

Lorry Road User Charge: a debacle in the making.

By Derek Beevor

This paper contains the background information to a number of talks given by Derek Beevor from August 2003 to Dec 2003. To contact Derek email: derek@beevor.com

Last year the Chancellor of the Exchequer, Gordon Brown, announced that the Government intended to introduce a distance-based lorry road-user charge. The Government seem to think that charging truck tolls based on distance and time of travel will solve the UK's road congestion problems. It will not. Distance based road charging is not a new idea, we have had distance based road charging for a long time in the form of fuel duty. Unlike VED charges, fuel duty costs go up in line with the mileage driven. When you buy a litre of fuel for say 78.7p the actual cost of the fuel is only 18.3p of the rest of the cost of your litre of fuel, 60.4p is for fuel tax and VAT. For a truck that does 7.5 miles per gallon that works out to 11.2p per mile for fuel and 36.4p per mile for tax. For a car that does 50 miles per gallon it works out to 1.6p per mile for fuel and 5.4p per mile for tax. So the current distance based road charge is around 36p per mile for trucks and 5p per mile for cars. Heavier trucks use more fuel and so consequently pay more tax per mile and lighter trucks use less fuel so they pay less tax per mile. Fuel duty also provides an incentive to avoid rush hour traffic and congested roads because when vehicles are in traffic jams they are using much more fuel per mile and are therefore paying much more tax. Why then is the Government introducing another distance based road charge for trucks called the Lorry Road User Charge?

The proposed Lorry Road User Charge is supposed to be introduced in 2006 and will be a tax (or toll if you like) on every mile travelled on all UK roads for all commercial vehicles over 3.5 tonnes. The Government's proposal is to charge a toll rate per mile for all trucks and then hand back a fuel duty rebate to cover the cost so that the operator will not be out of pocket. Now the first question that springs to mind is: what is the point?

Well the only thing that the new proposal introduces is the ability to vary the road toll depending on the time of day and to be able to charge foreign trucks for using UK roads. Unfortunately both of these reasons are fundamentally flawed. As I will explain, there is no point varying the toll rate to encourage drivers to avoid busy periods because they will be unable to comply and the cost of charging foreign trucks will be greater than the amount of tax collected.

The combination of drivers' hours regulations, working time directive regulations and higher toll rates during peak times are simply impossible for drivers to calculate. If you don't believe this then try it for yourself. Just read the rules (I have only included the basic rules to keep it as simple as I can) and answer a simple question:

Can a driver avoid the rush hour periods of 7am to 9am and 4pm to 6pm and drive a truck from A to B? We will use Canterbury to Edinburgh as our working example.

Driving time.

We can drive 9 hours per day but we can extend the driving to 10 hours but only on two days per week, the maximum you can drive in any one week is 56 hours. So you

can drive for 4 days for 9 hours per day and 2 days for 10 hours per day. However you can't drive over 90 hours in any two weeks so if you do drive 56 hours one week you can only drive 34 hours the next or if you drive 50 hours one week you can only drive 40 hours the next week.

Rest periods

After a maximum of 6 days driving you have to have a weekly rest, your standard weekly rest is 45 hours but you can reduce this to 36 hours rest if you are at home or 24 hours rest if you are away from home. If you reduce your weekly rest period by 9 hours to 36 hours for home rest periods or by 21 hours for away rest periods you have to pay back the total weekly rest reduction under 45 hours by the end of the third week following the reduction.

Working Time Directive (coming into force in March 2005 just before the toll charges)

You can only work an average of 48 hours per week in any 17 week period, this can be extended to a maximum of 60 hours per week as long as you pay back the hours over 48 hours per week during the a 17 week period of working. If you work at night your working period will be limited to 10 hours work in each 24 hour period. You must have a break after 6 hours working. A break of 30 minutes is required for 6-9 hours work; 45 minutes for over 9 hours. Breaks can be divided into 15 minute slots. Now you must deduct your periods of availability from your working time but you may only do this if you have been notified in advance about the periods of availability and their approximate duration which include accompanying a vehicle on a ferry crossing and waiting for a vehicle to be loaded / unloaded. Just add up all your working hours over any 17 week period and make sure the total hours worked doesn't exceed 816 hours unless you have had a holiday during the 17 weeks in which case you have to add the number of holiday days onto the 17 week period. Then adjust your totals to include any night time working and any qualifying (notified in advance) periods of availability.

Well, what's the answer? Can a driver avoid the rush hour periods of 7am to 9am and 4pm to 6pm and drive a truck from Canterbury to Edinburgh? If you don't know, or can't work it out then how on earth can anyone expect a lorry driver to be able to calculate questions like this on every working day? If anyone offers the lame excuse that Drivers' hours regulations are due to be simplified just ask them to do the same calculation without using any Drivers' hours regulations never mind the new ones, the Working Time Directive regulations alone are enough to make avoiding rush hours too complicated.

The answer is even more complex than the question. To be able to work out the answer we need two weeks driving records and seventeen weeks working time directive records and only then are we able to say if we can drive a truck from A to B and avoid peak driving times. The reality is that there is absolutely no point in the Government introducing a toll rate to encourage lorry drivers to avoid the rush hour, car drivers may be able to comply but truck drivers are so tied up in working hours regulations that they simply can't work out how, or even if they can comply.

There is also a contradiction here with the object of the Working Time Directive which is being introduced to shorten drivers working time. The proposed variable toll rate is designed to encourage drivers off the road for two hours in the morning and two hours in the afternoon making their working time four hours longer! Does the Government really expect the "Wheels of British Industry" to sit still every day, for half of its working day?

Then there is the employer to consider, is it realistic to expect an employer to pay a driver to stay off the road for four hours a day. The cost of a truck and driver to stand still for four hours is well over £100. Four hours is the equivalent to 200 miles driving so even if the toll went up by 50p per mile it wouldn't encourage an employer to take his truck off the road for rush hours. Mind you that is just as well because another question that the Government hasn't thought about is: Just where do they think the trucks are going to go during rush hour? There isn't enough overnight parking for trucks never mind expecting the whole dayshift to park up twice a day.

Now about those foreign trucks, charging them could be so simple, we could join the Euro vignette system. Or we could take their mileage as they enter the country and again as they leave, that can't be all that complicated, after all we are an Island with just a few entry and exit points. Well never mind the simple methods just look at the way the Government are proposing to tackle this one. So far the idea is to make every truck in the UK install a satellite tracking system that is linked to a central billing computer to collect an estimated £1,886 million, and then introduce a fuel rebate system to pay back £1,773 million to all UK operators. The Government will then keep an estimated £113 million collected from the foreign trucks. These figures were worked out by Motor Transport editor Andrew Brown from the Government's own statistics. This madness is described by the Government as modernising the tax collection system and making it fairer for UK operators.

The German Toll Collect system costs the German Government £504 million a year to run but it only covers 12,000 km of German motorways with 2,213 junctions and 251 intersections. The proposed UK system will cover every road and so will cost many times that much to implement. The UK scheme will cost more to operate than it will collect in taxes!

It's not just an outrageously complicated method of charging foreign trucks for using UK roads, the technology that this proposal is based on is also fundamentally flawed. The system will rely on recording a trucks position using GPS satellites. The GPS signal only works on "line of sight" which means that as soon as the truck enters a garage or goes through a tunnel the signal is lost. It also means that if someone covers the GPS aerial there will be no way of using the system for charging road tolls. The GPS aerial is just a small dome about one inch wide and a couple of inches long, it works fine for in car navigation but it is far too easily blocked to base a whole new taxation system around. In the German Toll Collect system they have had to include extra technology to get around this vulnerability, they have included a short range radio signal and roadside cameras that can read vehicle registration numbers. The idea is that the cameras will use the short range radio signal to detect and then ignore the vehicles that have a Toll Collect system fitted but will photograph the registration numbers of any vehicle that does not have a Toll Collect system. The system will then check to see if the toll has been paid manually, if not the system will then alert the authorities that a truck has avoided the toll payment. It is obvious that the system to detect trucks avoiding the toll (number plate recognition cameras) can work as the toll collection system on its own. There is no need for any onboard truck computer once these cameras are installed; in fact the London Congestion Charging scheme uses exactly this method, no onboard computers just cameras. So the upshot is that the toll system relies on signals that are so easily blocked that an enforcement system of cameras is needed which then cancels out the need for the onboard computers in the first place.

The really complicated bit of this proposal lies in the communication. People have tended to compare the proposed toll technology to the current in car navigation

systems on the market. This is a big mistake, an in car navigation system does not have to communicate with a remote computer to report a position and mileage, work out a toll charge and then send an accurate bill. It is relatively simple for a car's navigation system to obtain a position from the GPS satellites and then read a compact disc with map data to give directions. However it is much more complicated for 420,000 trucks to do this and then link to a central computer system using wireless technology. This proposal is not a simple navigation system it is a centralised billing network with 420,000 wireless connections. This complication was seriously underestimated by the German Toll Collect consortium and is just one of the reasons why the system has failed to be implemented to date, and what an expensive mistake it was. The Toll Collect consortium made up principally of Daimler Chrysler and Deutsche Telekom are currently paying a fine imposed on Dec 1st 2003 by the German Government of €250,000 per day. If the system is not working by March 1st 2004 the fine doubles to €500,000 a day. Now there is a warning for those people who are trying to over simplify the proposed UK toll system.

The German Toll Collect scheme uses the old GSM phone network to send SMS messages; they have not implemented the new 3G standard. It has no link to a vehicle's CAN bus which is the agreed standard between truck manufacture's for onboard telematics. It doesn't even have a link to the new digital tachograph and in an interview with the press last month Toll Collect conceded that in an effort to be awarded the contract for the lorry toll operation, it had promised too much! What it promised and then failed to deliver was a system that only covered German motorways and is a much simpler system than that being proposed by the UK Government to cover all UK roads.

An interesting point to ponder is the involvement of Telecoms companies in the toll collection process. A quick look at the charging methods that Telecoms companies currently employ exposes their interest in influencing the design of toll collection systems. There are basically 3 ways that the current GSM based mobile phone or mobile modem can send and receive data. The first is a simple data connection known as DDC (direct data call). This is a time based connection that is very similar to a voice call. The connection will transmit data at 9,600 b\second and be charged at around 10p per minute so the cost of sending a megabyte of data will be about £1.45. The second method involves GPRS (general packet radio service) this is not charged on a time basis but is a per megabyte charge for the amount of data sent or received. GPRS is an "always on" connection that will cost around £2.20 per megabyte. This is the current favourite method for third party telematics companies because of the "always on" feature. The third method for sending and receiving data is SMS (short message service) this is the least popular method for telematics because unlike the other two methods there is no direct connection to the vehicle, SMS messages are "store and forward" so there is no way of knowing if or when a message was delivered. SMS messages cost 10p each and consist of only 160 characters. This is far too short for most telematics functions where delivery and collection addresses, load details and vehicle performance data are transmitted. SMS is also an extraordinarily expensive method of sending data working out to £655.36 per megabyte. No that wasn't a typing mistake it really is six hundred and fifty five pounds thirty six pence! So we have three methods of receiving and transmitting mobile data, DDC £1.45, GPRS £2.20 and SMS £655.36. It is interesting to note that the German Toll Collect system is 45% owned by a Telecoms company and also chooses to use the most unsuitable and by far the most expensive communications method for telematics. Defenders of the Telecoms companies will point out that SMS messages can be

bought for less than 10p each but the reduced prices often involve pre-purchasing a large number of messages which have to be used up within defined periods. Even if messages can be bought for 4 or 5 pence each the cost per megabyte is still hundreds of pounds instead of one or two pounds using DDC or GPRS. It is also interesting to ask why the new 3rd Generation mobile phone system is not being proposed. This system was designed for data and £22bn was spent by the mobile phone companies on obtaining UK licences.

Another very worrying factor in the Lorry Road User Charge is the way that Customs and Excise have attempted to push the consultation through by using an extremely amateurish and “loaded” questionnaire. Firstly, well under one thousand companies were interviewed and the questions were set out as to only obtain the answer that Customs and Excise wanted. A good example of this can be found in question number 17 where it was explained to transport operators that unless they fitted an onboard computer into their vehicles they would not be allowed onto UK roads unless each journey was pre-booked. The multiple choice question had two options A: Having an onboard computer installed. B: Buying tickets for each journey. The question that was asked was: Which do you think is most appropriate for your organisation. Was this a blatantly loaded question or did Customs and Excise really expect transport operators to say that purchasing tickets for each truck journey was appropriate for their business? Question 18 asks an operator how much you think an onboard computer will cost and question 19 gives a multiple choice of prices ranging from £100 to £900, a no cost option was not available. These two questions look like they have come straight out of the double glazing salesman’s handbook. Question 22 asks the transport operator if they would like other value added services such as stolen vehicle tracking or route planning, no details of price or functionality were given but a yes or no answer was expected.

Customs and Excise have used the answers to this “loaded” questionnaire to report to the Government that the Transport Industry is fully behind the Lorry Road User Charge leading to the following Government statements:

Budget 2002 (17 April 2002): Economic and Fiscal Strategy Report – Chapter 7:

The consultation revealed a strong preference for a distance-based lorry road-user charge from a range of organisations

HMT News Release 59/03 (6 May 2003) - John Spellar:

"The lorry road-user charge is a great opportunity for the haulage industry. It will help bring the latest technology into the cabs of the UK's lorries, offering highly valuable fleet management and navigation benefits. We have listened carefully to what hauliers want from this tax modernisation and are developing a scheme that will be both innovative and fair."

HMT News Release 40/02 (25th April 2002) – Paul Boateng:

“Our decision to modernise the tax system in this way follows intensive consultation. I am delighted that this policy has been backed by the haulage industry.”

These statements show that the Government commentators have been misled about the functionality of the proposed onboard computers and have been badly briefed on the technology. The haulage industry has not backed this proposal, the vast majority of hauliers that I have spoken to have not even heard of this proposal yet and it is most definitely not using the “latest technology!”

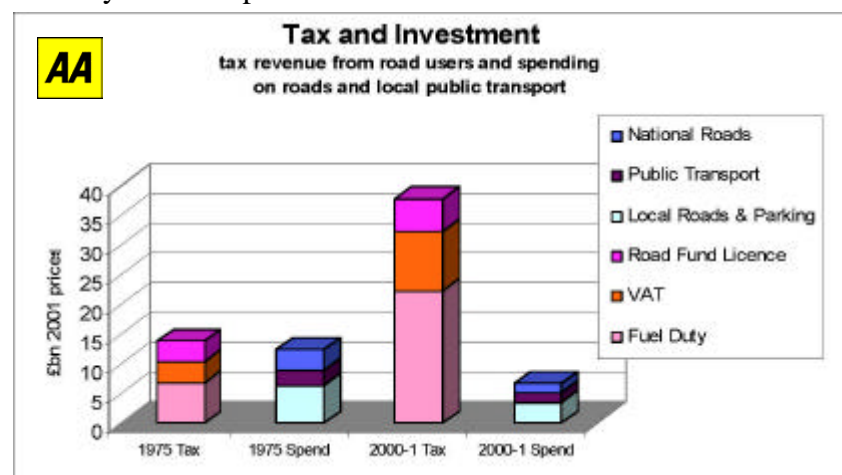
History has an interesting way of repeating itself. When the original Road Tax was proposed in 1909 Chancellor Lloyd George was asked this question:

“Is it intended to go to general revenue? Our attitude depends upon the answer. If it is going to roads, we think it a fair proposition.”

Lloyd George replied:

“my proposal is the whole of the money should go to the roads”

Of course it didn't, as these AA figures show tax duties have continued to rise and spending has continued to fall. There is now around £30 billion of tax collected annually and not spent.



The EC document “**amending Directive 1999/62/EC**” contains this statement which is remarkably similar to the question put to Chancellor Lloyd George 90 years earlier in 1909.

“If the general public can see for themselves that the revenue is used as a basis for investing in transport infrastructure networks, from whence it comes, the system will be legitimised and thus accepted. If the opposite is true, charging will become just another taxation tool, serving no specific purpose other than to boost State income.”

There are some very serious questions that need to be addressed regarding the use of satellite navigation systems for tax collection. Notwithstanding the clear-cut fact that the satellite signal can simply be switched off or blocked by the user, the ownership of the system and future charging possibilities need to be defined before a European wide taxation system is based on this technology. Right now the proposal is to use the American owned GPS system which is effectively free of charge. If a European wide road charging scheme uses American owned GPS satellites will the Americans start charging for the use of their satellites? It would be quite reasonable for the Americans to expect to be paid if their technology is being used commercially to collect billions of Euros in revenue. Will this charge be passed onto the transport operators and if so how much will it be?

Why use the American system anyway when we have Galileo. Galileo is the European equivalent to the American GPS system and is a joint initiative of the European Commission (EC) and the European Space Agency (ESA) which is due to come online in 2008. Galileo consists of 30 satellites (27 operational + 3 active

spares) the total investment cost for the Galileo operable system is some €3.2 billion Euros. From 2008 onwards the annual cost will be around 220 million Euros including operations, maintenance and replenishment.

The business plan for Galileo includes revenue from transport operators so bearing in mind that the EC has invested €3.2 billion with €220 million annual running costs, will transport operators be forced to change their hardware to use Galileo equipment and what will the ongoing user charges be?

Summary

The whole Lorry Road User Charge proposal is based on misinformation and has not been thought through. We have already seen distance based road user charging with fuel duty and the fuel escalator that was supposed to increase the cost of motoring and encourage drivers off the road, it didn't work. The number of miles driven each year increased after the introduction of the fuel escalator. In 1990 British drivers clocked up a total of 253bn miles between them. Ten years later this had risen by 12% to 284bn miles. The distance based road user charging proposal now is for trucks only. Trucks don't have a choice as to whether or not they use the road; they are only doing as the customer asks. Hauliers don't create the demand for transport they simply fulfil it. Hauliers already run on the tightest of margins, introducing another tax system will not make them any more efficient, in fact the enormous amount of extra administration involved in distance based road charging will make them much less efficient.

Truck drivers working hours are strictly controlled already and with the introduction of the Working Time Directive the ability to choose which hours to work is effectively removed making variable charging rates pointless. If the Government can't use variable toll rates to encourage trucks off the road during peak periods then the whole idea of using satellite based toll systems falls apart, it just becomes a very expensive way to collect fuel duty.

We do have a precedent to use when looking at the EU and the Government's handling of new technology in trucks, it can be found by looking at the introduction of the digital tachograph. This is much simpler technology than the planned satellite driven toll devices where 420,000 trucks will be wirelessly connected to a central billing system. The digital tachograph is a simple, stand alone recording device that has been introduced to replace the current analogue tachograph installed in trucks. It just records a drivers hours, that's it. It has taken 15 years to develop this simple recording device! Legally it will have to be fitted into all new trucks in nine months from now on 5th Aug 2004. It will not be ready on time! Vehicle manufactures have announced that it will be another 21 months (Aug 2005) before they will be able to fit the new digital tachograph into new vehicles. Have the EU or the Government changed the law to cater for the fact that digital tachograph will not be ready on time? No. So for 12 months from Aug 2004 anyone buying a new truck will be breaking the law. This means that when a truck driver gets stopped by a policeman on the M1 next September in his brand new truck he could be charged! The only comment from the EC about this bizarre situation is: "*Member States will be in discussion about allowing analogue tachographs to be used pending the implementation of digital tachographs some time between March 2005 and December 2005*" This is a very strange statement bearing in mind that digital tachographs become law on 5th Aug 2004. The date for digital tachographs becoming a legal requirement is just wrong. The date needs to be changed or at least someone should inform the traffic police that it is not the truck driver's fault if his new truck hasn't got one fitted next September.

At least the digital tachograph standard has been agreed throughout Europe and all members will be fitting the same device. The truck toll devices that are currently being both planned and installed by most European countries are all different. The transport industry has not been properly consulted about this proposal and the politicians have not been properly briefed about this technology. During the “rushed” run up to this proposal some transport operators and industry bodies were taken to Germany to see the German Toll Collect system, they included the FTA, the RHA and the Road Haulage Forum. Since their visit in the summer of 2003 the German system has spectacularly failed. If the point of the visit was to prove to these industry representatives that the system worked then it should now be noted that the system did not work. This prompts the question: what changes to the Government’s proposal have been made since the failure of the German system? So far the evidence is that nothing has changed and the mistakes made by the Germans are going to be repeated in the UK.

According to the AA figures the Government are collecting £30 billion more from road users than they are spending on transport yet they are putting forward an argument for a Lorry Road User Charge in order to collect more money. What for? They are not spending anywhere near what they are collecting now. The argument that the Lorry Road User Charge is a fairer way of collecting tax is simply nonsense. At the moment fuel duty taxes are 36p per mile for trucks and 5p per mile for cars which means that trucks pay over seven times the tax charge for cars. Private industry has decided that the differential charges between trucks and cars should be less than this. The new M6 toll charge is £3 for cars and £11 for trucks so the trucks are charged under four times the rate for cars.

The whole Lorry User Charging scheme is full of problems and huge risk for the Government. It is hard to find an explanation for this risk and the justifications put forward by the Government are nonsense. There must be another reason for the Government to be prepared to continue with this proposal especially after seeing the German scheme collapse. The only feasible reason for the Government to continue taking this risk would be that the Lorry Road User Charge is just another stealth tax and the risk with new technology would be worth taking if the prize was a brand new tax.

A possible explanation could date back to the fuel protests of 2000. The Government’s problem was that once the general public clocked onto the fact that 80% of their fuel bill was pure tax they agreed with the fuel protesters. The Government had to back down due to public opinion but rather than accepting the fact that 80% tax was too much, maybe they looked for a way of continuing the fuel escalator under another name. If they could slip in another tax, albeit fuel duty under a different name then perhaps they can start the fuel escalator all over again. The solution to this new tax would look very much like the Lorry Road User Charge. It can easily be sold to the general public because, although it is just another name for fuel duty, it only affects lorries, it can also be sold to the public by claiming that it will solve the traffic congestion problem. The Government would have to try to convince the Trade associations into going along with this new stealth tax and promising them a fuel duty rebate would be a good way of achieving that, the trade association have been lobbying for an essential user fuel rebate and granting this would give the associations a win. The trade associations will probably realise that the promised fuel rebate will not be worth trading for a brand new stealth tax and have indeed already asked the Government how long this Lorry Road User Charge will remain tax neutral. Of course the only commitment from the Government is that it

will be tax neutral at the start and after that they can't make any promises. Once the new tax is introduced the Government will be free to shrink the fuel rebate and increase the toll charges, the hauliers would be off again into another round of continually rising taxes but this time without public opinion on their side.

The mess

We are heading for a massive debacle where almost all of the European countries are installing or planning to install their own distance based road tolling systems. They are all paying lip service to the call for each country's system to be interoperable with all of the others, but the reality is that they are not. The mixture of technologies involve GRS satellite positioning being used in different ways: GSM communications and DSRC (dedicated short-range communication). Switzerland introduced the first truck toll system on 1 Jan 2001, this systems uses GPS satellites for positioning but charges for vehicles entering a dedicated area and not for certain roads or routes. The Swiss system doesn't use GSM modems for communication with but instead uses DSRC (dedicated short-range communication), in other words a radio signal from the truck to a road side beacon. The next system to be implemented will be the Austrian version on 1st Jan 2004. This system will also use DSCR but not for "areas" the charge will be levied on motorways and certain expressways. The German one should be next but has been delayed twice so far, this version uses GPS satellites for positioning and GSM communications for billing, It also uses DSRC but only for enforcement and the charging is for motorways only. Then we have proposals from **Portugal, Spain, Italy, and France** for motorways only using DSRC. **Slovenia** is also only charging for motorways and the Karavanke tunnel. **Croatia** intend charging for motorways, Ucka tunnel and the bridge to Krk island only, **Greece** for some motorways and national roads. **Serbia and Montenegro** for motorways and some expressways only, **Hungary** for the M5 Budapest-Kiskunfelegyhäza motorway only, **Poland** for the A4 Katowice-Krakov motorway only and **Denmark** for bridges only, **Norway** for some roads, bridges, tunnels and town centres and **Ireland** for the Dublin Ring Road only. Do you think we may be getting into a mess here?

There is also a very real safety aspect to this mess. Most of these proposed systems are designed to be fixed to the windscreen of trucks. We are heading for a situation where a truck travelling across Europe could have ten separate computers stuck on the windscreen. This is ironic bearing in mind we have just introduced legislation in the UK to prevent drivers from using mobile phones in the cab for safety reasons. Unlike mobile phones these computers are designed to be used while the truck is mobile, the whole point of introducing new technology is to keep the trucks moving while charging tolls instead of making them stop at traditional toll booths. How many people are going to be killed by trucks whose drivers are monitoring computers stuck on their windscreens before this point is taken seriously?

The really silly thing about these truck toll systems is that they are designed to charge tolls for all vehicles in each country and then each Government (just like the UK) intends to rebate their own country's hauliers and only keep the money from the foreigners. It is unbelievably stupid and the solution to the whole problem is unbelievably simple.

The solution

As mentioned right at the beginning of this document collecting fuel duty is exactly the same as charging distance based tolls. The only reason for the whole mess is that fuel duty rates are different all across Europe. For example the only reason that the

UK Government does not get any revenue from foreign trucks is that foreign trucks do not buy fuel in the UK. If a foreign truck bought its fuel in the UK the full amount of the fuel duty will be paid to the UK Government, therefore the UK Government would be collecting distance based revenue from foreign trucks. Because the foreign truck can buy cheaper fuel elsewhere in Europe the UK gets nothing.

The solution is to simply harmonise fuel duty throughout Europe. There would then be no need for any country to charge each others hauliers and rebate their own. There would be no need for any onboard computers or rebate schemes. Trucks would not have to carry large amounts of fuel around to avoid buying it in certain countries.

Every truck travelling throughout Europe would fill their tanks wherever they needed to and each European country would get a fair share of fuel duty.

Now isn't that a simple solution. Will it work...no. Unfortunately we have got more chance of getting all that technology working than we have of getting the politicians to agree with each other ☹