



# London Bridge Best Practice



## Case Study Title: Designing in Sustainability - Kone Escalators

Month/Year: April 2016

### Key Benefits

- ✓ Energy and Carbon savings throughout the operational phase of London Bridge Station;
  - Annual operational cost saving of over £9,000
  - Annual reduction in maintenance costs
- ✓ Payback period of just 4 years

### Objectives and Targets

- ✓ Objective 15 – minimising levels of carbon generated over the whole life of TLP
- ✓ CEEQUAL – Design for Resource Efficiency, Whole Life Approach

### Overview

Once fully operational London Bridge Station will see over 190,000\* passengers passing through the new street level main concourse during AM and PM peaks, Monday to Friday. To accommodate such a high capacity ped flow 24 escalators were required to connect the concourse to the high level platforms. Having 24 standard escalators running constantly would have proven costly and would use vast amounts of energy. However, in line with the TLPs Sustainability Strategy target to reduce energy output of the operational station and to minimise its carbon emissions, the London Bridge Station Redevelopment team sought out and procured escalators that are designed to be more energy efficient and provide cost savings year on year.

### Sustainable Solution – ‘Stop & Go’ technology

The KONE TransitMaster escalators procured by the project are designed with a ‘Stop & Go and Stand-by Speed’ mechanism. This mechanism detects when the escalator is about to be used and provides on-demand starting. This system can sense passenger movement within 1.3m distance from the end of the escalator to which it will start to run in its pre-set direction.

After 10 seconds of ‘no passenger traffic’ the escalator automatically switches to stand-by mode which operates at a reduced speed and thus a reduced energy demand. After another 10 seconds with ‘no passenger traffic’, the escalator will completely stop. This cycle will continue to repeat depending on passenger flow.

This Stop & Go mechanism saves energy and cost both through reducing energy demand and the avoidance of additional maintenance costs that you would need from the additional wear and tear you see from a non-stop escalator.

### Saving Energy and Carbon

An energy performance study of the Stop & Go escalators was carried out. This study took the assumption of one Stop & Go escalator being used for 20 hours per day, 7 days a week for 1 year. This was compared against a standard TransitMaster KONE escalator without the pre-determined Stop & Go options.

The study concluded that overall, one Stop & Go escalator uses up to 111 022 kWh/year of energy. When compared against the standard TransitMaster, this produced a saving of 3008 kWh, equating to a carbon saving of 1519 kgCO<sub>2</sub>e.

In total, the 24 escalator being installed at London Bridge will achieve an annual operational saving of 36.46 tonnes of CO<sub>2</sub>e and over £9,000 in operational costs year on year generating a payback period of only 4 years.

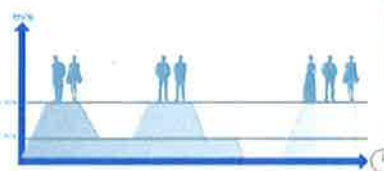


Figure 25 Stop & Go and Stand-by speed with inverter



\*Please note this figure is based on current pedflow predictions for modelling purposes