

## **ABD - GAYDON - 31 March 2007 - ROAD PRICING ABROAD**

1. Before discussing "Road pricing abroad" what is road pricing?

### **Definition**

2. This may seem a bit obvious as the Government announced nearly 3 years ago (20 July 2004) that this was part of their long term plans and of course nearly 2 million people signed Peter Robert's petition against it. But what is it?
3. We all recognise what tolls are. The word comes from the Greek word "telos" meaning tax. At one time those who controlled river or mountain crossings would have demanded tolls from travellers. Almost all old crossings in Britain are now free, but Britain still has about 9 tolled private crossings that date before 1900, and about 10 publicly owned crossings constructed since then.
4. In the early 1700s turnpikes were introduced to Britain, with charges for the use of the road. All of the roads provided under turnpike legislation are now free, but there are still about 6 private tolled roads including of course the M6 Toll opened at the end of 2003.
5. Those are the tolls that we are familiar with but we now have tolls under new names - "congestion charging" and "road pricing". What are they?
6. Though the phrases "congestion charging" and "road pricing" are commonly used, neither appears in legislation. The London charge comes under Schedule 23 of the Greater London Authority Act 1999. But it refers to "Road user charging" and does not use the word "congestion" at all.
7. Similarly the Transport Act 2000 (Chapter 1 of Part 3) under which we have the Durham "Congestion charge" scheme and the Dartford Crossing toll refers to "Road user charging" and does not use the

word "congestion". In Scotland the equivalent law is the Transport Scotland Act 2001.

8. The three Acts allow the authorities to introduce schemes putting charges on any roads. The charges do not have to be justified as a way of dealing with congestion.
9. The earliest Hansard reference to "Congestion charging" appears to be on 1st April 1993 during a debate about the M25. The then Minister for Roads and Traffic (Mr. Kenneth Carlisle) said, "We are undertaking some research into road pricing within towns and cities. That is city congestion charging." He also said that the Government was producing a "Green Paper on motorway charging."
10. The earliest (you can't search before 22 November 1988) Hansard reference to "road pricing" was during a debate on "South west London Traffic" on 9 February 1989 - "but one day, however unpalatable it may appear, road pricing must be seriously considered". Though road pricing has been identified with the Labour Government, those words were spoken by Jeremy Hanley, Tory MP for Richmond and Barnes.
11. So what, if anything, distinguishes road pricing tolls from the road and bridge tolls we already have in Britain and many other countries?
12. Does it necessarily involve the use of satellites to monitor vehicle movements? - It doesn't because there are many varieties of schemes, and most including the two best known - the London and Singapore ones, do not use satellites. Even if a satellite is used it is usually passive, i.e. all it is doing is transmitting GPS information. The real spies are the in car devices which may transmit data to devices at roadside or on gantries (which in turn will be linked by cable or radio links to a network) and cameras which will be needed as a back up.
13. So we seem to end up with road pricing as just being tolls writ large i.e. tolls on a LOT more roads with the excuse that they are needed to pay for new mass transit schemes or increased subsidies for

public transport or save the planet from becoming an arid desert submerged under rising tides. We **could** say that and many road pricing advocates do. But this is of course nonsense, as roads users are already massively over taxed, and if the authorities wanted to tighten the screw further then the simplest and cheapest way would be to increase existing roads taxes and in particular they would increase fuel taxes.

14. To try (for the purpose of this talk if nothing else!) to distinguish road pricing from other tolls we have to introduce another element - time. That is the toll will be higher in busy periods and lower or free off peak with the claim that this is to reduce congestion. We will have to ignore the fact that many of the existing tolls are also retained or increased using the excuse that the toll is there to deter drivers and reduce congestion.

## Overseas

15. Having got a working definition we can look at some of the overseas examples of what are said to be road pricing schemes. (For the purpose of what follows references to "road pricing" include "congestion charging".)
16. Various overseas schemes are said to be examples of road pricing. The main ones are Singapore, Germany, Norway, Stockholm, HOT lanes in America, and charging trials in Seattle and Oregon.
17. It is difficult to make objective assessments of these as whatever data is available comes either directly from those who operate the tolls, or indirectly from organisations that want to promote road pricing. The validity of the data and some of the claims made are therefore suspect. In particular one should treat with caution even the claim that a road pricing system exists at all in a particular place. It may be just an ordinary toll, it may have been withdrawn, or it may not yet have been implemented.

## Singapore

18. Singapore with its "Electronic Road Pricing" (ERP) scheme has to come first. This is the nearest anywhere in the world to a "road pricing" system. It is the most comprehensive and is long established. Though when Singapore is quoted as a model you should remember that it is a "Dinky" model as 350 Singapores would fit into the UK.
19. Singapore has had some sort of scheme to discourage traffic from entering the central area since 1975 with the present ERP scheme being introduced in 1998. The scheme covers the central business district together with 8 main roads or expressways in the outer areas. The charge in the central area operates throughout the whole of the working day from 7.30 AM to 7 PM; but the charge on the other 8 roads is in the morning peak only. Charges only apply Monday to Friday, apart from one road where there is a charge for part of Saturday.
20. The Singapore ERP system is based on three elements. There are gantries over charged roads, all the vehicles have an onboard device known as an "In-Vehicle Unit" or an "IU", and they have prepaid cash cards. The cards can hold up to \$Singapore 500 (about £170). They can be topped up at bank ATMs and some stores. The card is inserted into and remains in the device. As a vehicle passes under a gantry a signal is sent to the onboard device which then reduces the prepaid balance on the card.
21. The amount of the toll varies according to which road / gantry it is, and the time of day. The charging is VERY complex with charging bands that generally apply for 30 minute intervals, but with some bands of only 5 minutes and with the timings staggered to make drivers unsure about exactly when the toll rate is changing. There are many different toll rates, which are mainly multiples of 50 Singapore cents (17 pence), and range up to \$Singapore 3.50 (£1.20). The most common rates are **nil** and 50 Singapore cents. The rates are changed several times during the year, and can be reduced as well as increased.

22. It is claimed that the system has reduced traffic on the charged roads, by about 20%. It is also claimed that the system costs practically nothing to administer and makes a large profit. How do these claims stand up?
23. The first thing to bear in mind is that the charging is very complex. British research indicates that in this sort of situation drivers will give up. A few will abandon driving, but most will just ignore the charges and not attempt to make a decision as to the likely toll for their journey and then consider alternatives. The charging mechanism is relatively invisible, requiring little action on the driver's part, so this increases the chances that drivers will ignore it and thus the charge will have little effect on driver behaviour. That is the theory but there are several indications that this is the actual case in Singapore.
24. The first indication is that despite the ERP system, the demand for cars is so high that it is rationed and drivers are prepared to pay large amounts of money to own a car. Licences are auctioned and in the December 2006 auction there were only 4,000 licences available and drivers had to pay about £4,000 to £5,000 for the right to buy a car. This is on top of the other usual taxes including an annual road tax, which is about £300.
25. The second indication that the ERP system is ineffective is that in an area that is half the size of London, drivers average about 12,500 miles a year.
26. The third indication is that in February this year one of the Singapore MPs told their Parliament - "Is the ERP just a means to squeeze money from the motorists who face the same jam?"
27. Apart from the ineffectiveness of the scheme in theory and practice there is the question of what happens with the Singapore system if the vehicle has not got an onboard device fitted, or it is not working for some reason or there is no money on the pre paid card. It is claimed that these problems are covered by a secondary London type system based on cameras and automatic number plate recognition.

28. The need for a secondary system is a common feature of road pricing schemes. It raises the question of what the true cost of such systems would be in Britain and the degree of compliance by drivers that would be achieved.
29. Some of the behaviour modification of a Singapore type scheme could be negative - drivers may detour on to longer unsuitable routes to avoid the gantry locations, or go over fast or over slow in order to pass gantries at a time where the charge rate is thought to be lower, or they may modify the time of their journey slightly and find that the roads are more congested.

## **Germany**

30. Germany has a system, which is supposed to be a model for road pricing throughout the European Union. The scheme is called "Toll Collect" and was introduced in January 2005 for tolls on trucks using the autobahns. In January 2007 it was extended to a few other trunk roads. Like a lot of European tolls, it is mainly designed to hit foreign vehicles that might otherwise escape paying any charge for using the roads. The German Government has said that there is no intention to ever toll cars.
31. The German scheme is satellite based though there is an alternative system for vehicles not equipped with the necessary "On Board" unit. The scheme is enforced by a combination of infrared sensors on gantries and also carried by 300 mobile teams. Violations are reported to officers employed by the "Federal Office for Goods Transport" who interrogate drivers when they stop at parking areas.
32. There were major problems before the system was introduced, and the consortium that developed and runs it was reported to have lost billions of euros due to higher than expected costs and penalties for late delivery of the system. There have been recent unconfirmed reports that the system is failing in 60 percent of cases. There have

also been complaints about trucks diverting on to untolled unsuitable roads.

33. The first thing to be borne in mind is that this system does not comply with our definition of road pricing as there is no time element and the charge is solely based on distance travelled.
34. It appears that there are problems with the system as it is. If a time dimension had been included and it had also covered urban roads and it had covered all vehicles, there would have been bigger problems. It is most likely that there would have been a complete failure of the system.

## **Norway**

35. Norway is a sparsely populated country but despite this has a combination of motorway tolls, very high fuel taxes and "toll rings".
36. The Trondheim toll ring is the one most often quoted as it was part of an EU funded scheme "Progress" to encourage road pricing. The Progress project covered 8 cities including Bristol and Edinburgh. The Trondheim scheme started in 1991, and was initially a cordon or ring system. As half of the people lived inside the cordon, this scheme was in 1998 replaced with a zone based system; i.e. they had toll points in the city as well as at the boundary. Despite claims that the scheme was a big success it was stopped at the end of December 2005.
37. There are six remaining toll rings. They are all cordons only, i.e. tolls are only incurred when the boundary is crossed, and unlike Trondheim (or London) there is no toll for moving around inside the cordon. The six cordons are either round just the city centre (e.g. Oslo and Bergen) or round the whole "city".
38. The charging system for all the Norwegian schemes is that vehicles are fitted with an electronic tag, which is detected by unmanned toll

booths. There is a secondary camera system, for vehicles either not fitted with the tag or it is not working - this system generates monthly invoices, with no penalties. The schemes are said to have generated large profits, but to have had little effect on traffic levels. The toll for crossing the cordon varies between the six cities, but is quite low by London standards being 80 pence or £1.25 or £1.65.

## **Stockholm**

39. Stockholm is part of an archipelago of about 24,000 islands. The conurbation has a population of about 1.8 million, of whom less than 800,000 are in the Stockholm city administrative area. The majority of people in Stockholm city, were opposed to any form of "congestion charging". The Mayor was however forced into it in order to get the Greens into a Socialist coalition. After a very long preparation the scheme started in January 2006 for a seven month trial period.
40. The scheme was another toll ring, and the charge was applied during the working day, Monday to Friday. According to the time of day, the charge was 70 pence, £1.10 or £1.40 , with a maximum daily charge of £4. Most Stockholm city residents lived within the ring and were therefore relatively unaffected.
41. It was claimed that the charge substantially reduced congestion and that the scheme made a large profit. It was also claimed that official surveys showed that initial opposition to the charge had been overcome and that 60 to 70% of the people supported it.
42. Referendums on the scheme were held in September 2006 at the same time as a general election. Road pricing supporters say that the majority of people voted in favour of the scheme. The truth is that the referendum for Stockholm city did have just under 52% of those voting supporting it, but this ignores the voting in the suburbs. Not all the suburbs had a vote, but if all the results from the ballots held are added then 54% were against the charge.

43. The Swedish Government was replaced following the general election with parties that had said that they were opposed to the charge. Despite this and despite the overall referendum being against the charge, it has been announced that the toll will be reintroduced this summer (2007).

## USA

44. There are three examples of road pricing in America.

### **"HOT" lanes or High Occupancy Toll lanes**

45. "HOT" lanes are tolls, usually on lanes which were originally supposed to be "High Occupancy Vehicle" or car pool lanes, but were changed so that other cars could use them if they paid a toll.

46. Most of these HOT lanes do not comply with our definition of road pricing. But in some cases, the toll varies depending on time of day or volume of traffic. The main example of this is the "Riverside Freeway" in Orange County, California, where motorists pay tolls of 60 pence to £5, depending on the time of day or volume of traffic.

47. Special lanes, whether tolled or not, increase the number of accidents as drivers have an additional factor to think about when deciding to change lanes or not. With HOT lanes, the tolls may vary minute by minute causing even more switching of lanes and more accidents.

48. The authorities of course have an incentive, as with all tolled roads, to keep alternative free roads or lanes congested. The HOT lanes are referred to as "Lexus" lanes as they are mainly occupied by luxury cars.

## **Seattle area**

49. The Seattle area has had an experiment called "Traffic Choices study" which started in March 2005 and ended in December 2005.
50. Tolls varied according to the road and the time of day. The experiment covered 500 vehicles, which were fitted with special GPS devices. The devices also showed the driver what the toll per mile for that time of day was on the road that they were approaching.
51. As no one would normally volunteer to pay tolls, the volunteers were given an "endowment account", which was credited with the amount of tolls that they were expected to pay based on what was thought to be their previous use of the roads. If they used the roads less (or at lower charge times) then they would be given the surplus. If they were in the red there would be no charge. Tolls were deducted electronically from the endowment accounts.
52. Though the Seattle trial ended in December 2005 there is still no official information on the results of the experiment. Initial news reports said that drivers had actually driven more than before. It was also reported that there had been logistical difficulties in fitting cars with the devices, signal reception problems in downtown streets and some concerns over privacy.
53. Whatever results are eventually published, the trial participants were people who presumably either supported the idea of tolls, or who expected that they would drive less during the trial and thus earn some money. It also appears that some of the drivers dropped out during the trial. Even if the report that is eventually published says that the remaining drivers did drive less, to what extent were the meters working all the time? - They could have been accidentally or deliberately not working or had their signals blocked. And to what extent was there any driving with participants using vehicles that were never installed with a meter?

## Oregon

54. In March 2006 Oregon started a 12 month trial using volunteers in part of Portland. They called the toll a "Road User fee".
55. Cars taking part in the trial were fitted with a "vehicle mileage reading device". The "meters" were connected to the "On-Board Diagnostic System" port of the car and were also GPS devices. The onboard meter recorded four sets of mileages - in-Oregon, non-Oregon, rush hour, and no signal from satellite (due to masking by buildings etc). The mileage readings were automatically transferred to a recorder when drivers filled up at specified gas stations. It was claimed that none of the information was transmitted or recorded other than mileages to the gas station recorder.
56. During the first 8 months of the trial all that happened was that mileages were recorded. Drivers still paid the usual gas tax and were not charged any "road user fee".
57. The final 4 months of the trial were up to the end of March 2007. For this period drivers were split into three groups - a control group, a vehicle miles tax group and a rush hour group.

The **control group** continued as for the first part of the trial.

The **vehicle miles tax group** were charged a "vehicle miles tax" of 1.2 cents (less than a penny) a mile. This is in lieu of the state gas tax of 24 cents a gallon (US). This meant that if the car did more than 20 miles per US gallon (equivalent of 24 mpg in Britain), they would be paying notionally more than they got back. If the drivers drove less than they did in the first 8 months they also got 1.2 cents a mile paid to them.

58. The third group was a **rush hour group**. They were charged at a higher rate if they travelled anywhere within the Portland Metropolitan area on weekdays during peak periods. The "penal" charge was a "tax" of ten cents a mile. Outside these hours and at

weekends or outside the Metropolitan area, the "tax" was 0.43 cents a mile. A charge of ten cents (about 5 pence) a mile is unlikely of course to be much of a deterrent, when compared with a charge of over £5 (nearly \$10) for a return trip over Humber or Severn bridges, or a charge of £4 for the M6 toll (which works out at 16 pence or 31 cents a mile) or the toll of up to £1.34 (\$2.65) a mile which has been suggested by the UK Government for road pricing or the London charge of £8 (\$15.50) even if you only travel a few feet!

59. These American trials will prove nothing as they are run by the authorities who want tolls, and are based on volunteers. They only include small numbers of vehicles and can give almost no idea of the effect on American congestion or on businesses or on whether the systems could cope if all vehicles were included. As American gas taxes are very low, the toll rates are also very low by British standards, and give no indication of how British drivers would react in trying to avoid or evade the tolls.

## **Summary**

60. What lessons are there from all this? - That despite the claims, there is really only one place that comes anywhere near to the sort of road pricing scheme that has been proposed for Britain. That is Singapore. It has been a failure at reducing car use or removing congestion. If anything like it were attempted in Britain it would be the craziest thing that our politicians have ever done.

There is a bit more information at -

<http://www.notolls.org.uk/roadpricing.htm#abroad>