Road Pricing Reform: Challenges and Opportunities

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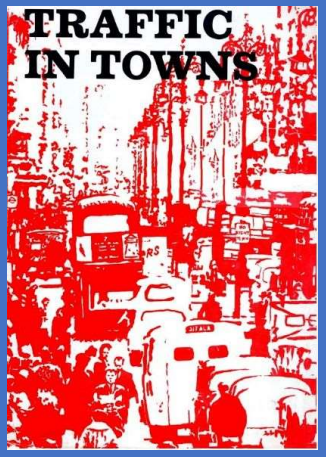
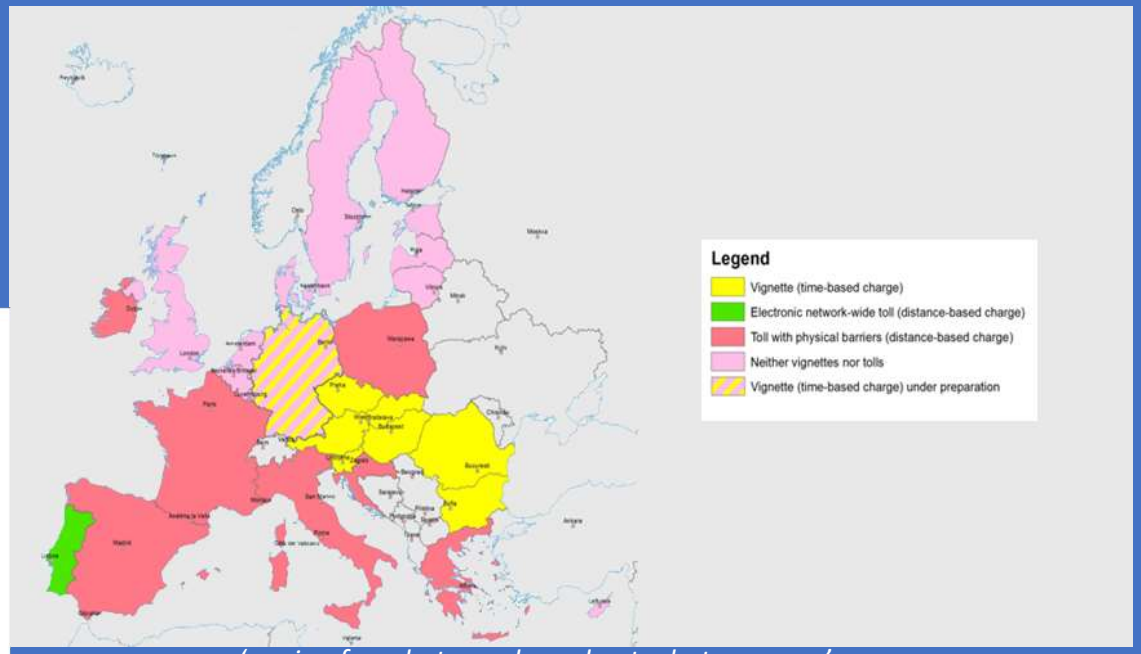
https://www.sydney.edu.au/business/about/our-people/academic-staff/david-hensher.html





'paying for what you do and not what you own'

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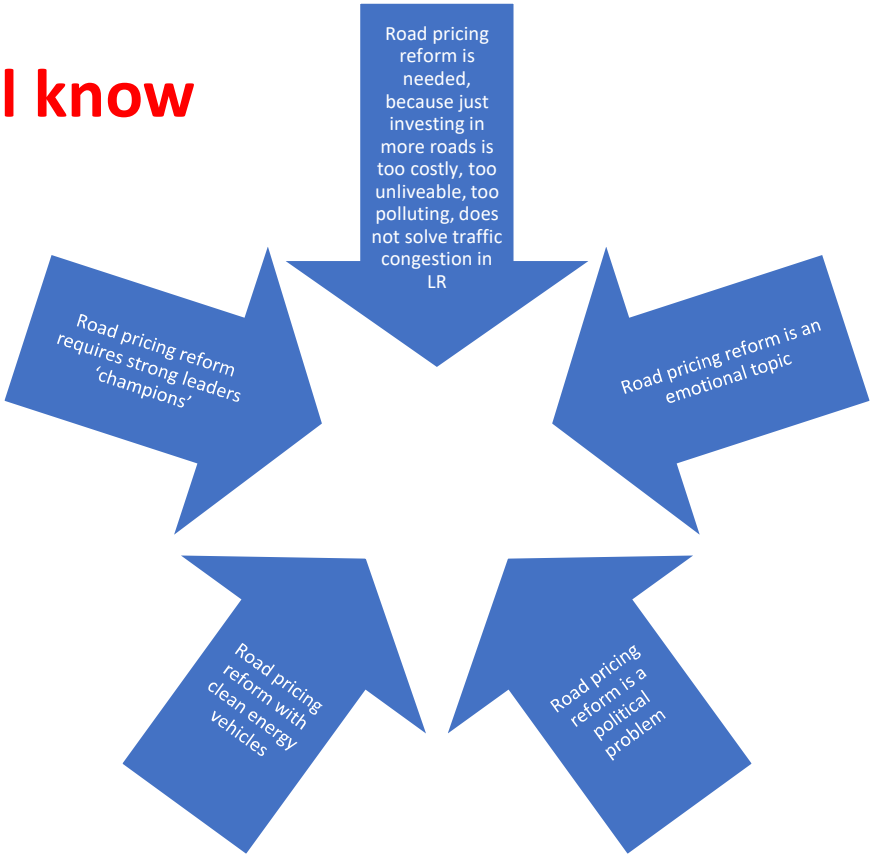
SOCHITRAN - Sociedad Chilena de Ingeniería de Transporte **Talk, March 26 2024.**

ITLS

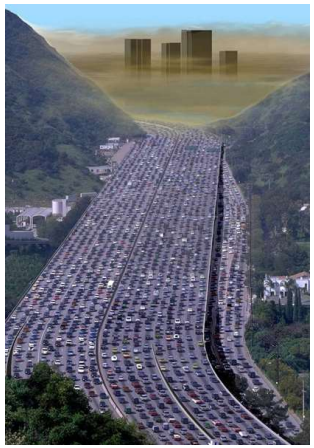
INTRODUCTION

What we all know



Transurban Linkt - Toll Road Cost Increases

Road	Cars		Trucks	
	2021	2048	2021	2048
NorthConnex	$8.36	$24.49	$25.08	$73.46
Eastern Distributor	$8.48	$24.84	$16.96	$49.67
M2	$8.36	$24.49	$25.08	$73.46
M4	$8.52	$21.80	$25.58	$65.46
M8	$7.23	$18.50	$21.70	$55.53
M5 East	$7.23	$18.50	$21.70	$55.53
M5 South West	$4.94	$11.76	$14.81	$35.25
Lane Cove Tunnel	$3.49	$6.80	$11.74	$34.39
M7	$8.52	$16.61	$25.56	$49.83
Cross City Tunnel	$6.01	$8.50	$12.02	$16.99



OBJECTIVES

Main objectives of road pricing (road user charges) reform

Finance maintenance of current infrastructure

Increase revenues for new infrastructure

Increase efficiency of current infrastructure

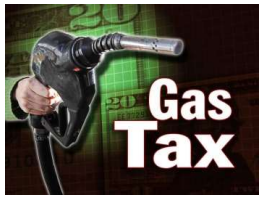
Decrease externalities (e.g., emissions, congestion)

PRICING STRATEGIES

Many different strategies summarised by Michiel Bliemer (and maybe even more):
This not only about Congestion

- Annual registration fee

› Toll roads



› Fuel excise tax

› Cordon charges

› Accessibility pricing

› Peak avoidance

› Workplace parking levy

› **Kilometre pricing (DBC)**

› **Peak period only (PP-DBC)**

WestConnex in Sydney uses distance-based tolling that is based on vehicle class and distance travelled. There is a toll cap of $11.11 for a passenger vehicle; $33.32 for a heavy vehicle. A new Rozelle Interchange is included in this cap.

Desirable characteristics for a road re-pricing scheme that we consider key requirements

Revenue-neutrality for Treasury to make it acceptable to government

Reward-based and fair (addressing inequity issues) to make it acceptable (benefits) to car drivers

Voluntary (opt-in) scheme to allow for a smooth transition to state- or nation-wide implementation

Time/ location-specific kilometre rates for efficient use of road infrastructure

Easy to explain to car drivers and the broader population

Based on simple technology without privacy issues and avoiding complex fraud-prevention measures

"Fair and sustainable road user charge: A future (…) road user charge will ensure all drivers are paying for their share of road use – regardless of the type of vehicle they drive."

https://www.nsw.gov.au/driving-boating-and-transport/nsw-governments-electric-vehicle-strategy/road-user-charge

Hensher, D.A. and Bliemer, M.C. (2014) What type of road pricing reform might appeal to politicians? Viewpoints on the challenge in gaining the citizen and public servant vote by staging reform, *Transportation Research Part A*, 61, March, 227-237.

What are the key Road Blocks? Especially when promoted as a Congestion Tax. (Cordon-based charging has little to do with systemwide usage unless applied to all zones)

Hensher, D.A., Rose, J.M. and Collins, A. (2013) Understanding Buy in for Risky Prospects: Incorporating Degree of Belief into the *ex ante* Assessment of Support for Alternative Road Pricing Schemes, *Journal of Transport Economics and Policy*, 47 (3), 453-73.

Hensher, D.A. and Bliemer, M.C. (2014) What type of road pricing reform might appeal to politicians? Viewpoints on the challenge in gaining the citizen and public servant vote by staging reform, *Transportation Research Part A*, 61, March, 227-237.

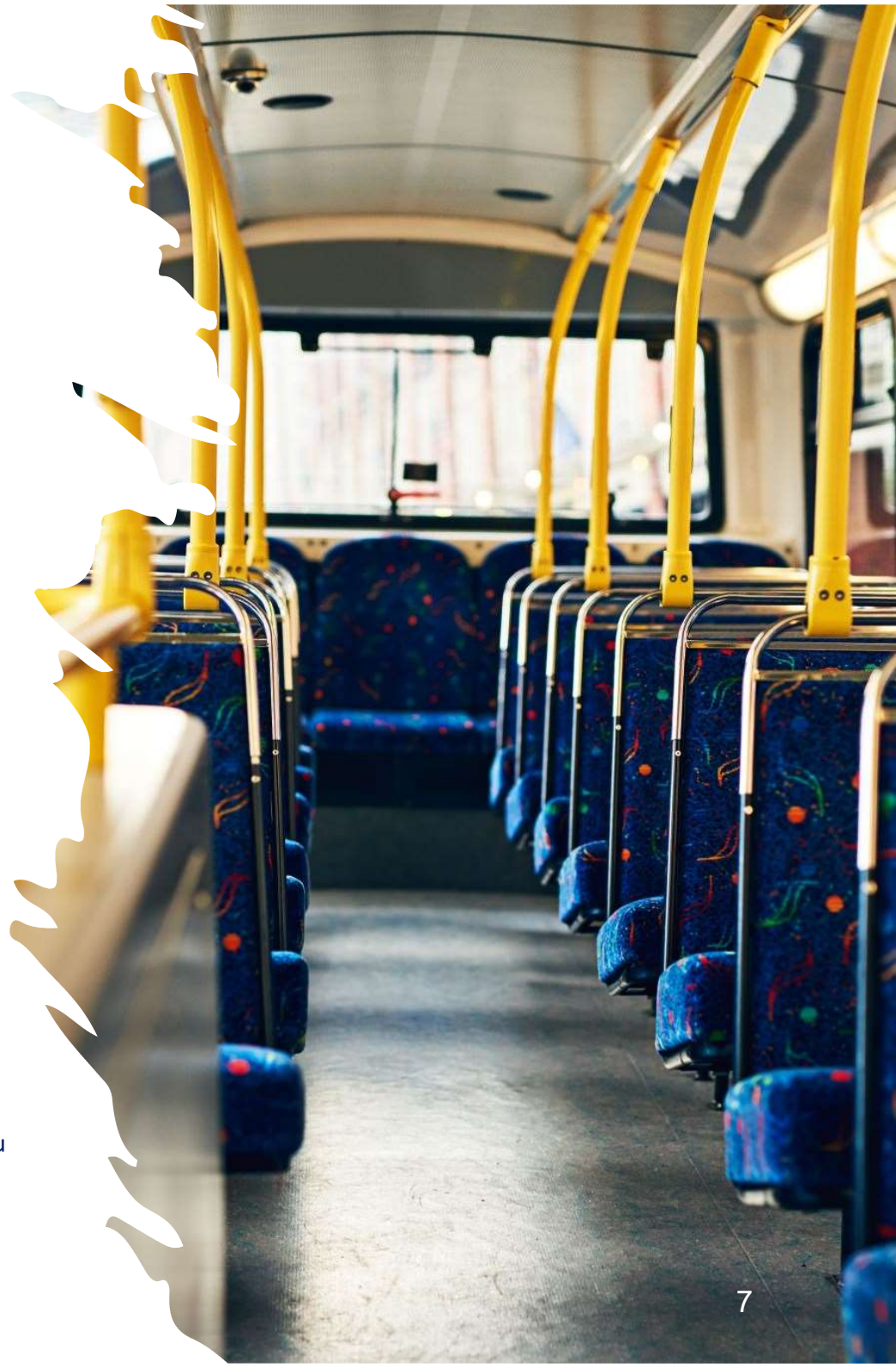
BUY IN

A typical political response

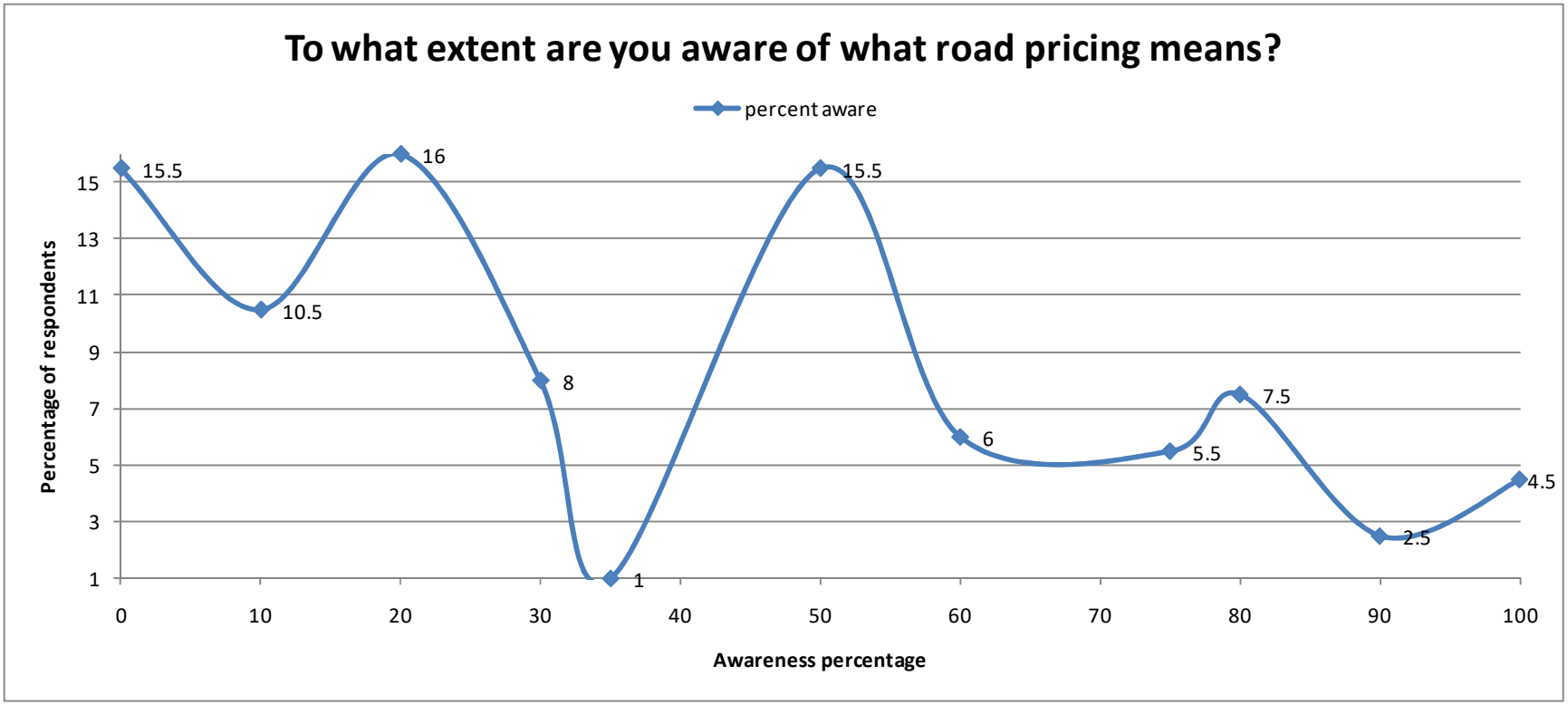
- "We will not introduce a congestion tax for motorists … due to the lacklustre standard of the state's public transport system. …The Minister … has ruled out imposing a tax on motorists entering the CBD similar to a system used in London."
- **There cannot be a congestion toll if there is no public transport**, and the one thing that [we] … have not got is proper public transport," he says.

(Comment- PT tends to be defined as rail)

Setting: ABC Sydney Radio 702 Tuesday 4 Oct 2011 8.30–8.55 am. Hensher discusses the merits of Road Pricing Reform (after stating clearly that it is more than a congestion tax, and to please stop using the emotive language of a congestion TAX). Calls are invited from the public.
A plumber calls and says (paraphrase): ''…I spend up to 5 hr on the roads every day between jobs and now you are telling me I have to pay a congestion tax on top of all of my existing costs for the 5 hr. What is he thinking (the Professor needs to get real)… I do not earn enough income now as it is.''
Hensher's response (paraphrased): ''…I made it very clear I thought that the aim is to reform the entire set of charges (including registration fees) and to set the kilometre-based charges to reflect the traffic conditions with the aim of not only enabling you to save time (which is money as well) but to give you realistic options on levels of charge and time of day to travel. It is expected that you will spend less time travelling and can convert such saved time into more productive income earning time.''

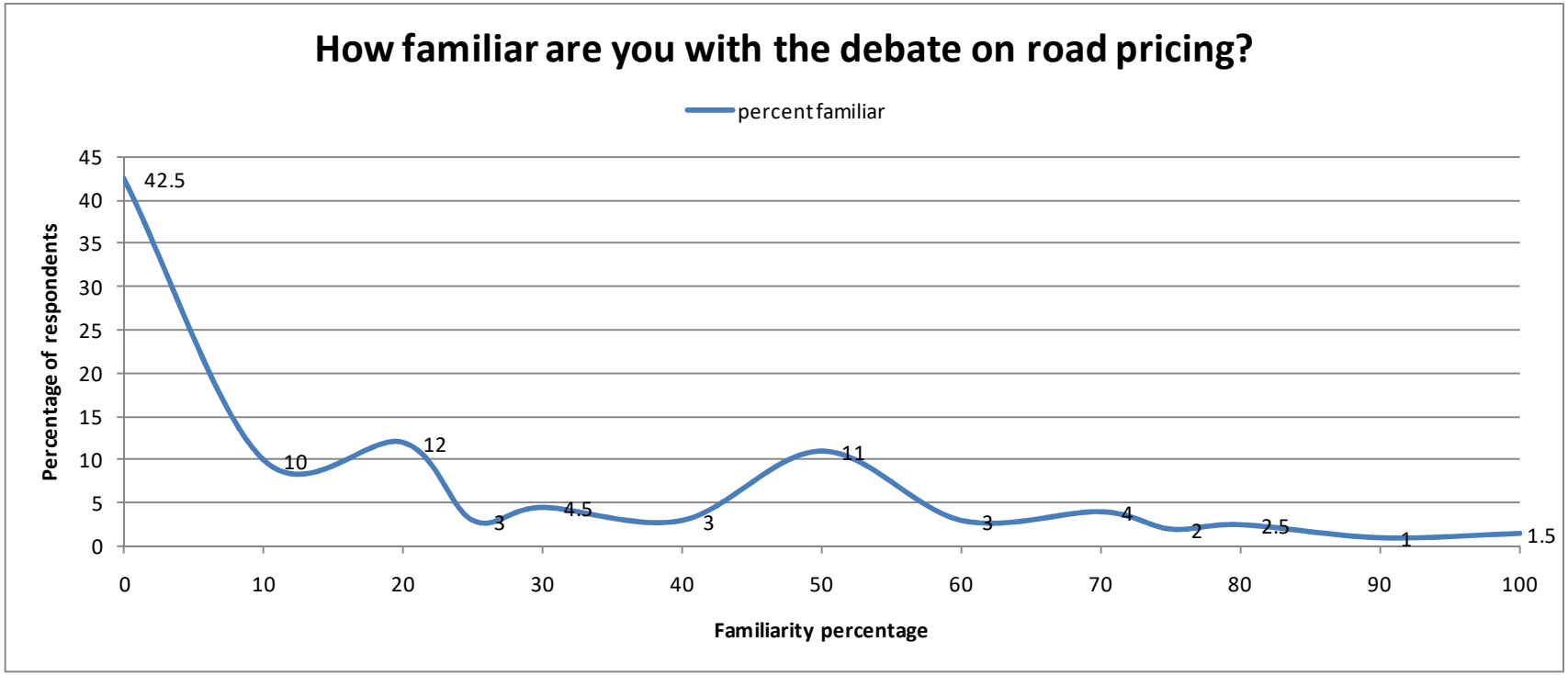


Citizen Awareness of Road Pricing Profile: pretty appalling



Balbontin, C., Hensher, D.A. and Collins, A. (2017) Does familiarity and awareness influence behavioural response? (Paper presented at the *International Association of Traveller Behaviour Research (IATBR) Conference,* London, 18-23 July 2015.) *Journal of Choice Modelling,* 25, 11-27.
http://dx.doi.org/10.1016/j.jocm.2017.01.005

Citizen familiarity with the debate on road pricing: Buy In through current Ignorance!



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http://dx.doi.org/10.1016/j.jocm.2017.01.005

What is Real Road Pricing Reform? (Re-Pricing)

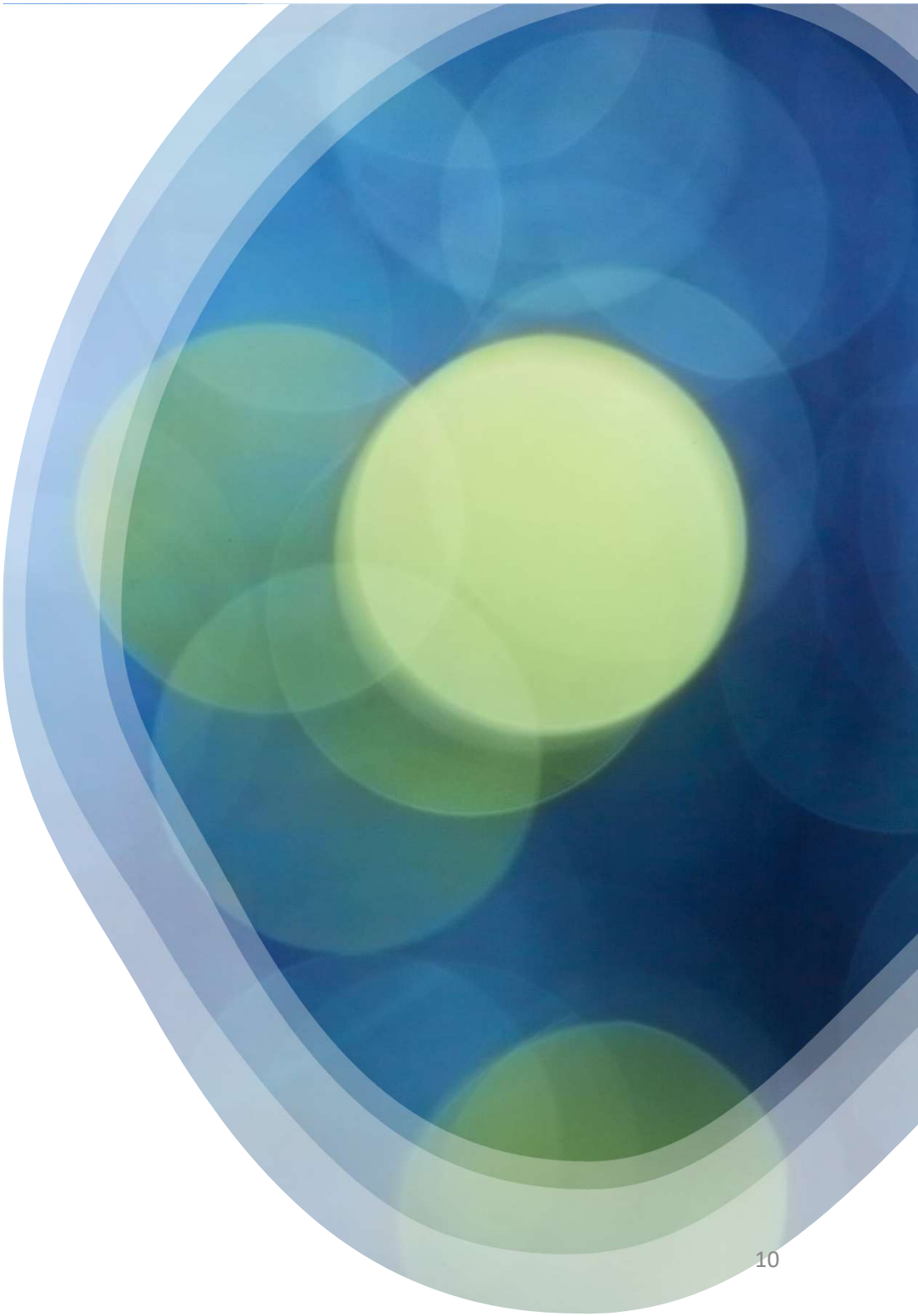
It MUST involve **dropping some charges** as we add in some new efficiency-related usage charges

AND

importantly showing how the revenue raised is put back to **useful causes** that can/will be supported by society

It is possible to design a system in which many users of the roads are financially **better of** with a revised user charge (and even an emissions-related charge)

where the cost of using the roads is lower when congestion is absent and vehicles are environmentally cleaner, w**hich will also ensure govt. gets its needed revenue**



The Longer Term Challenge

How can we start the reform journey for the entire network?

Network Re-Pricing

Beginning the Sell: Registration-Usage Pricing Reform Proposal

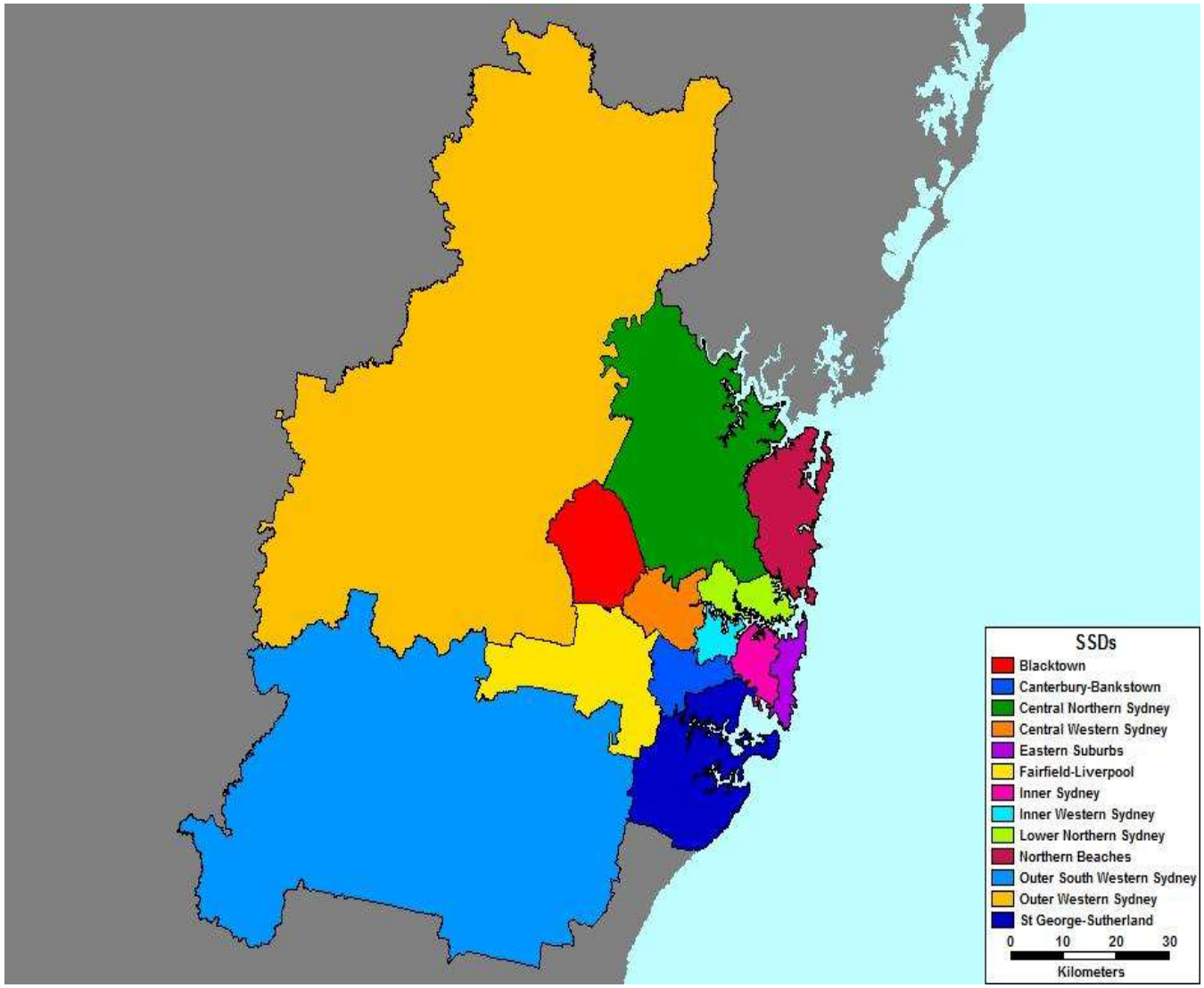
- **Simple Rule:** begin with what is in place at present and see how that might be modified in line with a longer-term objective.
- What if we can modify **the current registration fee** to signal real opportunities for individuals to reduce their road use charges?
- Introduce a **peak period distance-based charging (PP-DBC)** scheme (**spatial and temporal)**
- Promote as a discounting (money saving) scheme

Registration-Usage Pricing Reform

- The challenge is to identify an appropriate adjustment quantum in the annual registration fee.
- **Full Reform Plan:**
  - **Adopt a simple discount rule** e.g., a flat reduction in the registration fee (e.g., 50%, 100%)
  - A distance-based **charge per peak km (spatial and temporal; PP-DBC)**
- **With the condition that:**
  - **Treasury is no worse off,**
  - **Drivers in total outlay less money**
  - **Fairness prevails**

Case Study: Investigating this reform on SSD's in Sydney Metropolitan Area (SMA)

SSD = Sydney Statistical Divisions



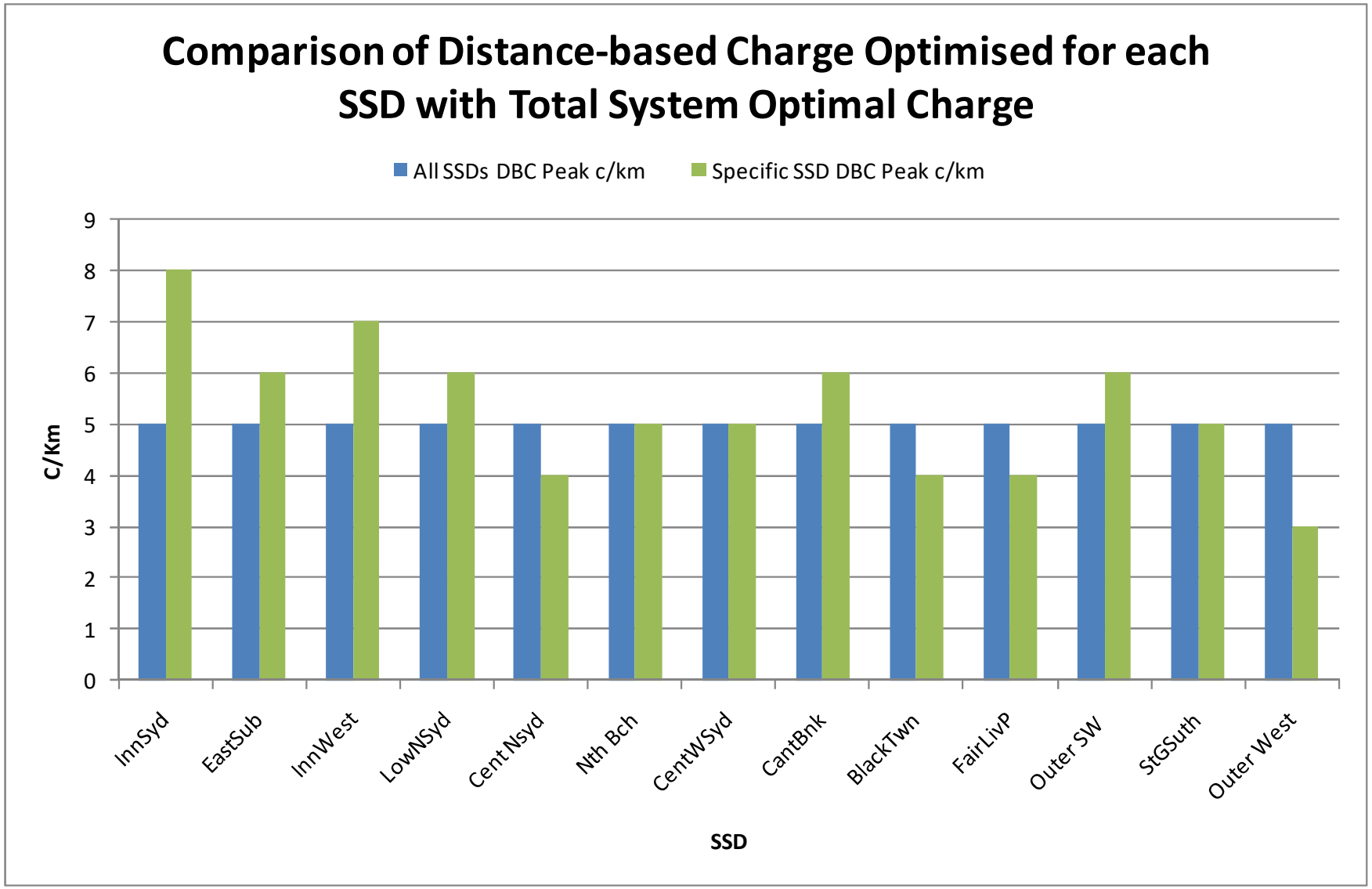
We built a scenario decision support system

Hensher, D. A. & Mulley, C. (2014) Complementing distance-based charges with discounted registration fees in the reform of road user charges: the impact for motorists and government revenue. *Transportation,* 41 Number**,** 697–715.

We built a scenario decision support system (DSS)

- The key inputs, for each SSD and status quo (i.e., before) situation, are the:
  - Mean annual kilometres, the proportion of kilometres in the peak periods (AM and PM)
  - Average daily cost per driver (comprising fuel and tolls, distinguished by peak and off-peak periods)
  - Annual registration fees, and
  - Mean direct elasticities of peak and off-peak kilometres with respect to usage costs.
- In addition, for the reform scenarios, we considered:
  - A DBC varying from 2 c/km to 10 c/km in the peak, and
  - Allowed annual registration fees to vary from 30% to 75% of the status quo annual fee.
  - These ranges were determined from an initial assessment of likely adjustments that would satisfy the binding constraints to be neutral to government revenue and driver cost outlays.

Peak Period -DBC



Is location equity based?

Optimised: both a reduced mean cost outlay to motorists and no loss in revenue to State Treasury; $185 per annum registration fee (~50% of current fee)

Identifying a DBC and Discounted Registration Fee that makes Motorists and Treasury Financially No worse off ($ per annum per driver); change in peak km per annum per driver: Driver saves on average $9 per annum, Treasury gains on average $32 per annum

		ALL SSDs		
		Positive = gain, negative = loss		
		Car driver	Treasury	change in peak km
Regn fees halved and DBC for peak kms only C/km	2	130	-113	-102
	3	88	-64	-154
	4	48	-16	-205
	5	**9**	**32**	-256
Peak Period - DBC	6	-29	78	-307
	7	-66	123	-358
	8	-102	167	-409
	9	-137	210	-461
	10	-171	252	-512

Hensher, D. A. & Mulley, C. (2014) Complementing distance-based charges with discounted registration fees in the reform of road user charges: the impact for motorists and government revenue. *Transportation,* 41 Number**,** 697–715.

Cost Implications for All Drivers (range from 0.34 to 0.65c/km per driver); Compensation plan (equity/fairness) for outer west

Peak Period - DBC

Total cost gain of $43.6m and a total cost loss of $28.8m

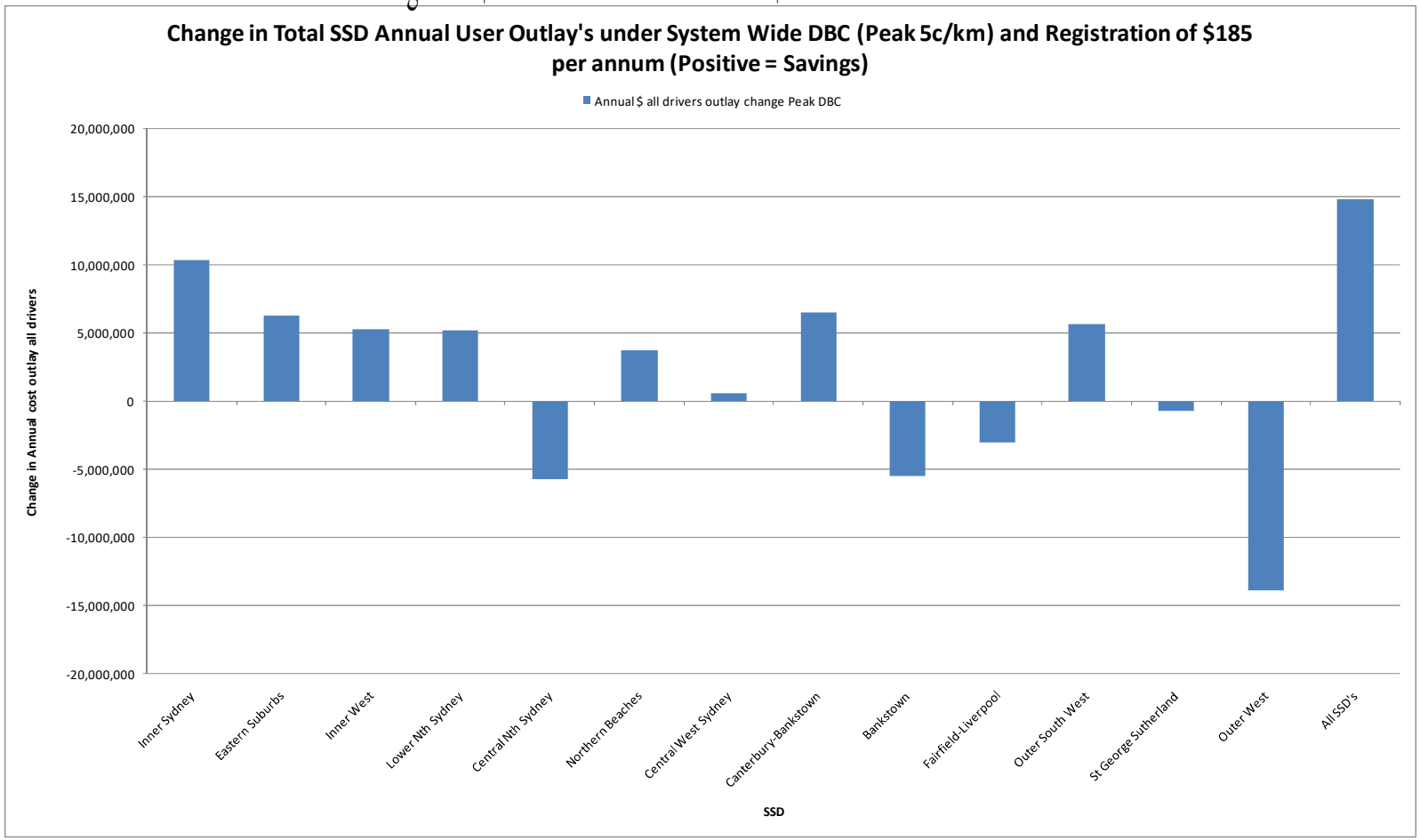


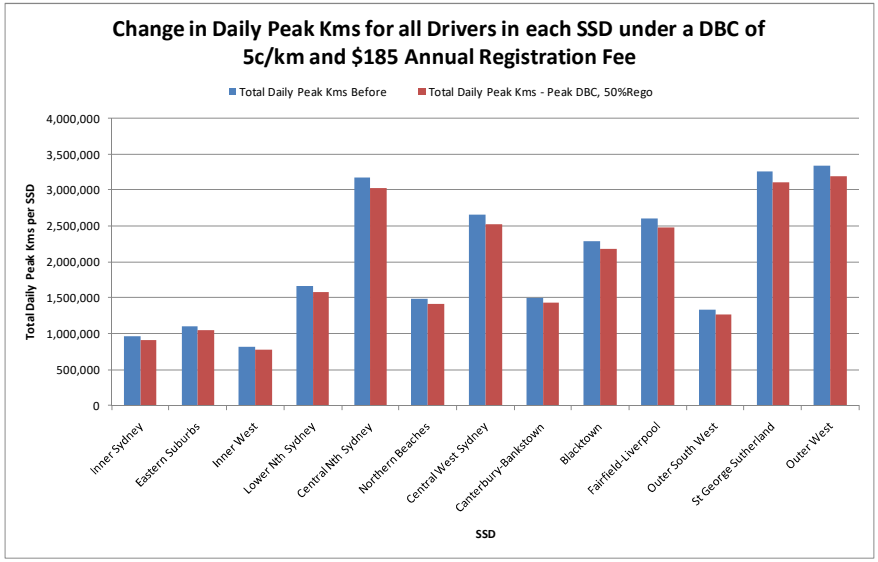
Figure highlights the total mean differences in cost outlays for drivers' resident in each of the SSDs, with eight SSDs having positive gains and five SSD's with negative gains. There is a total cost gain of $43.6 m and a total cost loss of $28.8 m. When converted to an additional cost outlay per driver per km, the amount for the five affected SSDs is 0.34 cents/km impost/loss, contrasted with 0.65 cents/km saving for the eight SSDs.

Impact of Pricing Reform on Annual Kilometres

4.7% is the important metric (PP-DBC Plus Registration decrease)

Range: 4.24% to 4.99%

SSD	Total Daily Peak Kms Before	Total Daily Peak Kms - Peak DBC, 50%Rego	Total Daily Off peak Kms Before	OffPk Kms - Peak DBC, 50%Rego	Total Daily Kms Before	Tot Daily Kms - Peak DBC, 50%Rego
Inner Sydney	960,137	915,997	625,805	625,805	1,585,942	1,541,802
Eastern Suburbs	1,100,758	1,047,854	677,624	677,624	1,778,382	1,725,478
Inner West	819,932	779,731	471,299	471,299	1,291,231	1,251,030
Lower Nth Sydney	1,661,215	1,579,473	992,059	992,059	2,653,274	2,571,532
Central Nth Sydney	3,175,539	3,021,395	1,758,602	1,758,602	4,934,141	4,779,997
Northern Beaches	1,480,543	1,414,676	941,847	941,847	2,422,390	2,356,523
Central West Sydney	2,653,106	2,526,716	1,464,105	1,464,105	4,117,210	3,990,821
Canterbury-Bankstown	1,502,772	1,434,478	849,820	849,820	2,352,592	2,284,298
Blacktown	2,282,529	2,185,637	1,372,553	1,372,553	3,655,082	3,558,189
Fairfield-Liverpool	2,596,794	2,474,630	1,551,333	1,551,333	4,148,128	4,025,964
Outer South West	1,327,221	1,267,888	792,886	792,886	2,120,108	2,060,774
St George Sutherland	3,263,618	3,100,803	1,966,891	1,966,891	5,230,509	5,067,694
Outer West	3,345,305	3,190,485	1,969,309	1,969,309	5,314,614	5,159,794
All SSD's	**26,169,470**	**24,939,764**	**15,434,133**	**15,434,133**	**41,603,603**	**40,373,897**
Percent Change		**-4.70%**				**-2.96%**

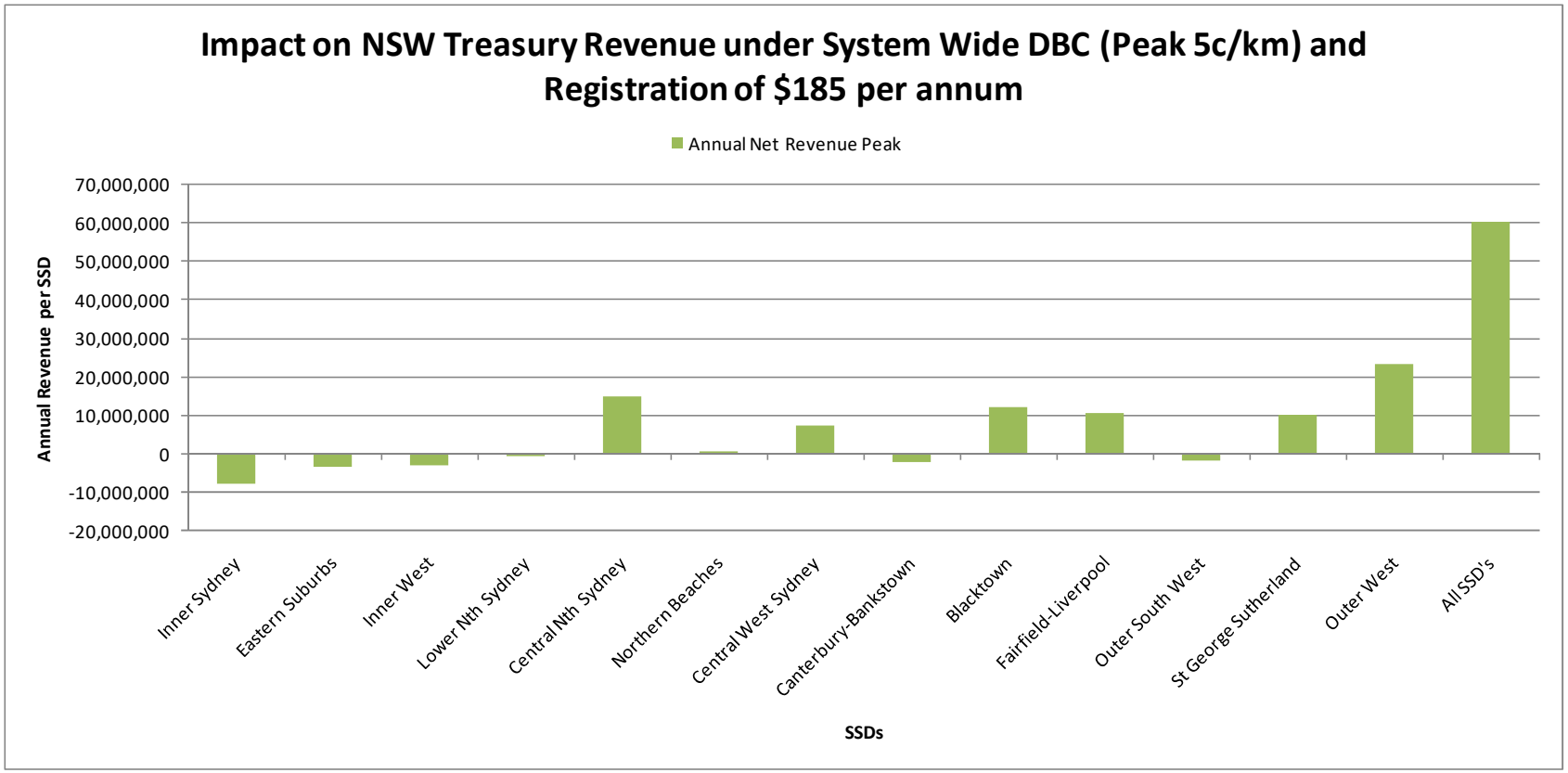


We calculated a **4.77** percent drop in traffic volumes during **school holidays in Sydney in 2005** on all the major arterial roads, freeways and tollroads (sourced from

http://www.rta.nsw.gov.au/trafficinformation/downloads/aadtdata_dl1.html.)

As Channel 9 quoted me – this is the sell – return to school holiday traffic levels in the peaks

Peak Period - DBC



Getting Started on the tolled network – toll tariff (replace existing fixed tolls)

Two-part tariff – fixed cost linked to infrastructure (tunnelled or not etc) plus a DBC with the Cost/km reducing as trip kms increase

In longer term apply to entire road network

Do not ignore Freight activity and response in a passenger model system – An example of a, all day Distance-based Charge (DBC) in Sydney obtained from application of MetroScan

- In the passenger sector, when we have a DBC **only on car kilometres**, 5c/km
  - the mode shares for drive alone (TDA) and cars with passengers (TRS) reduces by **0.63% and 8.41%** respectively, while the shares for train and bus increase by 28.21 and 21.33 respectively for train and bus, noting that public transport has a relatively small share (7.74%) of the overall travel movements.
- When we impose a DBC on cars (5c/km) **and trucks** (20c/km),
  - the reduction in percentage changes **is 0.28% and 7.87%** respectively for car drive alone and car with passengers, which is lower than for a car only DBC, which is expected given the improvement in travel time associated with fewer truck kilometres. This also results in a drop in the percentage share for train and bus, now 23.18 and 17.02 percent respectively.
- This translates into **a healthy increase in public transport revenue of 19.67% (increased patronage) under a DBC for both sectors and 24.27% when the DBC is applied to cars only** (where there is a greater switch into public transport). Note this off a low revenue base.
- **This is another important finding indicating that the switch into public transport is tempered when we account for pricing reforms in both the passenger and freight sectors (simply put, the cars benefit by a DBC on trucks).**

MetroScan Ref: Hensher, D.A., Wei, E., Liu, W., Ho, L. and Ho, C.Q. (2022) Development of a practical aggregate spatial road freight modal demand model system for truck and commodity movements in Australia with an application of a distance-based charging regime, *Transportation.* 50:1031–1071. https://doi.org/10.1007/s11116-022-10271-2 or https://link.springer.com/content/pdf/10.1007/s11116-022-10271-2.pdf.

Transition to Electric Cars

Hensher, D.A., Wei, E. and Liu, W. (2021) Battery Electric Vehicles in Cities: Measurement of some impacts on traffic and government revenue recovery, *Journal of Transport Geography,* 94, 103121.

1. Assessing the challenge in recovering fuel excise when the car fleet switches away from petrol and diesel to battery electric vehicles (BEVs)
2. Identifying the role that a distance-based charge (DBC) might play when applied to all cars versus just BEVs
3. **Determining the level of a DBC that recovers lost fuel excise.**
4. Identify the implications of switching to BEVs on modal share, CO_2 and generalised cost of travel.
5. Use an integrated transport and land use modelling system, MetroScan, to implement all tests for the Greater Sydney Metropolitan Area.
6. Recognise that the approach and findings have relevance for alternative green fuels such as hydrogen.

Key Findings in 2041: All day DBC only on ICEs and BEVs (No Registration change)

- When a DBC applies to both ICEs and BEVs, the 5c/km charge will reduce daily VKM by 2.1%. In range of earlier study on ICEs only.
- When the DBC is raised to 15c/km, the daily VKM will decrease by 17.2%.
- Consistent with this change, the modal shares for public transport modes will increase considerably (off a low base).
- The generalised cost of car use and CO_2 emissions will decrease.

	Base 2	DBC 5c/km on BEV & ICE	DBC 10c/km on BEV & ICE	DBC 15c/km on BEV & ICE	Differences (Scenario 2a vs 2)	Differences (Scenario 2b vs 2)	Differences (Scenario 2c vs 2)
Year	2041	2041	2041	2041			
BEV proportion	26.5%	26.5%	26.5%	26.5%			
Scenario Number	2	2a	2b	2c			
Total daily car kilometres	246,798,380	241,680,415	222,802,395	204,255,062	**-2.1%**	**-9.7%**	**-17.2%**
Mode Shares (%) all trips purposes:							
Car as driver	47.97	45.42	42.30	39.79	-5.3%	-11.8%	-17.0%
Car as passenger	43.89	43.24	42.78	41.40	-1.5%	-2.5%	-5.7%
Bus	3.55	4.64	5.92	7.47	30.7%	66.8%	110.5%
Train	4.60	6.71	9.00	11.34	45.8%	95.7%	146.4%
Generalised cost of car use ($/person trip)	$21.46	$21.19	$20.56	$20.15	-1.2%	-4.2%	-6.1%
Generalised cost per km ($/km)	$0.683	$0.904	$0.979	$0.998	32.4%	43.3%	46.1%
Op cost (petrol/electricity/DBC) per km ($/km)	$0.133	$0.184	$0.234	$0.286	38.3%	75.9%	115.0%
CO_2 daily emissions (tonnes)	32,389	30,553	28,167	25,822	**-5.7%**	**-13.0%**	**-20.3%**
Government revenue:							
Total daily fuel excise (A$)	$8,286,932	$8,115,082	$7,481,201	$6,858,423	**-2.1%**	**-9.7%**	**-17.2%**
Total daily DBC (A$)	$0	$12,084,021	$22,280,240	$30,638,259			
Sum of excise and DBC	$8,286,932	$20,199,103	$29,761,440	$37,496,683	**143.7%**	**259.1%**	**352.5%**

- **The bad news for Australia:**
- The Victorian government's controversial electric vehicle tax has been struck down by the High Court in a major case which is likely to prevent other states from introducing new road user charges. *Wednesday 18 October 2023*

Hensher, D.A., Wei, E. and Liu, W. (2021) Battery Electric Vehicles in Cities: Measurement of some impacts on traffic and government revenue recovery, *Journal of Transport Geography,* 94, 103121.

Road Pricing Reform: Some Future Initiatives in anticipation

Concluding Comments:

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City car use reduction strategies ranked

INTERVENTIONS	'STICK' ELEMENTS	'CARROT' ELEMENTS	EFFECTIVENESS
1. Congestion charge	Drivers pay to enter city centre	Revenues go to city's sustainable transport schemes	**12-33% reduction in city-centre cars**
2. Parking & traffic control	Remove parking spaces, alter traffic routes	Replace parking spaces with bike lanes and walkways, add car-free streets	**11-19% drop in city-centre cars**
3. Limited traffic zone	Exclude cars from part of the city (except residents)	Violation fines fund public transport	**10-20% reduction in city-centre cars**
4. Mobility service for commuters		Workers given free public transport pass, then private shuttles to workplace	**37% drop in car commuters**
5. Workplace parking charge	Drivers pay to park at work	Cash-out scheme for employees to use public transport; parking revenues fund public transport	**8-25% reduction in car commuters**
6. Workplace travel planning	Parking management and removal of spaces	Discounts for public transport; improved bike infrastructure; advice to help commuters use public transport/walk/cycle	**3-18% drop in car use by commuters**
7. University travel planning	Reduced parking on campus	Discounts for public transport; improved bike infrastructure; advice and promotion to students and staff of car alternatives	**7-27% reduction in car use by university commuters**
8. Mobility services for university		Free public transport pass and shuttle connections for students	**24% drop in students commuting by car**
9. Car sharing		Car sharing access integrated to work and neighbourhoods	**12-15 private cars replaced by each shared car**
10. School travel planning		Advice and events to help students and parents walk, cycle or carpool to school	**5-11% reduction in car use for school trips**
11. Personalised travel planning		Discounted public transport; advice to help city residents walk and cycle	**6-12% drop in car use share among residents**
12. App for sustainable mobility		Rewards for achieving targets for walking, cycling or using public transport	**73% - proportion of app users declaring reduced car use**

Source: Kuss and Nicholas, 2022, Case Studies on Transport Policy · Get the data · Created with Datawrapper

NYC Congestion Pricing Panel Recommendations and UTRC Report Equity Impacts of Congestion Pricing

- CBD tolls on vehicles (excluding taxis and FHVs) should be charged only for entering the zone.
- Congestion toll rates should apply during the most congested times of the day - from 5 am to 9 pm on weekdays, and from 9 am to 9 pm on weekends. With some exceptions, toll rates should be 75% lower in the nighttime. The tolls will not be reduced for off-peak hours for taxis and FHVs.
- Passenger vehicles and passenger-type vehicles with commercial license plates should be charged a $15 toll for entering the CBD, no more than once per day.
- NYC Taxi and Limousine Commission (TLC)-licensed taxis and FHVs should be exempted from the daily system toll on vehicles. Instead, a per-ride CBD toll should be added to each paid passenger trip fare for rides made to, from, or within the CBD at the toll rate of $1.25 per ride for taxis and $2.50 per ride for app-based FHVs.
- Buses providing transit or commuter services, including commuter vans, should be exempted from the toll. Other buses should be charged a $24 or $36 toll each time they enter the CBD, depending on their type.
- Small non-articulated box trucks should be charged $24, and large articulated trucks should be charged $36, each time they enter the CBD.
- Motorcycles should be charged half the passenger vehicle toll, no more than once per day.
- A credit against the daytime CBD toll rate should be provided to vehicles entering through the four tolled entries that lead directly into the CBD (the Queens-Midtown, Hugh L. Carey, Holland, and Lincoln Tunnels). The credit should be $5 for passenger vehicles, $2.50 for motorcycles, $12 for small trucks and intercity/charter buses, and $20 for large trucks and tour buses. No crossing credits should be in effect in the nighttime period when toll rates are 75% lower.
- Specialized government vehicles should be exempted from the CBD toll (in addition to emergency vehicles and vehicles transporting people with disabilities, as required by law).
- Low-income vehicle owners should receive a 50% discount on the daytime auto toll after the first 10 trips made by that vehicle in a calendar month.

The Goodwin Curve

There is a curve that predicts this change in attitudes, according to Leo Murray, director of innovation at climate charity **Possible**.

Named the "**Goodwin curve**" after the work of Philip Goodwin, emeritus professor of transport policy at University College London,

The curve (or dip) charts how public support for road pricing schemes tend to begin well, with recognition of the need for intervention.

That support then falls away as more specific details are released ahead of enforcement, **only to rise again** after implementation.

So, it is the brave politician who is willing to risk the short run for long term adulation!

The Sky is the limit!

- *Pay-per-mile tolling (DBC) using satellites is under close scrutiny – it's already in use for trucks in Europe and pilots for cars are underway, it is an option for road user charging (RUC) subscribers in Oregon, and Singapore is poised to switch its cordon-based congestion charging to a* Global Navigation Satellite Systems (*GNSS) system (with RUC capability built in) later this year (2023).*

- Experts indicate the obstacles to RUC are not technological, but a question of public acceptance.

- Satellite tolling really is ready to RUC, but is the general road user?

- "A change like that, even if you did it on a small scale would need a lot of explaining to the public and a very careful public relations campaign," says Sir Stephen Glaister. "But there's a lot of evidence actually that, whereas people always oppose these ideas, because they find them hard to understand and they're very difficult to explain, once they have been introduced, they see the benefit."

Hensher, D.A. (2019) Editorial: Road pricing reform – another attempt at getting started! *Case Studies on Transport Policy*, online June 2018, 7 (4) December, 677-678. ht

A challenge for SOCHITRAN

- We need to keep the topic alive at all times
- This will require a communication and education program that is dynamic and ongoing ('in your face')
  - Awareness and Familiarity needs improving
- The focus must be on benefits to Users, to Treasuries and to Politicians (votes)
  - Remove reference to tax, charge etc. – all emotive

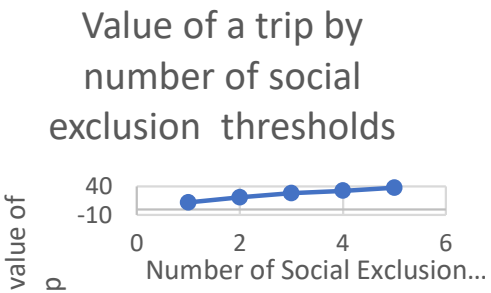
Some Big ("Hot") Topics Going Forward

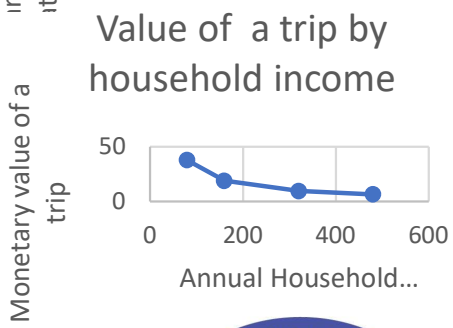
	Key Focus	Strategy	In order to:	Additional comment
S1	**Accessibility**	Improve Regional Connectivity (inter and intra)	Provide between access of population and also attract jobs to the regions	Fast rail in corridors, e.g., Newcastle-Sydney, Melbourne-Geelong.
S2	**Safety**	Improve Road Safety	Reduce incidence of injuries and fatalities	Mix of TDM and TSM; focus on crash avoidance rather than reducing consequences of crashes
S3	**De-carbonisation I**	Support switching contracted route buses to BEVs or Fuel Cell battery (hydrogen)	Reduce Tailpipe Emissions to Zero	Buses; only applies to end use. Need for a new procurement contract model?* De-risking is the new challenge.
S4	**De-carbonisation II**	Identify and action mechanisms and incentives to switch to electric cars and electric trucks	Reduce Tailpipe Emissions to Zero	Identify incentives and see Norwegian success.
S5	**Sustainability and Congestion**	Develop initiatives for public transport (including 1LM connectivity)	Protect and grow the modal share of sustainable modes post-COVID-19	Limited scope through fares and key is door to door accessibility. Road pricing reform even more urgent.
S6	**Wellbeing and Social Exclusion**	Introduce MaaS in a regional town and rural hinterland (RTRH) setting	Support improvements in wellbeing and social exclusion **– see graphs**	Development of a blueprint and a linked trial. Increased focus on social exclusion and well being in urban areas.

	Key Focus	Strategy	In order to:	Additional comment
S7	**Freight distribution**	Work with the freight supply chain	Improve the efficient use of the transport network	The traditional modal interests must be developed into a multi-modal view and combined with the interests of non-transport operators to address freight logistics issues at a higher level than is currently the case.
S8	**Asset management**	Ways of improving procurement and management of assets		Review role of PPPs
S9	**Traveller behaviour**	To develop better ways of understanding travel behaviour WFH/Remote Working Central issue	Inform policies to support specific travel and locations outcomes	Greater focus on behavioural surveys to complement to growth in descriptive 'what is' data that is for today but not often for tomorrow. Greater emphasis on personalised travel planning. Review value of digital identified big data (e.g., Telco data)
S10	**Speculative futures**	Develop a framework to consider alternative futures: Urban and Regional/Rural	Provide a range of options to contemplate to ensure decisions today do not lock us into stranded assets and costly negative benefits	Could include skills initiatives to future proof workforce. Suggest a Delphi Study & Scenario planning

Accessibility is not Mobility: Mobility is not Accessibility

Mobility: The ease of movement
Accessibility: The ease of reaching destinations
An increase in mobility implies that the generalised cost of travel (time plus money) per kilometre is reduced
An increase in accessibility implies that there is a reduction in the generalised cost of travel per destination.





Road Pricing Reform

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What about Replacing a Distance-Based Charge with a Travel Time (Speed) Based Charge for Travel Time Bands?

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