Lighting the Way:

How the London Underground LED Retrofit
Sets a Global Standard for Sustainable Advertising

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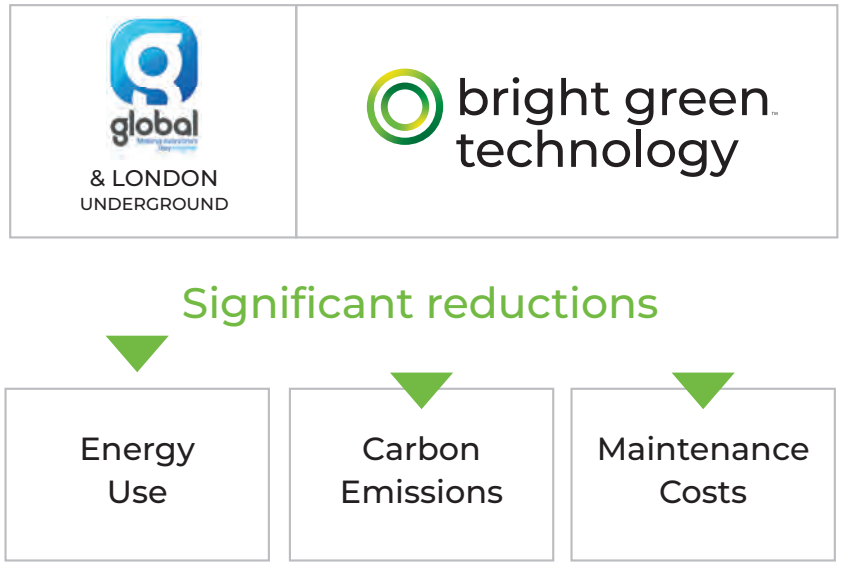
The London Underground has undergone a transformative upgrade in advertising illumination, replacing fluorescent tubes with high-efficiency LED systems across 272 stations.

This ambitious retrofit, led by Global, the Media & Entertainment group, and London Underground Limited (LUL), using Bright Green Technology LED systems, demonstrates how environmental responsibility and exceptional display quality can go hand in hand. With significant reductions in energy use, carbon emissions, and maintenance costs, the project sets a new global benchmark for sustainable advertising infrastructure.



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The Need for Change

Across the outdoor advertising industry, traditional fluorescent backlighting has long been associated with high energy consumption, frequent maintenance, and environmental harm.

Fluorescent tubes convert only 7-10% of their energy into visible light, while the remainder becomes heat - often adding additional load to cooling systems. Maintenance is costly and unpredictable, while disposal poses a hazardous waste risk due to mercury content.

As advertisers and operators work hard to reduce carbon footprints and improve ROI, fluorescent systems have become outdated. Across the world, LED retrofits have been introduced with great success. The London Underground - a global transit icon - recognised the benefits offered by LED technology and moved ahead.

Adding to the case for retrofit was the rapid increase in energy costs. As prices increase, the ROI strengthens, and the payback time shortens in response.

In addition to cutting carbon emissions, the project provides a hidden but vital benefit: it reduces power consumption on the London Underground network. Furthermore, by reducing the energy used for advertising lighting, the retrofit frees up capacity for essential station improvements and digital infrastructure - helping future-proof the network whilst also supporting the city's climate and resilience goals.

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The Project:

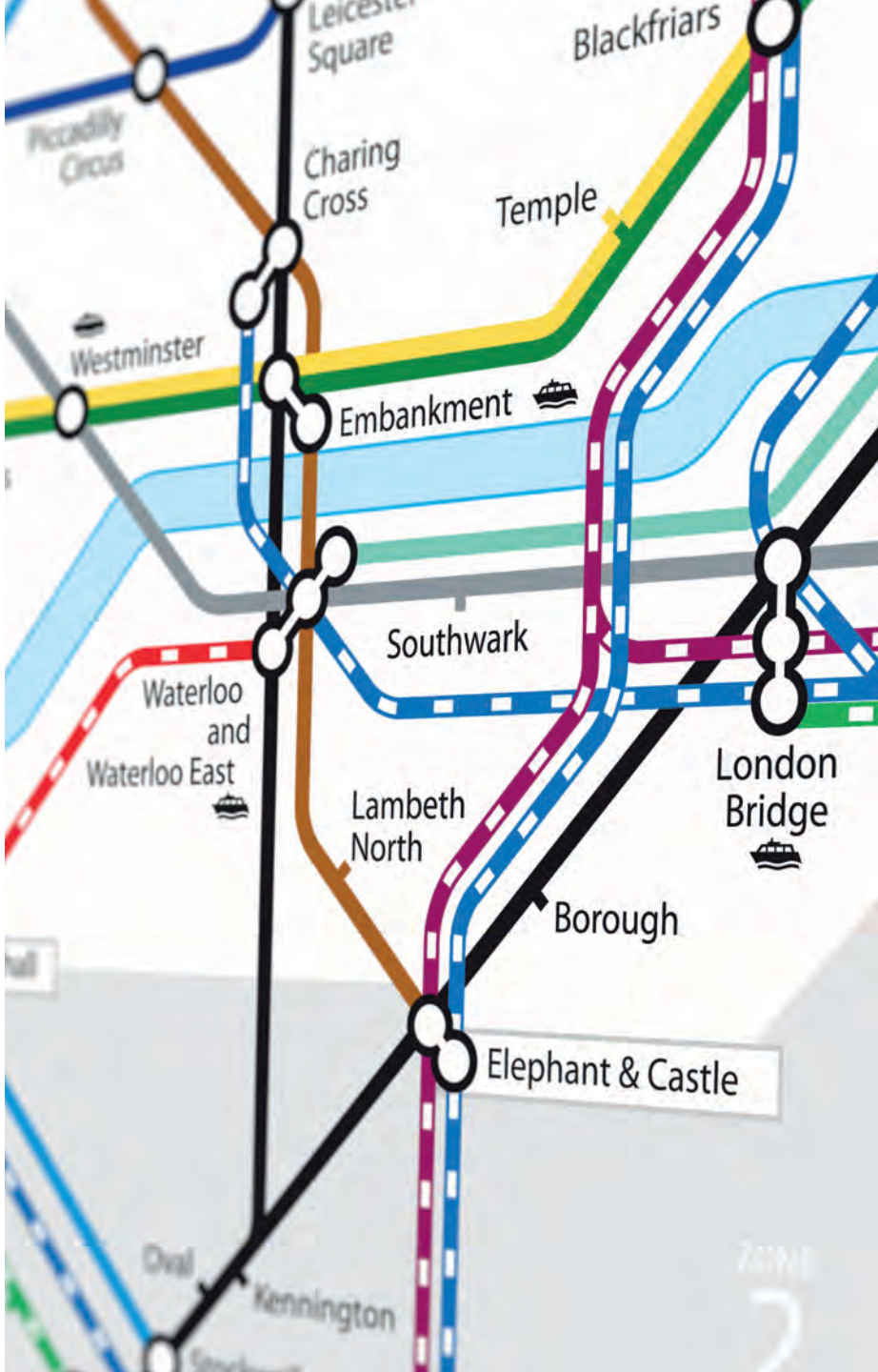
Retrofitting the London Underground

Beginning in March 2024, Global delivered a retrofit across the London Underground network, installing in a total of 272 stations. Over the course of the year, fluorescent lighting in 1800x1200mm advertising displays was replaced with a custom LED system from Bright Green Technology, designed for rapid installation, optimum quality, and maximum energy efficiency.

Each retrofit was tailored to comply with LUL's stringent safety and performance standards - including the use of metal components to comply with fire safety requirements. Modular systems enabled efficient upgrades within tight maintenance windows, minimising disruption to passengers and operations.

> This project is a great example of green innovation delivering real benefits - creating a more sustainable, better-looking, and more efficient product. It's a win-win for advertisers, audiences, and the environment.

Jason Cotterrell
Chief Operating Officer for Outdoor Global



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The Project:
Retrofitting the London Underground

Delivering on Quality

The primary goal was not just energy reduction but also to enhance the visual quality of the advertising. LED lighting delivers rich colours and consistent brightness across the entire illuminated surface, making branding and creative content more impactful. The result is a display experience that's brighter, more consistent, and free from striping and hotspots.

The project also eliminated unscheduled maintenance, dramatically increasing uptime and reliability.

As a result, advertising partners, whose support is integral to the funding model, benefit from a more professional, impactful and effective display environment - reflecting their iconic role within the transport ecosystem.

> We're pleased to have worked with Bright Green Technology as we move ahead with upgrading our network to the latest in LED technology. Providing better and more sustainable lighting to our advertising estate is part of TfL's wider commitment to reduce carbon emissions and work as sustainably as possible.

Chris Reader
Head of Commercial Media at TfL

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The Project:

Retrofitting the London Underground

A Sustainability Breakthrough

The environmental benefits of the retrofit are significant. The new LED systems cut power consumption by more than 50%, reducing the carbon footprint of each site by the same margin.

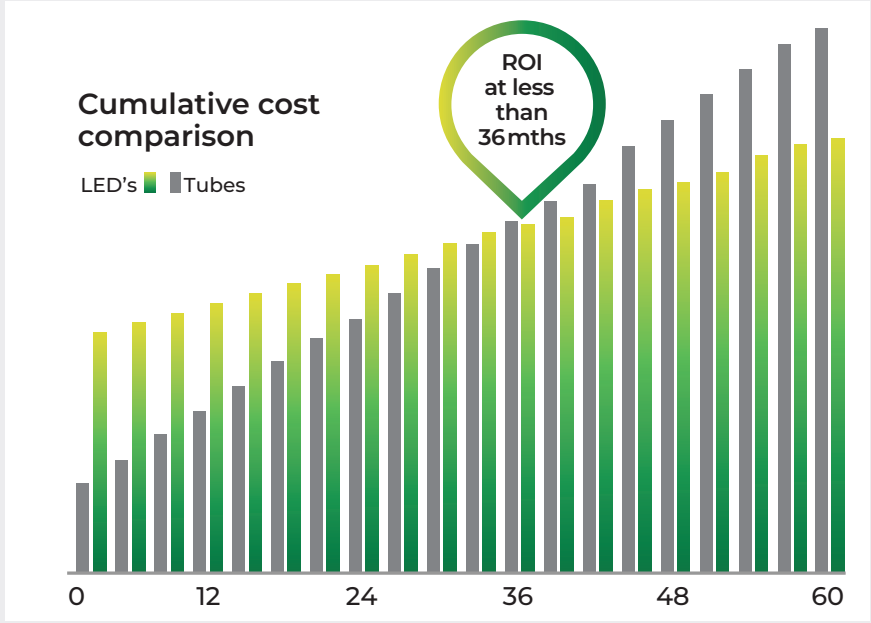
Given the scale of the London Underground network, this retrofit is already making the network more sustainable delivering a carbon saving of more than 1400 tonnes every year, supporting London's broader net-zero ambitions.

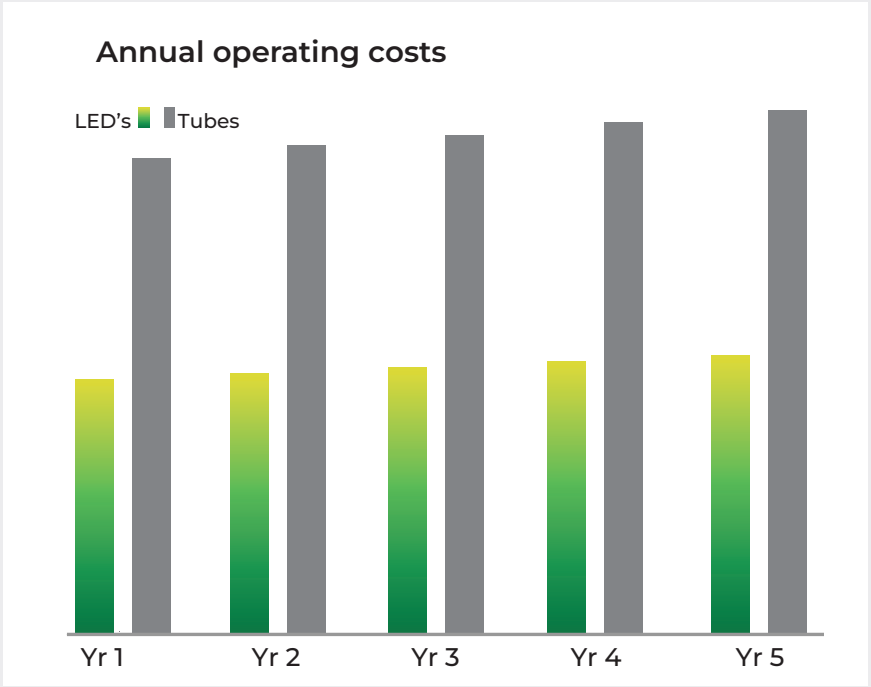
Economic and Operational Impact

Fluorescent systems have become increasingly expensive to operate due to rising energy prices and declining availability of replacement parts. Many countries, including the UK, have banned or intend to ban fluorescent tube sales, further underscoring the urgency of transitioning to LED.

While sustainability was a core driver, the retrofit also delivered clear economic benefits.

The accumulation of energy and maintenance savings rapidly pays back the capital and installation costs. The project delivers a return on capital within 36 months.





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Beyond the Numbers:

Brand Value and Market Leadership

Leadership

Advertising across the London Underground reaches millions of passengers every day. A well-lit display not only captures attention - it also reflects on the brands behind it. With the new LED systems, advertisers benefit from clearer, more vibrant messaging and a strong alignment with environmental values.

The project has elevated the perception of both the Underground and Global as forward-thinking, sustainability-focused organisations. For Bright Green Technology, the project affirms the company's role as a market leader in energy-efficient, high-impact lighting solutions.

A Blueprint for Global Transit Systems

The success of the London Underground retrofit provides a scalable model for other cities and transit operators. By proving that LED retrofitting is rapid, cost-effective, and environmentally beneficial, this project highlights how innovation in infrastructure is simple and easy to achieve.

Modular design, minimal disruption, and long-term performance make LED retrofits a practical and strategic investment. The combination of reduced carbon output, enhanced visual quality, and improved operational reliability is clear to see.

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Conclusion:

Bright, Green, and Built to Last

The London Underground LED retrofit is more than an upgrade - it is a statement of intent. It shows that sustainability and quality are natural allies. By adopting advanced LED systems, the project has delivered a future-proof solution that benefits passengers, advertisers, and the planet alike.

As cities continue to modernise and reduce their carbon footprints, the London Underground stands as a shining example of how infrastructure can adapt - intelligently, responsibly, and beautifully.

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LED Retrofit Success Checklist

Modular, retrofit-ready system
Enables quick installation during limited access windows

Eliminates hazardous waste
No mercury tubes, no special disposal needed

Certified to transit authority standards
Ensures safety, compliance, and long-term approval

Maintenance-free operation
Reduces downtime and OPEX, improves reliability

80%+ energy saving
Drives cost reduction and carbon reduction

Supports sustainability Targets
Aligns with Net Zero goals and corporate CSR

Even, consistent illumination
Enhances advertising impact and passenger experience

Positive brand impact
Demonstrates leadership to advertisers and stakeholders

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About Bright Green Technology

We are LED lighting experts who help customers all over the world improve the quality of their illumination. We provide LED systems to illuminate backlit media, signage, retail displays and architectural features.

We started with the NY subway in 2007, delivering LED powered advertising displays across the network - with an 80%+ energy saving compared to the fluorescent tubes that had been installed for decades. We quickly became the go-to provider of low energy backlighting for media companies across the globe.

Many of the world's iconic sites have turned to Bright Green Technology as their lighting engineering partner. Wayfinding at Heathrow and DXB, two of the world's top five busiest airports; the IMAX at Waterloo - Europe's largest advertising location; Sheikh Zayed Road in Dubai, home to some of advertising's most prestigious displays; the New York subway, and now the London Underground.

These locations serve not only as critical infrastructure but also as powerful expressions of identity - reflecting the status, ambition and commitment of the organisations and commercial partners they represent. In such high-profile environments, quality is non-negotiable, and mistakes are not an option.

The right lighting partner - experienced in the unique demands of mass transit systems and major transport arteries - delivers value from day one and continues to do so for decades.

At Bright Green Technology we are lighting engineers, not just suppliers. As leaders in our field, we bring deep technical understanding to every project. We approach each challenge from first principles, carrying out rigorous, detail-oriented scoping and working in close collaboration with clients throughout. From initial concept and business case development to prototyping, go-live, and long-term support - we're with you every step of the way.

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Our consultative approach will help your next project shine.
Speak to one of our LED Lighting Experts today.

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