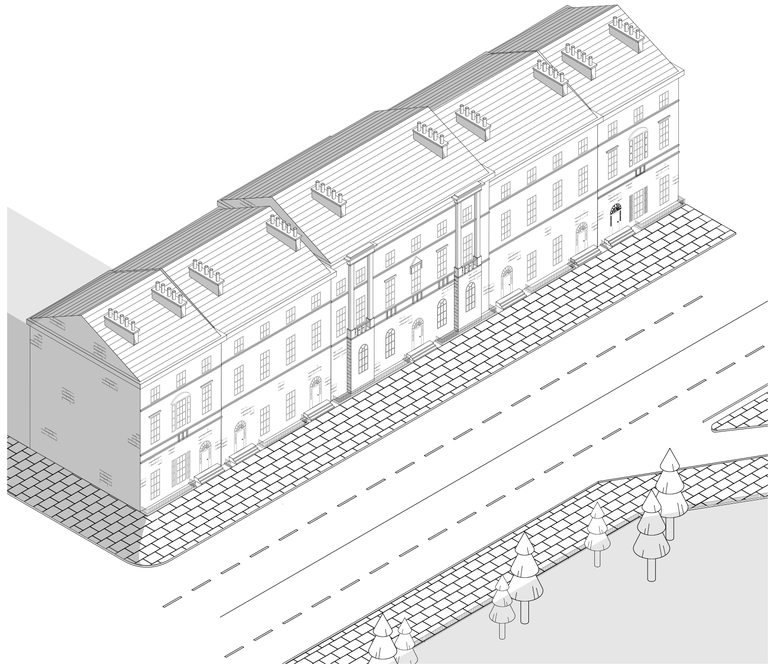
Kimpton Charlotte Square

Transforming Existing Hotels to Net Zero Carbon

Most of the world's buildings out to 2050 already exist today, including over 6,000 IHG-branded hotels spanning more than 100 countries. That's why decarbonising existing hotels is just as critical as creating net zero carbon new builds if we are ever to achieve the most ambitious goals of the Paris Agreement.



At IHG Hotels and Resorts, part of the Journey to Tomorrow responsible business plan includes a commitment to creating more sustainable guest stays, by reducing our energy use and carbon emissions in every hotel, in line with climate science. Rooted in IHG's purpose to deliver True Hospitality for Good and guided by the United Nations Sustainable Development Goals, the 10 year plan is working to help preserve our planet for all generations to travel and explore.

IHG has already taken steps to reduce carbon emissions, installing heat pumps, efficient lighting and implementing good practice behaviours. But as IHG upgrades their Science Based Targets to prevent global temperatures increasing by more than 1.5°C, now is the time to go further.

Arup, global engineering and design consultancy, and Schneider Electric, leader in the digital transformation of energy management and automation, join IHG in supporting their Journey to Tomorrow responsible business plan and working to shape the future of responsible travel.

Together, we've assessed the impact of a range of measures to reduce the operational carbon for existing hotels. This includes the Kimpton Charlotte Square. Click the icons to discover more.

Control & Monitoring

17% saving in emissions

Passive (Improve the building fabric)

2% saving in emissions

Active (Upgrade for energy efficient equipment)

45% saving in emissions

Onsite Renewables

1% saving in emissions

Grid Electricity Renewables

Balance point by 2050

Control and Monitoring

17% saving in emissions

– Upgrade Building Management System (BMS) to allow optimisation of heating, ventilation and air-conditioning (HVAC) plant, including boiler firing optimisation and easier scheduling of ventilation systems.

– Sub-metering will be installed to allow us to monitor our usage more closely.

– Centrally controlled air-conditioning system linked to the Guest Room Management System, which enables room temperatures to be set-back when not in use.

– Reduce setpoint in hot water storage to 60°C.

– Review of swimming pool temperature control set points.

Passive (Improve the building fabric)

2% saving in emissions

– Install secondary glazing to windows on listed façade to reduce heat escaping.

– Install loft insulation and fit draft proofing in the historic areas of the hotel to reduce heat escaping.

– Explore opportunities for solar film to glazing where possible to reduce cooling demand in some rooms that were assessed as being at risk of overheating.

Active (Upgrade for energy efficient equipment)

45% saving in emissions

– Switch heating from gas boilers to air-source heat pumps by upgrading the air-conditioning system (including heat recovery) and removing boiler-fed radiators within guest rooms.

– Investigate the use of CO2 air source heat pumps and hot water generation for heating the pool, as these heat pumps work better at higher output temperatures.

– Installation of variable speed drives to pumps, and fan motors in ventilation system.

– Explore opportunities to implement Mechanical Ventilation with Heat Recovery to guest bedrooms.

– Upgrade kitchen equipment: switching from gas to electric, demand-based ventilation, heat recovery air to water.

– Continue to upgrade all internal and external lighting to LED.

– Explore opportunities for occupancy detection controlled lighting to communal areas for both front and back of house.

– Low flow showers and faucets have been installed to reduce water use.

Onsite Renewables

1% saving in emissions

– Investigate the feasibility for installing thermal solar panels

Grid Electricity Renewables

Balance point by 2050

As the UK's National Grid electricity continues to decarbonise and as our reliance on fossil fuels reduces and the energy efficiency of buildings further improves, we are working towards reaching a supply/demand balance point in 2050.

Scotland are well on their way to having more than 95% of their grid electricity supplied by renewable energy and the Kimpton Charlotte Square are already utilising grid renewable electricity at their hotel. Considering this, and by employing the further measures outlined in these findings, IHG's hotels will continue to contribute to achieving this balance point.

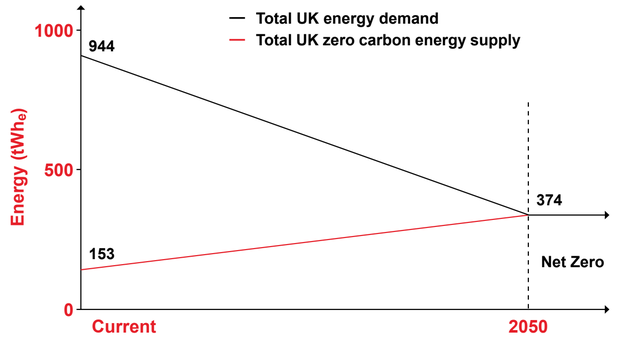


Figure 1: Supply/demand balance point. UKGBC June 2020

We must use a range of approaches to achieve net zero hotels; no one single approach to reducing carbon emissions will be enough on its own.

Our white paper, co-authored by IHG, Arup, Schneider Electric and Gleeds, tackles the operational net zero carbon challenge for existing hotels, using another real-life case study to demonstrate the impact of each stage in the journey. It sets out a high-level framework, prioritising different interventions throughout the hotel's lifecycle.

The research shows that operational measures, improvements to the thermal performance of the building, improvements to the efficiency of systems and a transition to low carbon energy all need to be adopted.

Click here to read the white paper