



Green Solutions:

# Remote monitoring



Telent Green Solutions Working Group

**telent**

talent with technology

# Green Solutions: Remote Monitoring

The remote monitoring of assets is key to optimising efficiency and resource utilisation.

Empowered by Internet of Things (IoT) devices and technologies, remote monitoring can comprise of many elements.

IoT devices are a variety of internet-connected devices deployed to enable remote monitoring of assets and include temperature sensors, vibration sensors and HD cameras.

Using cloud computing technology and the power of the internet Telent can monitor, rectify and store data for a host of technologies that would otherwise require managed site maintenance and on site rectification

Telent has been undertaking remote monitoring for 20 years with customers such as Transport for London (TFL) and London Underground and is continuing to investigate new opportunities this digital delivery option can bring to our clients.

Telent can monitor the following metrics for early failure warning

- IOT Sensors
- Vibration - Lifts and Escalators
- Temperature - Equipment and Equipment rooms
- Camera Performance - Analogue and IP
- Infrastructure Performance - Hardware (PSU, HDD, Memory)
- Software Application & Service

# Green Solutions: Our Vision



## Telent have committed to achieving net-zero GHG emissions by 2050 through the Science Based Targets initiative (SBTi)

This includes emissions created indirectly by our entire value chain, from raw material extraction to customer use of our products and services - providing sustainable whole-life solutions to our customers

In 2023, we set a near-term target to reduce all emissions by an average of **50%**, no later than 2030



## Green Solutions: Remote Monitoring

Telent remotely rectified 25% of faults on TfL and 23% of faults on Arriva Rail London resulting in decreased downtime of assets and fewer engineer site visits, providing cost efficiency and lowering our carbon footprint.

This includes Lifts, Escalators, UPS, Temperature and Air con status

Telent is looking to expand its remote monitoring capabilities to help with platform overcrowding, rockfall detection, points monitoring, pedestrian encroachment on the railway and weather and tidal monitoring in maritime projects



# Green Solutions: Remote Monitoring

Remote monitoring has helped to support the following



## Reducing site visits

Remote inspections and reductions in site visits means less journeys and carbon savings



## Improved equipment reliability

Less waste and longer life span for monitored assets improves whole life costs and sustainability



## Maintenance as a service

AI and big data enabling organisations to instantly consolidate performance information

The examples of remote monitoring have saved Telent in the last year approximately **4,500 journeys**, equivalent to over **200 thousand miles** to physically visit sites and with associated carbon emissions savings of over **60 Tonnes CO2e**.

# Green Solutions: Remote diagnostics



Potential Green Saving 4,500 journeys: 56t CO2e



## Status:

Used at over 500 stations including

TfL LU  
TfL London Roads

GWR,SWR  
ARL and MTR

London Managed Stations  
Global Media



## Sustainability:

Positive change includes:

20% reduction in Faults  
24% increase remotes fixes  
4500 journeys saved  
60 Tonnes CO2e



## Future Plans

Plans to monitor:

Platform crowding  
Rockfall detection  
Rail Points monitoring  
Pedestrian encroachment  
Weather and tidal  
CCTV and critical optics

# Green Solutions: Remote diagnostics

Remote monitoring and fixing has saved 4,500 journeys: Approx 200,000 miles

## Savings in Fuel Cost\* Last year

(Assumed rate £1.55 per litre diesel @ 40mpg)

**£34,333**

\*FY 22/23

## Savings CO<sub>2</sub>e\* Last year

**56 TCO<sub>2</sub>e**

\*FY 22/23

# Green Solutions: Data & Technical Specification

## PRIMARY EQUIPMENT

The maintenance team currently runs a fleet of mid-sized vehicles

The calcs are based on a Class II Van (1.305 – 1.74 tonnes)\*

Date is from journey analysis over the year 22/23

Calculations are \*according to UK Government GHG Conversion Factors for Company Reporting 2023

## ASSUMPTIONS

- In the year 2022-2023 Telent remotely rectified 25% of faults on TfL
- In the year 2022-2023 Telent remotely rectified 23% of faults on Arriva Rail
- In the year 2022-2023 Telent has recorded a 20% reduction total in reported Digital Video Recording faults
- In the year 2022-2023 Telent remotely fixed 24% of it monitored equipment
- The above had saved approximately 4500 journeys
- This is approximately 3 visits per day, with an average daily total mileage of 44 miles (200,000 miles)
- Assuming a Class II van and carbon conversion factor of 0.28013kg CO<sub>2</sub>e per mile for a class II van (UK Government GHG Conversion Factor for Company Reporting 2022 Condensed Set Version 2.0)
- Carbon savings are  $200,000 * 0.28013 = 56,026\text{kg CO}_2\text{e (56T)}$
- Assuming a cost of diesel per litre of £1.51 @ 40mpg:  $200,000/40 = 5,000\text{gals} = 22,730\text{L} = \mathbf{£34,323}$





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