

Certifying and identifying LEZ compliant vehicles

0. Introduction

One of the tools that a Local Authority could use to meet air quality objectives would be to create a Low Emission Zone (LEZ). The idea of a low emission zone is that only vehicles meeting minimum emission standards would be allowed to enter an area in a town or city. The main purpose of such a zone would be to improve air quality, though it may deliver additional environmental and congestion benefits by reducing traffic noise and overall traffic volumes.

Several local authorities have expressed interest in excluding the most polluting vehicles from polluted areas, such as air quality management areas, through the use of low emission zones. In London for example, the GLA and many of the boroughs have investigated this idea as a way to improve the capital's air quality.

The objective of this paper is to set out the potential method by which vehicles can be classified according to their Euro standard, which includes emission limits. It considers the sources of data available for this, and makes recommendations on which organisations should be involved. This will be relevant if a Local Authority decides to use Euro standards as their entry criteria for a low emission zone.

Making information about vehicles' emission standard easily available would primarily aid the development of Low Emission Zones (LEZ) in the UK. If the London scheme does go ahead in a form similar to that recommended by the recent feasibility study it will require information about the emission standard a particular vehicle has reached. This will be needed to judge whether a vehicle has reached the required emission standard for the zone. Other cities are investigating the feasibility of LEZ, and the availability of vehicle classification data will be one of the key questions they should ask.

In addition, a number of other traffic management and air quality management schemes would benefit from having information on individual vehicle emission standards readily available:

- real-time emissions source apportionment, by linking Automatic Number Plate Recognition cameras to fleet composition analysis and / or traffic control systems;
- self-checks by motorists in response, for example, to cleaner vehicle campaigns or promotion of fuel efficiency from newer vehicles; and
- checks on vehicles eligible for graduated charges for parking or congestion charging.

It is suggested that DfT Agencies - DVLA and VCA in particular- could have a role to play in helping identify and classify vehicles according to their emission standard. By considering the assistance DfT could give to Authorities potentially implementing LEZ the Department could reduce costs and speed up deployment of measures aimed at improving local air quality.

1. Overview

Vehicles manufactured for sale in the EC must reach relevant standards, primarily concerned with safety (of occupants and other road users), but also environmental based criteria such as emission standards, toxicity, percentage of recyclable parts, etc. The set of criteria that a vehicle manufacturer must Type Approve a family of vehicles models against (allowing for some variants in body style, number of doors etc) is known as the 'Euro Standard'. This

encompasses all the standards a vehicle must meet to be Type Approved for sale, including the emissions criteria.

However, the reference systems to this standard are generally bespoke to a manufacturer, contained in the design process, and do not accompany the vehicle on its life once leaving the factory. Therefore, the actual 'Euro Standard' of a vehicle is not written on documentation that accompanies the vehicle, or on the records when it is first registered with the DVLA.

In recent years the situation has improved a little for passenger cars, and it is now possible to identify the Euro standard (including emission limits) of most recently manufactured vehicles via their registration year from published sources. However, Heavy Duty Vehicles (HDV) and older vehicles in general remain largely anonymous on an individual vehicle basis. This makes it difficult to understand the actual emission levels of vehicles being driven in any given area in 'real-time' – either for monitoring, modelling or (in the case of LEZ) enforcement of access restrictions.

A clear anomaly exists when considering air quality or traffic emission work because often there is a need to discuss vehicles in terms of their 'Euro Standard' emissions. This is important when considering individual vehicles for purchase of grant-application, negotiating quality bus or freight partnerships or carrying out emission inventory and modelling work (when the different proportions of Euro standard vehicles in an area will influence the total pollutant levels). However, the actual manufactured vehicles that result from the testing and production process are hard to identify in such terms, particularly for older vehicles that may have changed ownership.

The vehicle age should logically give a good indication of the emission standard to which a vehicle was manufactured, and this is suitable for some applications. However, as will be elaborated upon later in this document, the time lag between manufacturing and selling a vehicle means the boundary between one standard and the next becomes blurred so that a particular vehicle could easily have been manufactured to one of two different standards. This is not possible to deduce without investigation of the vehicle, and even then may be virtually impossible to determine. The resources this would require, and time taken, means it is not appropriate for schemes such as LEZ, which may need a near-instant recognition of relevant information, whether it be vehicle type (bus, truck, car etc), exemption status or emission standard. If challenges are made by vehicle owners over their right to entry, accurate information will be important.

Data on any particular vehicle's Euro standard is not straightforward to obtain. From an examination of the various data no single source is appropriate on all counts. Therefore it is recommended that to arrive at the best estimate of a vehicle's emission standard, the date of first registration can be used as a proxy for Euro standard for the first step in the certification process. The final output would be a database of UK registered vehicles with vehicle registration mark and Euro standard, possibly made available on-line to Local Authorities.

The first step in the 'certification' process would compile basic fields in a LEZ classification database, containing:

- Vehicle class (HGV, LGV etc);
- Vehicle registration mark (VRM) as shown in vehicle registration documents ('V5'), tax disc and on the number plate;
- Date of first registration;

- Euro standard in force at the time of first registration.

This would lead to a provisional classification of all vehicles in the fleet as to their likely Euro standard. This can be done without any action on behalf of the vehicle owner and for all relevant vehicle classes in the DVLA record. It would produce the first version of the LEZ record, and be relatively straightforward to accomplish. It would not however, account for the time-lag between a vehicle being produced, and it being registered for the first time by the retailer selling it as a new vehicle.

Three areas of uncertainty would still exist in this data set, and the real work required is to clarify:

- the proportion of vehicles registered with the Vehicle Certification Agency (VCA) as End of Series (EOS) that means they can legally be sold after the next Euro standard comes into effect.
- vehicles produced by some manufacturers that are type approved to the *next* Euro standard early, before the changeover date. The date of first registration would indicate these vehicles meet a lower Euro standard than is actually the case.
- other vehicles converted to alternative fuels that comply with a higher Euro standard than indicated by the date of first registration, or retrofitted with emission control equipment that raises standards (including those qualifying for a RPC certificate, PowerShift and CleanUp grants).

The three issues identified above could be handled by exception databases, with holders of the data supplying information to refine the LEZ record. This refinement might be administered by the scheme operator, i.e. the first city to implement a LEZ, a group of organisations or a third party on their behalf.

Because a great number of vehicles are affected nationally and the essential contribution of DfT Agencies (DVLA and VCA) to the process, it is recommended that a national approach to the first step of vehicle classification by date of first registration should be considered by Government, in a form that makes data readily available to Authorities or groups interested in progressing to the next step. The web-enabled database of vehicle owner data made available to TfL as part of the London CCS provides a model for such a scheme for LEZ.

The following sections consider the detailed information that has led to the conclusions and recommendations contained in the overview section above.

2. Identification of vehicle emission limits

2.1 Background

The term Euro standards is commonly used to refer to vehicle emission standards amongst those carrying out green fleet management, source apportionment and environmental traffic management. In theory, Euro standards form a good basis for defining the emission level of a vehicle (at its time of manufacture) and therefore should be the basis of a LEZ standard, or criteria set for a particular zone. A key step to implementing a LEZ when any vehicle owner may wish to use the roads inside the zone is defining what Euro standard a particular vehicle meets, in order to decide its compliance. A certification process is required to identify what

emission criteria is met by each vehicle, and this will involve matching vehicle and owner details.

The following section considers the information that is available about vehicles and their emission standards, from various sources. Much of the text in this section is based on work done in collaboration with DfT Transport, Environment and Taxation division as part of the CTF NSCA research.

There are five classes of vehicle that Euro standards apply to:

- Passenger cars (M1)
- Light Commercial (N1) Class I -vehicles up to 1.3 tonnes
- Light Commercial (N1) Class II & III - vehicles between 1.3 & 3.5 tonnes
- Heavy duty goods (N2 & N3) – vehicles over 3.5 tonnes
- Heavy duty PSV (M2 &M3) - vehicles over 3.5 tonnes

There are currently five agreed Euro standards:

- Pre Euro
- Euro I
- Euro II
- Euro III
- Euro IV

The dates at which these standards come into force are shown in the table 2.1 below.

Table 2.1 – Introduction dates for European emission standards

Vehicle class	Euro II dates	Euro III dates	Euro IV
Passenger cars (e.g. private hire taxi)	01/01/97 – 01/01/01	01/01/01 – 01/01/06	01/01/06 -
Light commercial Class I – up to 1.3 tonnes	01/10/97 – 01/01/01	01/01/01 – 01/01/06	01/01/06 -
Light commercial Class II/III - between 1.3 and 3.5 tonnes	01/10/98 – 01/01/02	01/01/02 – 01/01/07	01/01/07 -
Heavy duty – over 3.5 tonnes (inc. N2 & N3 and PSV M2 & M3)	01/10/96 – 01/10/01	01/10/01 – 01/10/06	01/10/07 -

There is a time lag between when a vehicle is manufactured (to a particular Euro standard) in order to be Type Approved and when the vehicle is finally sold to the initial purchaser as new, and registered (with DVLA). In addition, some relaxation has been made so that manufacturers can make a smoother transition from one standard to the next, without being left with ‘old’ vehicles which they are unable to sell legally. The slight mis-matching of production periods to actual calendar dates for changes to the Euro standard leads to a situation where ‘end of series’ and ‘early compliance vehicles’ arise, which are discussed in the next two sections.

2.2 End of series vehicles

Each Euro standard comes into force on a particular date (shown in the table above), from which time a 12 month period allowed for the sale of vehicles which may be left over from the previous standard. This is known as the End of Series (EOS) period. A limit has been set on the amount of vehicles that can be sold under EOS, which is either:

1. 10% of total vehicles sold up to the change in Euro standard

2. Any vehicles manufactured at least 3 months *before* a new standard comes into force.

One purpose of the scheme is to assist vehicle manufacturers to make an easy transition from one Euro standard to another. The administration of the scheme is not thought to be particularly rigorous in terms of enforcing the rules or recording the vehicles under each option. However, vehicles qualifying as EOS should be specifically named to the Vehicle Certification Agency (VCA).

Because of the necessary use of the EOS scheme the first registration date of a vehicle (and by extension its registration mark) is not always a true guide to its Euro standard.

2.3 Early compliance vehicles

A vehicle manufacturer, knowing the changeover dates of Euro standards some time in advance, will work to produce a revised engine (if required) and emissions control systems in advance of this date. These vehicles can of course be sold in advance of the new tougher limits becoming mandatory for type approval. For this reason there are vehicles in the fleet that are cleaner than the date of first registration suggests. As with EOS, this will be a small proportion of vehicles on the road compared to the bulk of vehicles sold during the 4-5 years between Euro changeovers. The proportion of these vehicles is less easy to define, but it is thought to be less than for EOS vehicles.

2.4 Actual recorded emissions data

As part of this work, a number of possible sources of emissions data were investigated to identify vehicles against their Euro standard, with their usefulness summarised against each type. Generally, it can be seen that the Euro based emission standard is difficult to obtain from existing data sources, but they are listed here for sake of completeness.

For light vehicles (e.g. passenger cars or private hire vehicles) of class M1 these are:

a) MOT testing

For emissions, the MOT simply checks to ensure the engine is combusting efficiently. Some vehicles require a catalyst test, but the only assumption that can be made is that if a vehicle does require such a test it is probably Euro I, and so it is not very useful for a LEZ scheme. The MOT test could however be an important stage in checking any LEZ certificate derived by other means, or the date of registration via the V5 form.

b) Vehicle Inspectorate MOT database

It is possible that emissions test results will be stored on this, but only CO and HCs are tested, not PM or NOx, and this data could not be compared to Euro standard limits.

c) Vehicle registration details

From March 2001 the DVLA database showed the Euro directive number, relating to Euro Standards, but only for **new passenger cars** produced from that date. Confusingly, Euro II and IV standards share the same directive numbers so will not be differentiated. In time, as all passenger cars are replaced the Euro level will be included on the DVLA database.

d) Vehicle index number (VIN)

The VIN number (available from DVLA) uniquely identifies each vehicle, but to the bespoke format of the manufacturer concerned. Each manufacturer would have to be involved in populating a database with Euro levels or identifying the Euro level of any vehicle applying for a certificate. Working with around the forty relevant vehicle manufacturers would be very expensive, even if they agreed to co-operate.

e) Type approval certificate

Type approval though the VCA covers the whole vehicle and its numerous components. The EC directive, and thereby Euro level, is marked on the certificate. Manufacturers then produce vehicles under this certificate, but any further records identifying individual vehicles use a bespoke system. The same issues as for VIN records apply in this case.

f) Certificate of conformity (COC)

Certificates of conformity are evidence that each vehicle sold has been type approved. Data collection and access by the owner meets similar barrier to that of the VIN number and type approval certificates.

g) VCA data

Vehicle manufacturers have to submit EOS applications and quotas to the DfT Vehicle Certification Agency (VCA). It is estimated that the number of these are in the order of hundreds of thousands. The data includes various types of electronic file and paper records. It would be very resource intensive to compile the data into a useable format, for checking applications against, or to use in a screening process.

For HDVs there are again a number of data sources, but also with various problems of acquiring the definition of the vehicles' Euro standard:

a) MOT Test

HDVs undergo annual tests, which are simply smoke tests and do not record emission data.

b) Vehicle registration details

Does not record emissions standard or EC directive number.

c) Vehicle index number (VIN)

A VIN is not mandatory, and manufacturers use different number/code systems. It is a manufacturers' tracking system, and not very useable outside this setting.

d) Type approval certificate

Type approval covers families of vehicles and components. Individual vehicle identification lies with the manufacturer.

e) Minister Approval Certificates (MACs)

This is an alternative to the Certificate of Conformity (which HDV can also use), but again, individual vehicle identification lies with the manufacturer.

f) VCA data

It is estimated the EOS data would be much less than for cars, because there are simply much fewer heavy vehicles compared to light vehicles on the road. It should be easier to collate, and an estimate from VCA was that it would take less than 1 person month to compile. Some identification of EOS for vehicles over 44 tonnes has taken place by the Vehicle Inspectorate Agency (VI). This is a promising source of data for refinement of assumed Euro standards that might be required.

g) Reduced Pollution Certificates (RPC)

The RPC scheme enables vehicles with modifications (such as particulate traps) to benefit from reduced Vehicle Excise Duty (VED), or 'road tax'. The certificate shows the PM emission limits, which will be 0.08g/kWh for the earliest vehicles under the scheme.

Generally, if a vehicle has a 0.03g/kWh certificate it will have been manufactured as a Euro II or Euro III vehicle, and if it has a 0.08g/kWh certificate it will be a pre-Euro, Euro I or Euro II vehicle for all but PM emissions.

The RPC is therefore a robust method to distinguish Euro II and III vehicles from older Euro standards if they are 7.5 tonnes and over and have joined the scheme.

e) Enhanced environmental vehicle class

A DVLA initiative underway is implementing Government plans to introduce graduated excise duty for the light goods vehicle (LGV) fleet. Planned for March 2003, it will record newly registered vehicles that reached Euro 4 standard in the DVLA record. This would reward vehicle owners who buy Euro 4 vehicles that achieve the required standard some 3 years earlier than mandatory with lower road tax.

If Government were considering any further VED concessions the enhanced environmental class might usefully be tied into LEZ scheme certification, as one method is to create a new tax class, which would be visible on the DVLA record.

2.5 Conclusions

Generally, there are very few sources of data to determine the exact Euro standard of a vehicle, light or heavy, despite the fact this limit is used as the basis for much emissions inventory work and detailed air quality modelling work. In addition, if London or another UK city were to follow the basic methods for vehicle identification recommended in the recent feasibility study, knowing the Euro standard to which each vehicle has been type approved will be very important.

One robust data source is the RPC process, which could (in parallel with a vehicle age check) identify 7.5 tonne and over vehicles which reach Euro 4 limits for particulate matter *if* the vehicle has a particulate trap or other emission abatement device and the owner has decided to register for the scheme. It is not ideal therefore, and will not cover all vehicles.

As a result of EOS, if a city is setting up a LEZ that required Euro III HDV the vehicles registered between 01/10/01 and 01/10/06 when Euro III was the required standard might also include up to 10% Euro II vehicles. In addition, some HDV which were produced to a higher standard early - before 01/10/01 - would probably be assumed to be Euro II vehicles, solely from their date of registration.

This would suggest that a worst case scenario would be a LEZ which allowed in up to 10% 'dirty' vehicles without any opportunity to challenge the owners on the emission limits, or emission source apportionment or modelling work which underestimated the contribution of older, more polluting vehicles. The following section on certification suggests how a certifying process might work to clarify the actual emission levels reached by different proportions of the vehicle fleet.

3. A potential certification process

3.1 Introduction

Despite the issues with data, identified above, it is suggested there is a process by way vehicles' likely Euro standards can be assigned, as part of a certification process, allowing them to be accurately identified for environmental traffic control or monitoring schemes.

Clearly, if the true emission standards of vehicles are required on an individual basis, then further work is needed from any scheme operator. This was the conclusion of the recent LEZ for London feasibility study carried out on the implementation process by TTR, from which some of the following material is taken.

3.2 The process

It is suggested that, when required, the process of classifying what Euro standard any particular vehicle complies with should be carried out in two stages:

- 1) Matching the date of first registration with the likely Euro standard (based on table 2.1 above). This would produce a rough-cut of the vehicle parc using the dates at the end of one Euro standard and the start of the next, as fixed for type approval process.

The first stage of using this suggested certification process will produce a provisional Euro rating for all vehicles, based on date of first registration. It might be decided to concentrate on the HDV fleet, given the lower numbers compared to cars or vans, and if it were considered the first LEZ might target heavier vehicles (as recommended by the London feasibility study).

It will then be for follow-on processes to refine this first estimate and deal with early compliance, end of series, retrofits and fuel conversion vehicles.

2) A set of exception databases would be the second stage to refine the data, based on information of the following types:

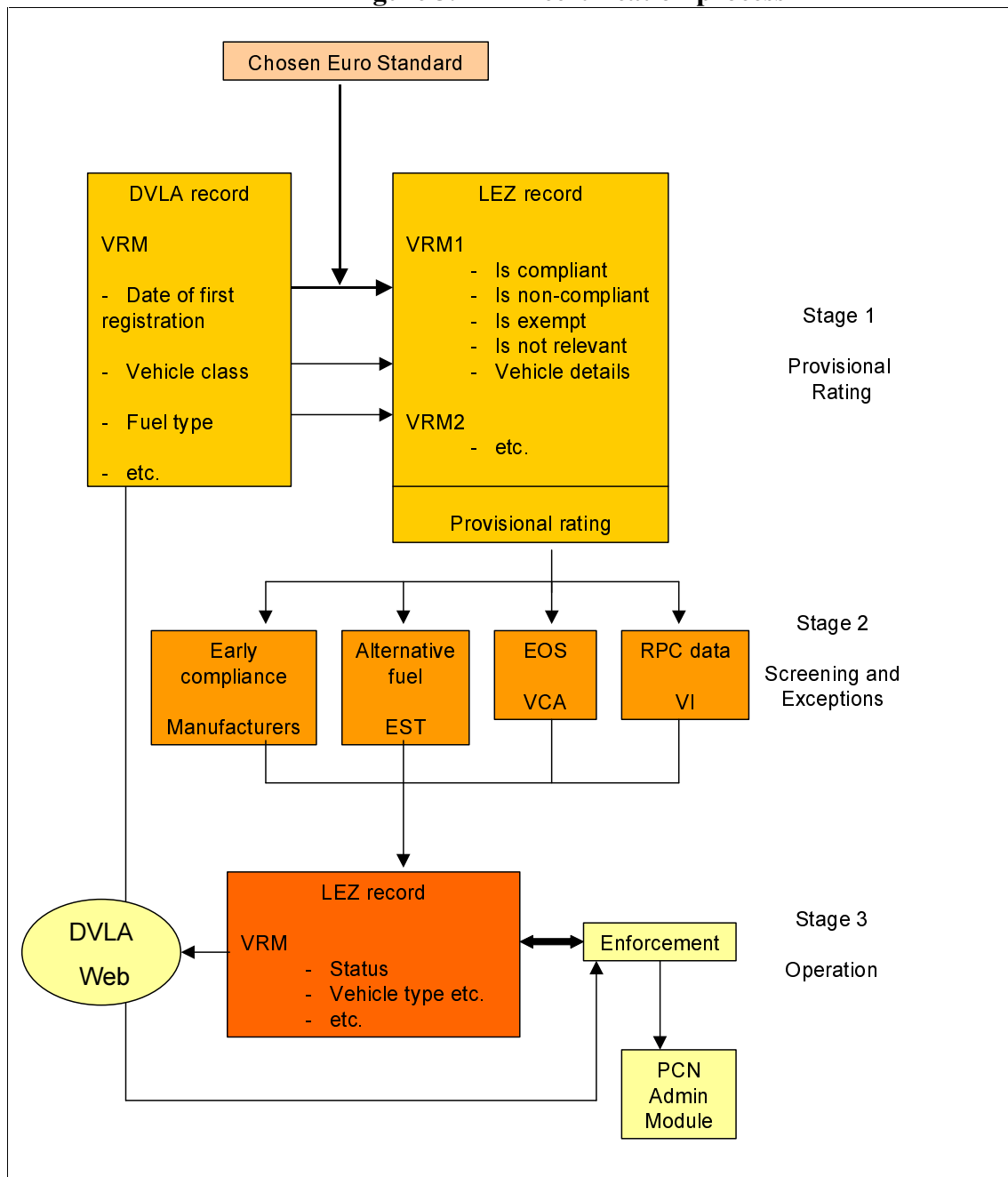
- a) End of Series data, identifying vehicles from an earlier Euro standard period that manufacturers were allowed to sell in the next period, via the Vehicle Certification Agency.
- b) Information on HDV which have RPC in place via the VCA and Driver Vehicle Licensing Agency.
- c) Early compliance data via manufacturers, or vehicle owners.
- d) Alternatively fuelled vehicles via Energy Savings Trust.

The databases of exceptions could be used at two stages of the scheme administration process, depending on the design of the certification and enforcement systems:

- checking applications for LEZ ‘permits’; and
- an on-line system for checking vehicles as they pass enforcement points.

The process and use of the various screening databases dealing with vehicle registration marks (VRM) are illustrated in Figure 3.1. It is suggested that the final output would be a live copy of selected fields of the DVLA record, removed of keeper details, but made available on-line in a secure manner in a similar way to the database produced for the London congestion charge scheme.

Figure 3.1 LEZ certification process



The following text describes the various screening databases that would be used in such an approach.

EOS data

It is proposed that a database of EOS vehicles would be built up, where practicable. This would need doing for the first 12 month period the chosen Euro standard came into force. This data would be used to screen **out** vehicles that were sold during the period of the chosen Euro standard, but were in fact manufactured to the previous standard.

VCA holds EOS data, but it becomes increasingly numerous and complex as it comes to the lighter vehicle classes (compared to HDV data). It is estimated that compiling the current HDV EOS data would take some person-weeks of effort. It would be an order of magnitude greater effort to collate LGV or car data.

If data for LGV/car is not collated, it means the EOS screening could not be applied to these vehicle classes. It may have to be accepted that around 10% of cars are being wrongly classified, and the owner should be given the benefit of the doubt in this case. If the EOS rule has been laxly enforced, this proportion may be higher.

RPC data

Data on vehicles qualifying for RPC should be collated from the DVLA, as it will denote a vehicle achieving a higher emission standard (for particulate) than would be suggested from date of registration alone. This might be used as a basis for including a vehicle as 'scheme compliant' if a LEZ was introduced which included Euro II/III plus RPC categories. As RPC were issued in the past for pre-Euro vehicles achieving Euro II emissions, an additional age check would be needed by the user of the resulting database of the registration date.

Some vehicles fitted with emission abatement equipment have not taken up the offer of a RPC, maybe because the VED reduction is not sufficient incentive for the time and cost involved. The RPC data from DVLA is not a complete check therefore, but will help improving the final database of vehicle Euro standards.

Early compliance data

It is possible that some vehicles appear more polluting than they really are when considered solely on age of registration, because the manufacturer produced to the next Euro standard earlier than required. Without readily available data on individual vehicles it is suggested that the best approach is to appeal directly to manufacturers, perhaps via a body such as the Society of Motor Manufacturers and Traders (SMMT).

If the certification process is widely publicised it may be possible to build a database in advance of the scheme by working with manufacturers and representative bodies (e.g. the SMMT). This approach was considered for Government plans to introduce a VED reduction for Euro 4 compliant LGV.

Finally, in the case of an LEZ, if owners believe their vehicle is actually LEZ compliant, then they should approach the manufacturer to supply evidence of this.

Alternatively fuelled vehicles

The Energy Saving Trust's (EST) Transport Energy programme maintains the PowerShift register of approved vehicles and vehicle conversions to ensure high standards that improve on

the emissions of a conventionally fuelled comparative. The classification is done in relation to Euro standards.

Transport Energy is working with TfL to help identify alternative fuelled vehicles that would be exempt from the congestion charge (with emission levels 40% better than Euro 4). The process conforms with data protection requirements.

It is suggested that for alternative fuelled vehicles funded through PowerShift a similar process should apply:

1. EST sends a Euro standard certification form to all relevant vehicle owners receiving grants from the PowerShift register.
2. The form is returned giving permission to include the vehicles' true Euro standard on the final database.

For non-PowerShift funded conversions it is suggested that reputable conversion companies will be able to supply a Certificate of Conformity as evidence. In most cases, if the conversion company is reputable and of high-quality they will seek to be included on the PowerShift Register of approved converters and manufacturers. Queries from users of the resulting database about validity of evidence might be best checked by Transport Energy.

3.3 Role of Government and its Agencies

A certification and identification system is a specific area where the process will need assistance from Government or its Agencies: Vehicle Certification Agency (VCA), Driver Vehicle Licensing Agency (DVLA) and Vehicle Inspectorate (VI).

The Agencies' involvement will be critical to the operation the final database of Euro standards because the type approval, registration and inspection of vehicles are handled by these agencies. They hold the data and systems which lend themselves to certification and identification of vehicles.

Finally, if a London LEZ was implemented it would affect up to 50% of the UK fleet. There is a strong argument that some of the work to support such a scheme should be done at a national level, and Government agencies are in a prime position to assist Local Authorities with air quality management and monitoring.

It would now be a good time to put it in place the basis of a certification system, in advance of any city undertaking LEZ implementation and to support other source apportionment and modelling work being undertaken as part of local air quality management.

4. Conclusions

This note aims to raise the issue of Euro standard identification, as an important component for further air quality management work. It proposes a possible approach to data improvement and identifies the organisations that could help to kick-start a useful phase of work, putting in place data sources that are likely to prove useful to practitioners in the field of traffic management and local air quality. It does this by setting out a method by which vehicles can be classified according to their Euro standard, which includes emission limits.

Knowing the Euro emission standards for each vehicle in a flow of vehicles, or verifying the details for one vehicle, would be useful for air quality modelling, source apportionment and environmental traffic management schemes (such as LEZ). It is currently not possible to easily identify Euro standards, particularly for older vehicles, and the division of the fleet into the various emission bands is currently being done with a degree of inaccuracy.

In terms of a method to rectify this, it would be possible to produce an accurate database that cross-referenced vehicle registration marks against the vehicle's Euro standard, while keeping the owners details private. This could then be used as the main part of a certification system for LEZ, for example. To make such a database would require input from:

- DVLA, on the basic Vehicle Registration Marks, vehicle type and on-line database design;
- VCA on End of Series vehicle records;
- VI on Reduced Pollution Certificate holders; and
- EST on applications for conversion, or subsidies for new alternative fuelled vehicles.

The End of Series data is the area where a considerable amount of work may be required if lighter vehicles are included in the database. If only HDV are covered, perhaps as a first stage, this will greatly reduce the task. This End of Series identification for HDV could be done for this part of the fleet in a few person-weeks effort. This could, with EST input, be used by DVLA to produce a first 'distillation' of the vehicle record, identifying vehicles by their likely Euro standard.

The final output could be a web-enabled database similar to, or as a module of, the current DVLA online database as used by TfL Street Management for the London CCS. The cost and resource implications would need considering in more detail.

The organisations that might consider administering the database, and handling day to day use and administration, could be:

- DVLA (in a similar way it manages the web-enabled facility for TfL and the London CCS);
- Vehicle Inspectorate, once the initial database has been created, to incorporate the data in their MOT database;
- The ALG / LGA or similar local government body on behalf of its members; or
- Some private company, provided with a contract to run the service, possibly already undertaking inventory work for DEFRA / DfT.

Early work to kick-start the process would be required from DVLA and VCA, in particular considering the availability of EOS records as a priority for HDV. This would enable a much more accurate description of the HDV fleet in terms of emission standards to which vehicles had been manufactured.

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