



Plenary 14 October 2010

Maximising Network Productivity and the Case for Road Pricing

Direct Charges for Road Use Current practice, efficiency, acceptance

Stephen Perkins

International Transport Forum

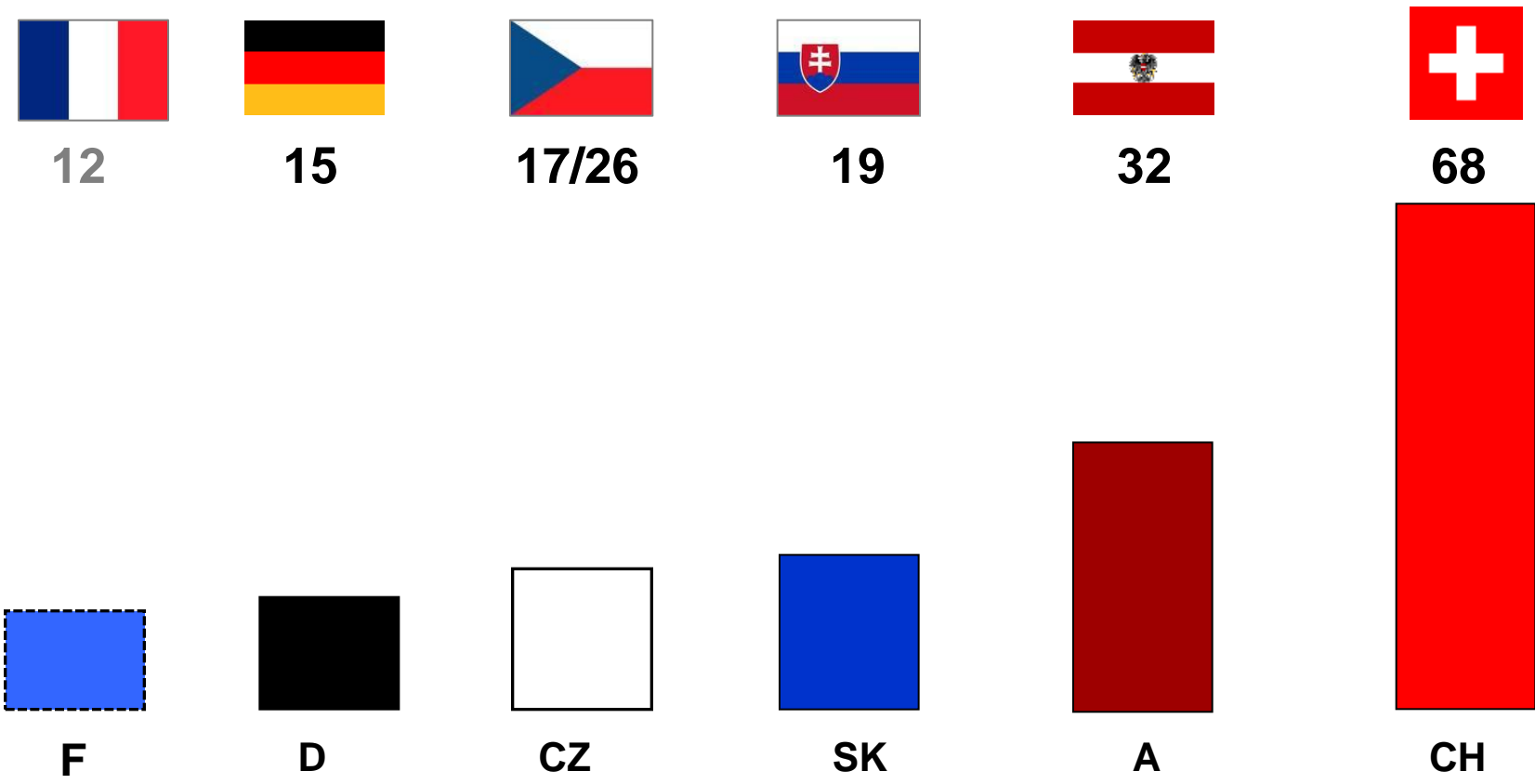


Contents

- Truck Charges in Europe
- Eurovignette Directive
- Congestion Charges
- Impact of charges
- Acceptance
- US Value Pricing

Charge for 40t Euro5 Truck in 2010

Euro cents/km (1 euro=1.4 AUD)



Charging System	Vehicles charged	Principal objective	Secondary objective
London CC	All	Congestion	Environment Revenue for buses
Swiss HVF	Trucks	Manage truck numbers Environment	Revenue Transit contribution
German Maut	Trucks	Revenue Transit contribution	Environment (Euro#) Road wear (axles)
Austrian Maut	Trucks	Revenue Transit contribution	Environment Road wear
Czech toll	Trucks	Revenue Transit contribution	Environment Road wear
Slovak toll	Trucks	Revenue Transit contribution	Environment Road wear

EU Eurovignette Directive

- Directive 1999/62/EC (Amended) on Charging HGVs for Using Infrastructure
- Discrimination against foreign trucks
- Charges capped on basis of expenditure
- Mark-ups allowed in sensitive areas X2
- Congestion differentiation to be allowed up to 5X average charge in peak
- Amendments now before Council

Impact of km Charges on Haulage

- Swiss HVF
 - 20% increase in charges per vkm
 - 18% increase in productivity
 - vkm 12% lower than they would have been
- German Maut
 - Empty runs down 13%

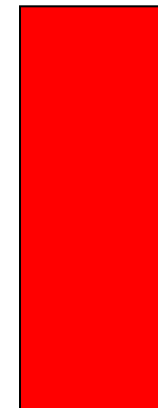
12c/km



34c/km



D
2005



CH
2001

London CC Cordon with ANPR

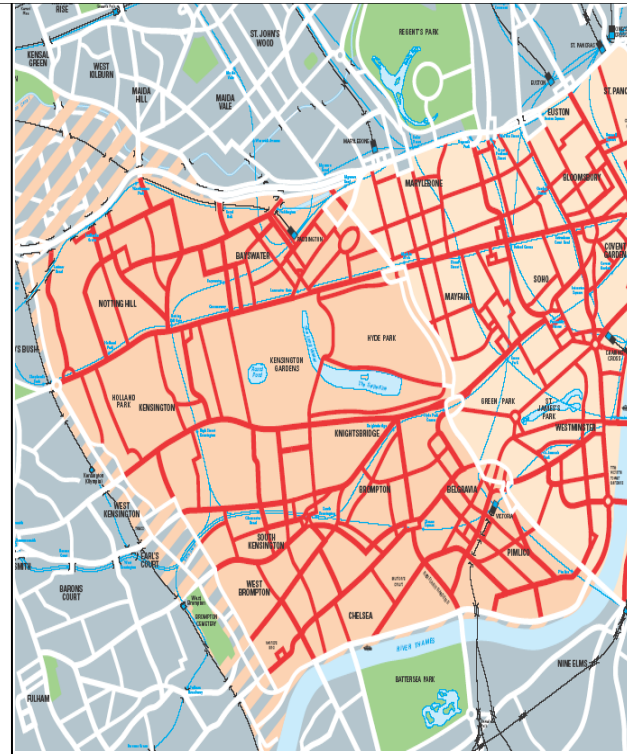
Siemens launched City Tolling Solution for the Western Extension in 2007

Scope of Siemens: ANPR Cameras, Installations, System integration

850 high-accuracy license plate recognition cameras

1 million plates per day (evidential records encrypted)

Innovative system architecture to reduce data traffic



Transport for London achieved Traffic Reduction up to 30%

London CC relative to cost of congestion

TfL modelling and Oxford University Transport Studies Unit find charge is about right but:

- Cars over-charged
- Trucks under-charged
- Vans about right at 8 pounds – undercharged at previous 5 pounds level
- Economic benefits of 180 million pounds a year (225 million Euros)

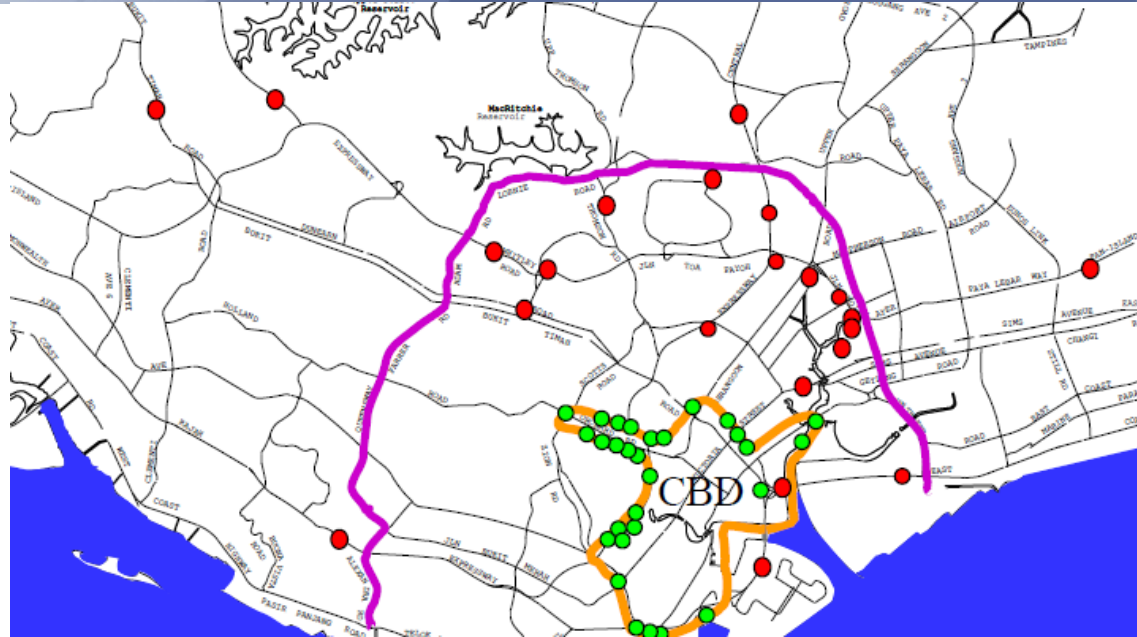
Prud'Homme finds costs exceed benefits but using undifferentiated French average time values

London CC Impact

- 30% reduction in congestion
- Switch from cars to metro and bus
- No reduction in economic activity
- 20% reduction in CO₂ emissions

Singapore

- 1975 cordon, Area Licensing Scheme
- 1998 Electronic Road Pricing
- 33 gantries, currently 66



Singapore

- Speed/flow maintained by integrated management, not just ERP
 - 45-65 kph on freeway sections
 - ERP
 - Peak and shoulder charges - transponders
 - charges adjusted 3 monthly to speeds
 - Land use planning & road investment
 - Public transport investment
 - Auction of licences to own cars (big revenues)
growth in car stock cut from 3% to 1.5% pa.

Stockholm

- Central islands – cordon on bridges
- Peak/off peak charges
- Initially transponders enforced by ANPR
- Initial trial reinstated after referendum vote
- Now ANPR cameras only
- By-pass road investments
- Congestion largely eliminated
- Net welfare benefit
- (Prud'homme losses)



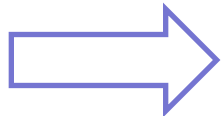
National CC Schemes

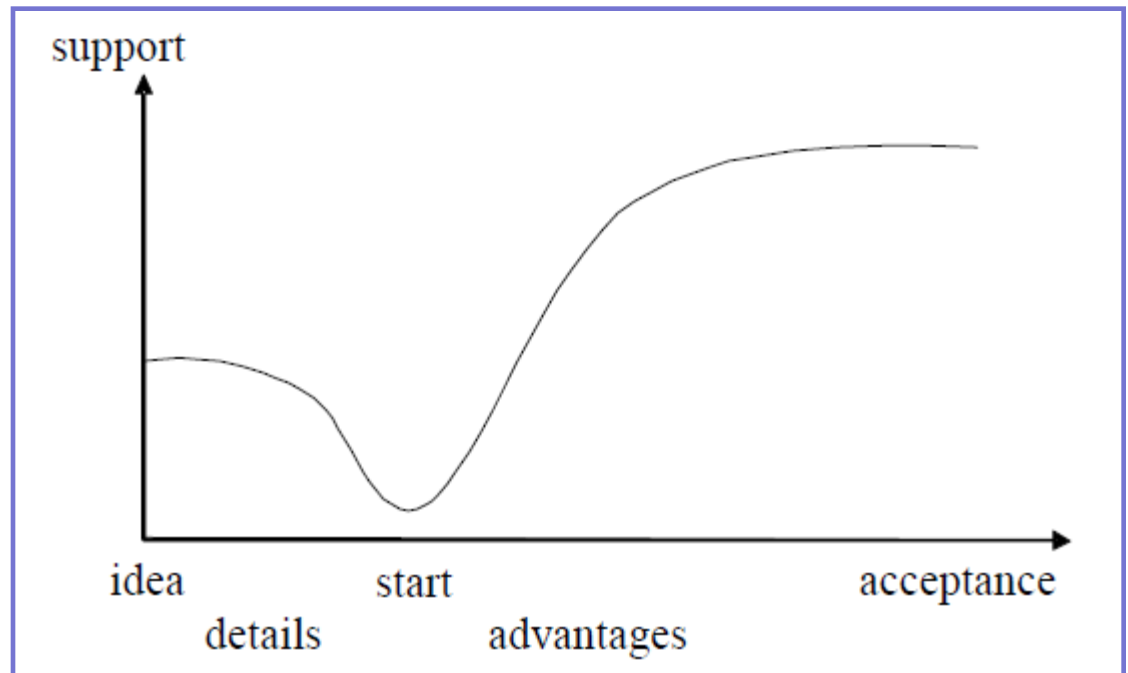
- Great Britain
 - Phase in from truck e-km charge to cars, all roads
 - Abandoned finally 2009
 - Examining cheaper systems to charge foreign trucks
- Netherlands
 - Replacement of road tax & high car purchase tax with fairer e-km for all vehicles, all roads
 - Later phase in of congestion charges
 - Abandoned 2010 in election campaign

Acceptance: Traps to Avoid

- Don't confuse objectives
 - Cheaper ways to raise revenues / environment
 - CC systems expensive – 10-30% of revenues
 - CC only if congestion serious & clearly perceived
- Don't phase-in charges from a low base
 - This will fail to cut congestion
 - and fuel fears that real motive is just taxation
- Don't promise revenue neutrality
 - Provide Transparency and accountability

Acceptance Strategy

- Communicate on cost of congestion and optimising flow
- Seeing is believing
- Trend 
 - London
 - Stockholm
- Redundancy



Value Pricing

- US HOT lanes – San Diego, Orange County etc
 - Access to free flow reserved capacity, for a charge
 - Continuously varying charges, San Diego I-95
 - Alternative to congested lanes free of charge
 - Efficiency – often requires space for extra lane
 - Equity - everyone uses at some time
 - Offers choice rather than network optimisation
 - Both Cordons and VP better than no pricing when there is congestion (Small and Yan 2001)

Recent Research Indicates Higher Tolls

- VOT differs markedly and distribution skewed with long tail. Charges shift average VOT up, increasing equilibrium toll
- Choice yields big benefits where there is heterogeneity
- Reliability partly correlated with congestion but not the same. Needs to be added to cost of delay.
- Hypercongestion, where flow & speed falls is not usually modelled – implies higher equilibrium tolls
- But, even simple models are much better than “intuition”.

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