

Commercial sector: retrofitting of lights and HVAC

Retrofitting old ventilation and adding insulation can drastically improve heating, venting and cooling (HVAC) systems in buildings. As much as 32% efficiency gains can be met by just installing variable speed drives, improving air ducts/vents and insulating pipes.¹

This lever affects existing buildings for heating and cooling, and lighting for both existing and new buildings.

Level 1

Current rates of improvement lead to only a 3% improvement.² And no large change to LED lights.

Level 2

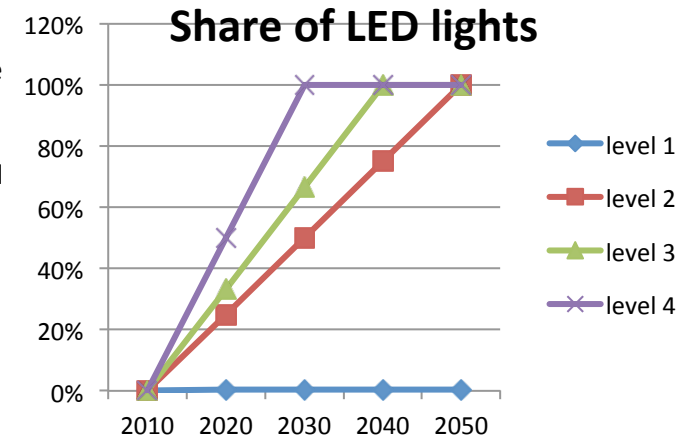
In this level, a 10% savings in HVAC in existing buildings is achieved by 2050. This is through the installation of improved HVAC systems – all existing buildings have eventually had HVAC retrofits. All lights are replaced with LED's by 2050.

Level 3

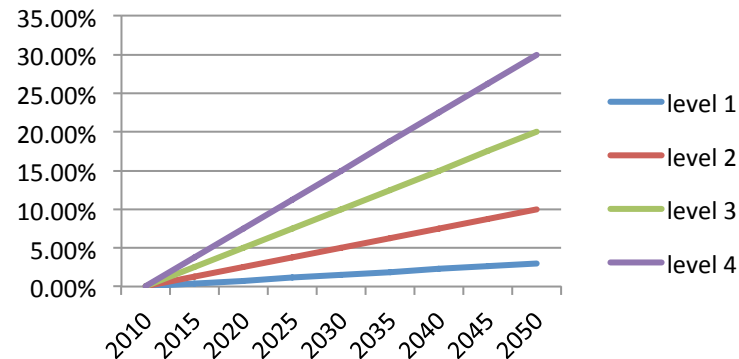
This assumes that there is fair push to have more of variable speed drives for HVAC systems. This results in a 20% savings in HVAC systems- i.e. demand for heating and cooling is reduced because the system is more efficient. All lights are replaced with LED's by 2040.

Level 4

This level assumes that vents, variable speed drives and insulating pipes gives a 30% savings in HVAC systems by 2050. All lights are replaced with LED's by 2030.



Heating and cooling efficiency gain



¹ Energy Savings through HVAC retrofits in the commercial sector, M. Moorlach, A. Hughes, University of Cape Town, South Africa.

² Consultation with Measurement and verification team at the Energy Research Centre.