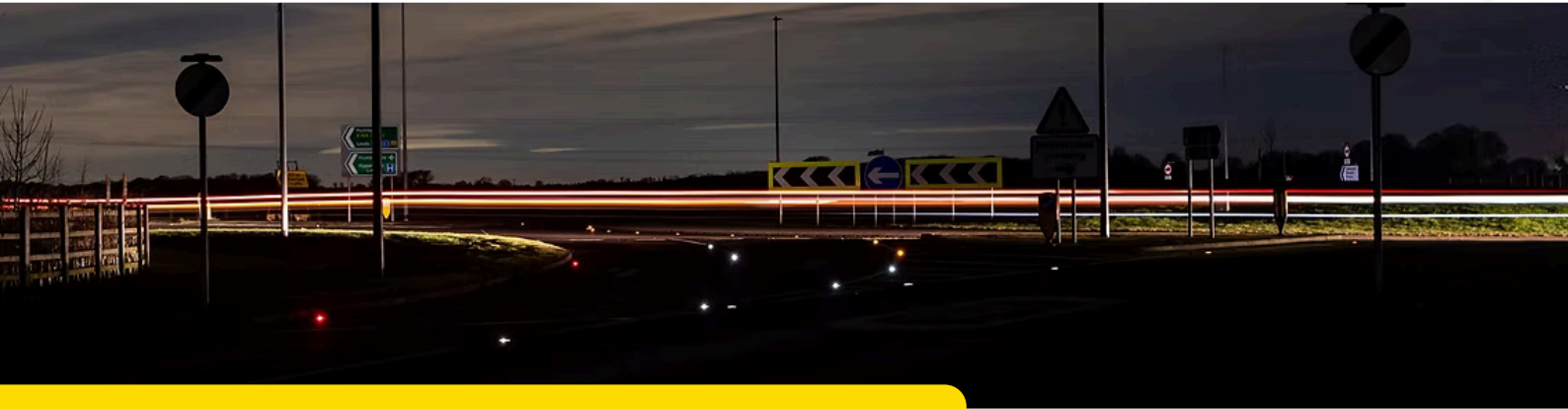




Case Study: Lighting the Way to a Low-Carbon Future

Supporting the UK's first large-scale transition away from conventional street lighting.

As local authorities face growing pressure to reduce carbon emissions while managing ageing infrastructure and constrained budgets, East Riding of Yorkshire Council has demonstrated that there is another way.

Working as part of the award-winning ADEPT Live Labs 2 Decarbonising Street Lighting programme, SolarLite® from Clearview Intelligence played a key role in proving that roads can remain safe without relying on conventional street lighting.

The programme has since become a national exemplar, winning both Best Highways Decarbonisation Initiative and Best Data Innovation Initiative at the 2026 Decarbonising Transport Awards.

The Challenge

Across the UK, thousands of lighting columns are approaching the end of their operational life. Traditionally, these assets would simply be replaced with new LED lighting, reducing energy consumption but retaining significant installation, maintenance and embodied carbon costs.

East Riding wanted to challenge this assumption. Could unnecessary lighting infrastructure be removed altogether while maintaining road safety, reducing carbon emissions and improving the natural environment? Answering that question required innovative technologies capable of guiding road users safely without permanent powered lighting.

The SolarLite Solution

SolarLite solar-powered road studs provided continuous lane delineation without requiring grid power or ongoing energy consumption.

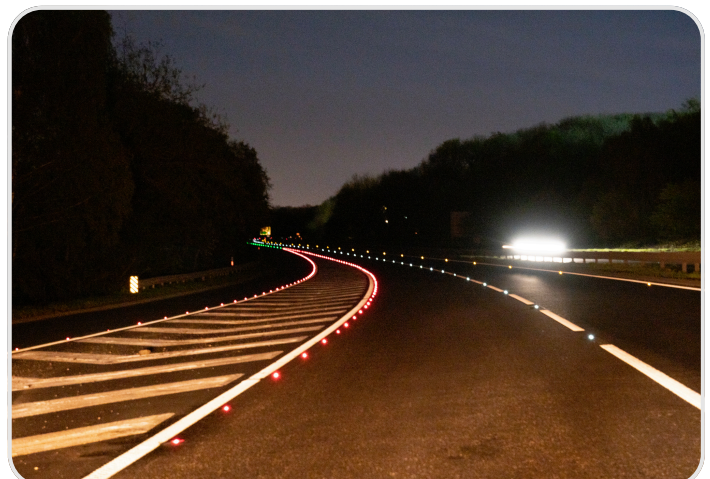
Installed along selected routes where street lighting was removed, the road studs deliver high-visibility guidance at night, remaining visible from distances of up to 900 metres. Operating entirely from stored solar energy, they eliminate electricity costs while significantly reducing maintenance requirements compared with conventional lighting infrastructure.

Rather than replacing lighting columns with new lighting assets, SolarLite formed part of an integrated design philosophy focused on reducing infrastructure altogether.

Combined with:

- High-performance reflective road markings
- Ultra-durable line markings
- Targeted low-level pedestrian lighting where required
- Behavioural monitoring using thermal AI

the technology helped create safe, clearly defined routes with dramatically lower whole-life carbon emissions.



SolarLite Road Studs



Implementation

Evidence-Based Performance

A distinguishing feature of the Live Labs 2 programme was its reliance on robust evidence rather than assumptions.

Thermal AI monitoring systems analysed vehicle speeds, braking behaviour, pedestrian movements and driver interactions in complete darkness. This provided confidence that the removal of conventional street lighting did not compromise road safety.

SolarLite's performance formed part of this evidence base, demonstrating how illuminated road delineation can support driver confidence while avoiding the energy and carbon costs associated with traditional lighting infrastructure.

Delivering Measurable Results

The integrated approach delivered significant benefits:

- **More than 40% reduction in whole-life carbon emissions**
- **Up to 64% carbon reduction at the highest-performing sites**
- **Around 90 tonnes of CO₂ saved per kilometre over a 40-year lifecycle**
- **Significant reductions in energy and maintenance costs**
- **Improved conditions for nocturnal wildlife through reduced artificial light**
- **A scalable solution suitable for widespread adoption across the UK highway network**

Collaboration Driving Innovation

The project brought together local authorities, universities, technology providers and environmental specialists to develop practical, transferable solutions. Reflecting on the programme, Ralph, Director of SolarLite England and Wales, described it as:

"Live Labs 2 became a genuine learning ecosystem where local authorities, academia and industry worked together to solve a common challenge. Breaking down traditional silos allowed us to demonstrate that SolarLite is not just an innovative product, but part of a practical, evidence-based approach to decarbonising highways."

Looking Ahead

East Riding has now committed to removing approximately 2,500 lighting columns as part of a three-year programme, becoming the UK's first authority to embed this low-carbon approach into mainstream asset management. Other authorities, including Lancashire, Derbyshire and partners across Northern Ireland, are now exploring similar approaches as ageing lighting assets reach the end of their operational life.

For highway authorities, the project demonstrates that decarbonisation is no longer about simply replacing existing lighting with more efficient alternatives. With the right combination of technology, evidence and design, it is possible to remove unnecessary infrastructure altogether while maintaining safety and reducing whole-life costs.

Why SolarLite?

SolarLite is helping highway authorities rethink the role of street lighting by providing solar-powered road delineation that improves driver guidance while reducing carbon emissions, energy consumption and maintenance requirements.

As demonstrated through the East Riding Live Labs 2 programme, SolarLite forms part of a proven, evidence-based solution that enables authorities to move beyond replacing lighting assets and towards a fundamentally lower-carbon approach to highway infrastructure.

