand per floor space for cooking, lighting and appliances vary across the levels in terms of its degree of increase or decrease. Under **Level 1**, it is assumed that in 2050, energy service demand will increase by 20% compared to 2010 level. A similar increase but to a lesser degree—10% compared to 2010 level—is assumed for **Level 2**. On the other hand, **Level 3** holds that energy service demand will remain the same as 2010 levels. Finally,

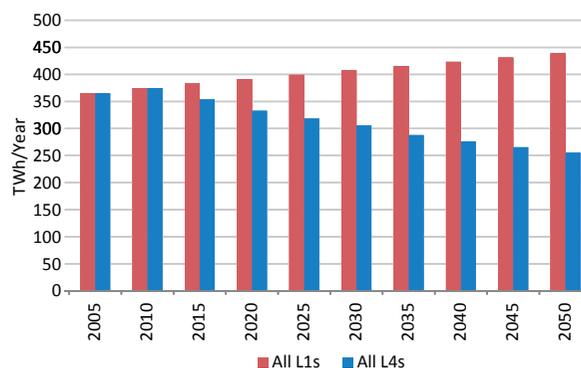
Level 4 assumes that energy service demands will decrease by 20% compared to 2010 levels.

Energy efficiency of appliances

Under the assumptions of **Level 1**, energy efficiency of appliances in 2050 will remain the same as 2010.

Levels 2, 3 and 4 assume that efficiency will be improved depending on technologies.

Figure 1 Commercial lighting, cooking and appliances energy demand under all L1s and all L4s scenarios



Note: Society scenario is set at R&D under both all L1s and all L4s scenarios.

Source: Authors.

Figure 2 Commercial use of various appliances is on an increase in Japan



Source: IGES stock image.