Benchmark for quality

REAL-WORLD DATA CAPTURE ON EMISSIONS AND FLEET EFFICIENCY HOLDS THE KEY TO SMART, FUTURE-PROOFED FLEET-PURCHASING DECISIONS, LUKE REDFERN FROM CENEX TELLS LAPV.

Air quality management has risen up the agenda as a priority for government and businesses. Legal actions triggered by diesel scandals and the failure to meet air quality targets have triggered a shift in policy in both motor industry investment in hybrid electric powertrains and the Government's approach to local air quality management. The Government's proposals for clean air zones mean fleet renewal policies for businesses and local governments will now be formulated around the need for low pollutants and low carbon emissions, along with the need to manage real-world emissions.

Luke Redfern, project manager at Cenex, explains that the company's fleet team has responded by developing a new vehicle-monitoring approach called Clear Capture, which, with support from emissions analytics, offers a low-cost means for fleet managers to gain insight into real-world pollutants and carbon emissions. This can help inform replacement decisions for key segments of their fleets.

There are now an increasing number of battery-electric and plug-in hybrid vehicle options and fleet managers need to compare the available options with diesel.

'Over the last decade, the economic driver of fuel costs and the Government's policy to cut carbon have combined to cement the diesel engine as the logical choice for the cars and vans that make up many fleets' operations,' says Luke. 'Fleet owners and operators have refined their decision-making based on the ability to apply diesel across the full range of fleet operations.'

However, despite the inherent efficiency of diesel, published data on fuel consumption has always been treated with a level of scepticism, and the majority of fleets have monitoring systems in place to record real-world fuel economy and carbon emissions for high-mileage vehicles. 'The cost-benefit ratio of deploying on-vehicle telemetry means low-mileage and grey fleet vehicles typically go unmonitored. However, data can carry over to these vehicles for reasonable assessments to be made.'

The logic of diesel-only fleet operations is now being challenged, says Luke, as the motor industry has switched its investment to electrified powertrains. There are now an increasing number of battery-electric and plug-in hybrid vehicle options, and today's fleet replacement investment decisions need to compare these available options with diesel.

'For air-quality management purposes, the end goal will always be for battery-electric vehicles to deliver zero tailpipe emissions,' says Luke. However, with electric vehicles very new to the market, Euro

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standards provide the proxy measure for reductions in pollutant emissions from diesel, with a downward trend expected with each older vehicle being replaced.

This assumption has now been strongly challenged, he argues. 'Data has demonstrated that the laboratory compliance required for Euro standards doesn't carry over into the real world. Furthermore, variability between different cars and vans can be marked. This adds a level of complexity to decision-making for fleet renewal at a time when clean air zones are being proposed for a number of the UK's main cities.'

As with London's Low Emission Zone, the introduction of other clean air zones means fleet managers with operations in those cities need to consider the real-world operations for all fleet vehicles, not just those that currently have telemetry fitted.

'This is where low-cost data collection and emissions estimation solutions become a business priority,' says Luke. 'It is also why Cenex has been developing Clear Capture, which harnesses the power of real-world data to capture and use relevant information about a fleet's current efficiency and emissions to assess the best options for new investment. By applying Clear Capture, fleet operators and local authorities can measure driver behaviour, route choices, local traffic patterns, and performance for categories of vehicle that don't have telemetry already fitted and compare this data against industry standards. This will ultimately produce a more accurate total cost of ownership and emissions modelling.'

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A simple and unobtrusive method to track current vehicle fleets, the Clear Capture system can be installed in either the cigarette lighter or the OBD port, both of which are easy to access. The fleet doesn't need external technology support to install the plug-and-go tracker, which is mailed to the operator and installed by the user.

The type of data being collected should also be reconsidered. 'Typically, organisations don't collect journey-specific data, instead, they focus on annual or quarterly reporting, which means vehicles are not segmented appropriately,' explains Luke. 'If the vehicle fleet is first divided into specific classifications based on journey type and driving style, the data will become more actionable, and provide the insight required to make better purchasing decisions that meet the company's unique operational needs.'

Segmenting vehicles by those that make regular stops, urban delivery versus long haul, and load type, he adds, will allow fleet managers to specifically analyse the full range of their procurement needs rather than simply gaining a general overview of the entire fleet. 'Understanding the fleet on a vehicle-by-vehicle basis, and using representative vehicles for groups with similar driver cycles and journey distance, will produce a much more nuanced picture of the vehicle specifications that must be met by the procurement exercise. For instance, if only one-quarter of the vehicles experience frequent idling, there is no need to invest in energy-recovering systems for the entire fleet.'

Comparisons

Luke says that fleet managers should identify reasonable ranges of comparable low carbon or low emissions vehicles upon which they can benchmark their fleet's performance. In the Clear Capture model, car fleets are compared against an electric vehicle, plug-in hybrid electric vehicle, and range-extended electric vehicle. Vans (up to 2.2 tonnes GVW) are only compared against an electric model due to technology maturity and market availability, but extra analysis of gas and biofuels can be added. HGV fleets are more complex, but Cenex is working to develop a version of the Clear Capture analysis for vehicles above 2.2 tonnes.

'Benchmarks need to be based on other real-world market data,' Luke explains. 'Using aggregated data on duty cycles allows the energy consumption (and range) of an electric vehicle to be more accurately forecast. Relying on manufacturers' data can produce wildly optimistic estimates of total cost of ownership because they tend to significantly underestimate energy consumption compared to real-world driving patterns.'

Finally, the reporting structure needs to be simplified. 'Too often we see driver behaviour and vehicle usage reports that are full of good information, but so complicated that they become too arduous to digest.'

Overly complex metrics and measures, argues Luke, are guaranteed to make sure a report is put on a shelf and never looked at again. 'The Cenex team will provide fleet owners with tailored walk-throughs of their reports, offering the service and technical knowledge to support implementation. A clear, action-oriented report should start with the procurement objectives (investment in low carbon vehicle technology to comply with UK air quality zones) and end with a road-mapping exercise that identifies the vehicles and technologies that work for the fleet. Maintaining manufacturer and technology-neutral reporting and road mapping will give fleet managers an unbiased look at the best low emissions technology to meet their fleets' specific needs.'

An accurate understanding of the daily pressures placed on the fleet is critical to making smart decisions when it comes to replacing and upgrading vehicles. The greater the variety of vehicles in the fleet, the more complex it becomes to understand the overall needs of a mixed-vehicle fleet and make the appropriate investments. Accurate tracking systems like Clear Capture are ideal for inner-city fleets that will be affected by clean air zones, such as logistics companies, courier services, private hire taxi vehicles, postal services, public sector authorities and emergency services, and car-sharing schemes.

'With services that analyse a fleet's petrol and diesel cars and vans (up to 2.2 tonnes GVW) and compare the total cost of ownership with similar electric vehicles and hydrogen engine models, Clear Capture is a way for small and medium-sized fleet owners to dip their toes into the low carbon market with minimal risk,' says Luke. 'For larger fleets, the transition to more efficient, lower-emission vehicle fleets has become business critical.'

Whether operators are considering business sustainability, compliance, or brand reputation, the opportunity to invest in green fleet technology is here. Armed with the data that shows how a fleet operates today, fleet owners will be able to confidently invest in the technologies of tomorrow that will deliver cost efficiency and emissions reduction without the burden of trial and error.