

### **ATA's Fuel-based Charging Mechanism policy proposal overview v1.3.3.**

This paper examines the option of rebalancing heavy vehicle charges by increasing the variable cost component of the charge, through a shift from registration charge to fuel excise.

The ATA maintains that heavy vehicles should pay their allocated share of public road expenditure while minimising over/under-recovery between and within heavy vehicle classes. The ATA believes any heavy vehicle charging scheme should be fair and transparent.

Currently, heavy vehicle charges consist of registration charges and the component of the fuel excise that is not rebated through fuel tax credits. Under the current scheme, fuel excise revenue is directed into Commonwealth income and state governments retain the proceeds of registration charges. Under the fuel-based charging mechanism, heavy vehicle road user charges are modified to comprise a greater fuel cost component, with the registration charge component being reduced to a base charge that closer matches car registration cost. In this framework, the variable and fixed revenue component ratios would be 90:10, changed from the current 68:32. The fuel-based cost recovery charge would be based on the PAYGO calculation and be collected with the taxation system on the same basis as the existing fuel excise.

Revenue raising through fuel excise is a highly efficient and cost effective charging mechanism that will refine road user incentives with the potential to deliver infrastructure supply side reform. Increasing the weight of the variable charge is likely to influence business behaviour, improving the efficiency of how the freight task is carried to the economic benefit of the nation.

A distinctive feature of this system is the improvement of infrastructure funding arrangements. Significant productivity benefits will flow from this type of reform, which is long overdue. Revenue distribution to state and local government is tied to heavy vehicle related expenditure. This provides more secure funding arrangements (especially for local governments) and promotes more efficient infrastructure investment. Funding is divided into two parts, with a minimum payment for maintenance and an additional amount for capital investment that is linked to road classification.

Under the ATA proposal, charges would vary between two broad vehicle groups:

**Vehicle Class A:** 2 axle rigids, special purpose vehicles and buses (VCA).

**Vehicle Class B:** 3 axle rigids and all articulated vehicles (VCB).

Dividing the vehicle fleet creates a stronger link between the associated cost and the type of vehicle paying for it. VCA vehicles can access almost all roads, require less infrastructure investment and have a lower impact on roads. VCB classification vehicles demand greater infrastructure provision, and impact more on roads, so should be charged accordingly. Fuel consumption between the classes varies significantly, with different fuel efficiencies and typical loads, as well as average distance travelled.

To link road use and subsequent funding, as well as promote network expansion, the national road network will be classified into sub networks based on access arrangements and vehicle class capacity. This is consistent with COAG's directive to road agencies to classify the road network.

There are eight potential road network classifications, based on the Performance Based Standards classifications plus B-triple routes. These are GA, BD, long BD, B Triple, type 1 RT, long type 1 RT, type 2 RT and long type 2 RT. Classifying the road network provides a basis for differentiating funding; it gives a financial incentive to increase road durability and capacity, as well as compensates for impact levels.

**Cost recovery**

The amount required to be recovered will be based on the current PAYGO calculations. That is, based on costs attributable to heavy vehicles of historic expenditure with a one year forward estimate. Heavy-vehicle users would continue to be responsible for paying the relevant additional cost of expanding road capacity and durability to cater for heavy vehicles.

**Road-user charge**

Under the ATA proposal the fuel tax credit rate will be reduced, essentially increasing the road user charge to broadly replace the decrease in registration revenue. The road user charge will be a cents per litre charge representing the variable cost of road use by heavy vehicles.

There will be two different rates, for VCA and VCB vehicles. The rate will depend on the allocated cost amount for the two vehicle classes spread across the vehicle fleets in terms of fuel consumption. The road user charge would apply to all fuels consumed by heavy vehicles, including alternative fuels, with a rate adjusted to reflect energy factor. These fuels may also be included in separate rebate schemes.

**Registration charge**

The role of the registration charge is condensed to serve the purpose of vehicle and responsible operator identification. It will cover the administration costs and a fundamental road access contribution. Registration charges, including trailer registration, will be reduced to reflect the pattern of light vehicle registration. For all trucks, prime movers and trailers, the nominated amount of registration is \$400. Compulsory third party insurance would be unchanged. Using the PAYGO 2007 data, registration revenue should be around \$212 million where registration is \$400 for all vehicles and trailers.

Table 1: Current charging system

Estimated 2009 HV Revenue	Fuel-based		Registration		Total	
	(\$m)	%	(\$m)	%	(\$m)	%
Class A	471	30	153	21	624	27
Class B	1,101	70	574	79	1,675	73
All heavy vehicles	<b>1,572</b>	68	<b>727</b>	32	<b>2,299</b>	100

Fuel projections SMVU 2006-2007, RUC 21.7c/ltr Registration revenues NTC 2007 Determination

Revenue generated under the current charging system is shown in table 1. The proportion each vehicle class contributes to the two streams of revenue is highlighted, as well as the distribution of revenue earned between the two vehicle classes. This distribution is maintained under fuel-based charging.

To maintain total revenue, where registration revenue has reduced to \$212 million (from \$727 million) revenue from fuel excise will need to earn approximately \$2088 million, as shown in table 2. This is based on 1999-2005 SMVU data, as per the NTC PAYGO model.

Table 2

Amount to be recovered (\$m)	
Current revenue	2299
(-) FBC rego revenue	212
FBC fuel revenue	<b>2088</b>

Numbers may not add due to rounding

Using these revenue shares in table 1, (27 percent and 73 percent for VCA and VCB respectively) the amount needed to be recovered by vehicle class can be allocated.

Table 3 Fuel-based charging scheme

Estimated FBC Revenue (\$m)	Fuel-based		Registration		Total	
	(\$m)	%	(\$m)	%	(\$m)	%
Class A	521	25	103	49	624	27
Class B	1,567	75	109	51	1,675	73
All heavy vehicles	2,088	91	212	9	2,299	100

Table 4 Projected fuel consumption rates

Fuel Consumption (m litres)	2008	2009
Class A	2104	2171
Class B	4905	5075

Projected using SMVU 2003-2007 trend. Vehicle class shares based on 2007 PAYGO

Table 5 Estimated new road user charge

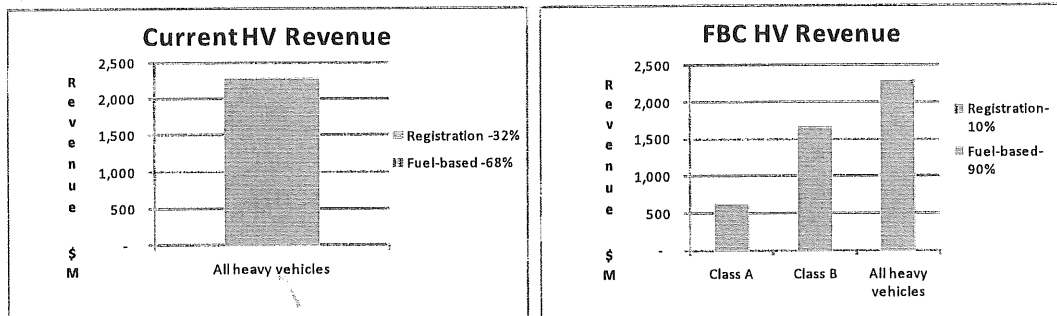
Road User Charge c/ltr	Class A	Class B
	24.0	30.9

Though aggregating the charge for a number of vehicles could lead to claims of cross-subsidisation between vehicle classes, the increased variable charge means that individual operators face more accurate charges for what they do. Better signals about the per km cost users impose on the road network will allow their personal trade-offs to better reflect those of the wider community. Charging in this way reduces the cross-subsidisation that currently occurs within vehicle classes.

### Revenue

Revenue is maintained, with a larger share coming from variable charges.

Figure 1: Revenue Composition



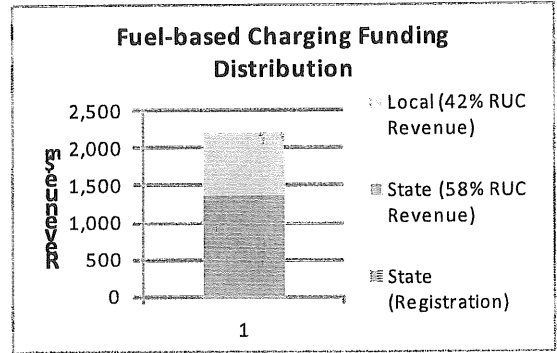
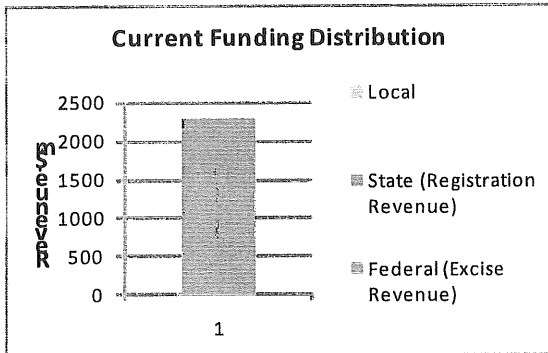
The proportion of fuel-based revenue and registration revenue as a part of total revenue changes. The registration revenue component decreases from 32% to 10%, and fuel-based revenue increases from 68% to 90%.

Revenue is collected in a centralised system through the efficient existing taxation system that already collects most of the heavy vehicle charging revenue. Although, it differs from the current system in that revenue will be kept aside for heavy vehicle road expenditure, rather than being absorbed into general government revenue. A comparison of funding between the two schemes is shown in Table 6.

Table 6 Funding revenue from heavy vehicles

Current average	\$ million	Fuel-based Charging	\$ million
Federal (Excise Revenue)	1572	State (Registration)	212
State (Registration Revenue)	727	State (58% RUC Revenue)	1,211
Local	0	State Total	1,423
		Local (42% RUC Revenue)	877
<b>Total</b>	<b>2,299</b>	<b>Total</b>	<b>2,299</b>

Figure 2 Revenue allocation



**Infrastructure expenditure**

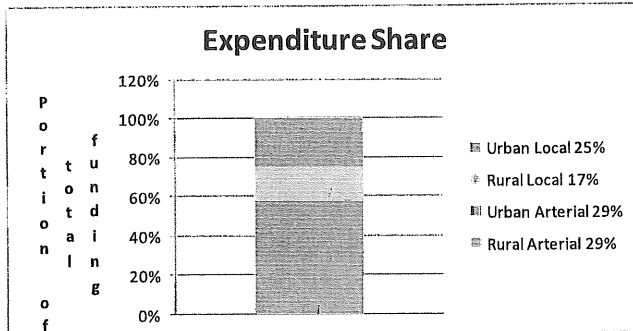
**Common, capital and maintenance costs**

There are three avenues that revenue is directed to: recovering the heavy vehicle proportion of PAYGO ‘common costs’, maintenance costs and some funds for future capital investments.

The share of common costs attributable to heavy vehicles would be financed out of the (reduced) registration revenues, collected and redistributed by the states. Revenue from fuel will be held as a pool of funds for heavy vehicle spending, rather than being combined into commonwealth revenue.

The fuel revenue is appropriated into a special **heavy vehicle road expenditure fund**, which is divided at two stages. First, it is divided into state and local government funding pools. Here, this has been done using an average of where nominal expenditure for the past seven years has occurred (NTC AA 2009). Funding for local roads (urban and rural) is allocated to local government, and arterial roads (urban and rural) are the funding responsibility of state governments. The historical average of this spending is shown in Figure 3. Of total road expenditure, the average proportions have been 42 per cent for local road funding, and 58 per cent for state road funding. Currently, local government funding is not closely related to road use. Funding is heavily dependant on rates, federal government grants and revenue distribution from states. This can be highly variable, causing funding uncertainty and giving rise to inefficient infrastructure provision. The inability to link road-user charges directly to road wear has resulted in significant constraints on heavy vehicle use of local roads, with negative impact of safety and productivity.

Figure 3 Historic expenditure averages



Based on average total nominal expenditure (NTC AA 2009)

The revenue drawn from heavy vehicle use is the basis for future expenditure on roads to accommodate heavy vehicles. While this is based on past spending amount, future allocation of capital funds will have a more strategic direction. By closer relating demand with infrastructure investment, optimal levels of investment will be encouraged. Investment decisions will take into account infrastructure life-cycle and the trade off between higher capital costs and lower maintenance costs it moves towards optimal infrastructure provision.

The heavy vehicle road expenditure fund will need to be expanded as freight and infrastructure demand grows. This is will be accompanied by cost determinations and recalculations of the road user charge. The rate may increase through additional government infrastructure spending, of which a heavy vehicle proportion will be incorporated to update the road user charge and the amount to be recovered.

Funding arrangements can also be expanded by including government contribution ratios, where the state or local government provides a portion of the finances from government sources. Funds for a minimum level of infrastructure (to provide general access roads and maintenance) will need to be provided from commonwealth and state general vehicle revenue and local government rates.

The two pools of funds would then be categorised into maintenance and capital spending needs based on past average expenditure. Based on limited data, the average ratio of this division has been around 34 per cent and 66 per cent on maintenance and capital respectively (NTC AA 2009). The portions of this spilt will need to be recalculated to account for actual and desired funding allocations, and adjusted for future infrastructure requirements.

Table 7

Fuel-based Charging (\$m)	
Maintenance 34%	793
Capital 66%	1507
<b>Total</b>	<b>2299</b>

Limited state expenditure data, 2004-05.

Under this scheme, the total amount directed to maintenance would be \$793 million and \$1507 million would be available for capital investment.

### **Maintenance**

Maintenance funding will be an amount automatically distributed consistently across infrastructure providers and road networks. It would take into account network size, the volume of heavy vehicle traffic and the rates of impact as it would return heavy vehicle funds to where expenditure has taken place.

### **Capital**

Funding for assisting in capital investment will be drawn from the remaining pool of road user charge revenue, and linked directly with network type. In this scenario, fund pools available to state and local governments are \$1211 million and \$877 million respectively. Infrastructure providers from both these levels of government will have equal right to their respective pool of funds.

Funds are granted upon application, on an annual basis. Projects will be evaluated by the Department of Infrastructure, Transport, Regional Development and Local Government according to a criteria established by industry and state/local government input. Criteria will include benefit-cost analysis and take into account the freight/network benefits including community service obligations. Funding decisions for state and local governments will happen on a national level, meaning that different states will receive different amounts, but that nationally funding will go to the most productive destinations.

The heavy vehicle proportion of project spending will be the only amount supplied from the heavy vehicle road expenditure fund. This can be based on the cost of extra capacity in pavement and infrastructure to cater for heavy vehicles. There may also need to be a separate mechanism to ensure state and local governments have access to funding to provide the base cost of the project. The heavy vehicle revenue pool is not available for general access roads, these must be financed by general vehicle revenue and the common cost portion of heavy vehicle revenue (consistent to what it currently is).

Funding this way will promote investment efficiency and ensure funding goes to where it will be most effective. Funding is only available for routes above general access classifications, as heavy vehicles use of general access roads is paid for in common cost funding (through registration revenue in this case). The higher the access provided by the network classification, the greater weighting given to the application. Thus, there is a financial incentive to improve road access, and increased future use will be compensated.

### **Incentives**

Fuel is a variable cost, so consumption will increase with distance and mass. As a result, the ATA plan will provide a greater incentive for operators to use fuel efficient, environmentally friendly vehicles. Change in vehicle choice should promote the increased use of high productivity vehicles, which will have national economic and safety benefits. This is a more efficient way to carry out the freight task, minimising the impact on infrastructure.

To an extent, congestion will also be addressed in this scheme. Travelling in heavily congested areas is more fuel intensive, thus encouraging behavioural change. Other efforts to address congestion can be complex and expensive. Congestion targeting measures do not need to be in a national framework, but do need to include light vehicles.

### **Benefits**

The scheme is efficient to administer from a regulatory perspective, and requires little industry adaptation. For this reason the implementation costs would be minimal, with low evasion opportunity due to the tax system collection mechanism using Business Activity Statements that

operators are already familiar with. Additionally, the model is adaptable to impending policy changes like a national registration system.

For operators, the transparency and cash flow benefits of this scheme would improve the ease of doing business, even for operators whose overall costs increase. Reducing the financial burden of a fixed registration payment will aid business' cash flow. A fuel cost component provides a way for operators to transparently and directly pass costs onto customers, potentially through a fuel levy.

Though this form of cost allocation may be subject to some averaging between vehicle classes, data and technological restrictions make other charging methods unfeasible in the near future. There are significant efficiency benefits likely to flow from the fuel-based charging framework, both from lower administration and collection costs, but more importantly through improved incentives for road users and road infrastructure providers. A larger variable charge will mean more equitable and efficient distribution of charges within a vehicle class. The infrastructure supply side reform is where the greatest economic benefits will lie, leading to an efficient industry that supports its own capacity and infrastructure expansion to the benefit of the nation.

Altogether, it is a simple, low cost, fair and transparent model that rewards efficiency and improves the incentives for users and suppliers of road infrastructure.

Some cases	Vehicle fleet characteristics			Current Charging System		Fuel-based charging			
	Fuel efficiency (ltr/100kms)	Average vehicle kms	Registration (\$)	Av fuel rev (\$/pa) with 21.7c/l RUC	Total (\$ pa)	Registration (\$)	Av fuel rev (\$/pa) with 24 and 30 cpl	Total (\$pa)	Change
Rigid trucks: 2 axle: no trailer: 7.0-12.0t	24	22673	392	1,170	1562	400	1293	1693	131
Rigid trucks: 2 axle: no trailer: >12t	29	21563	673	1,360	2033	400	1504	1904	-130
Rigid trucks: 2 axle: with trailer	29	23676	1457	1,488	2945	800	1645	2445	-500
Rigid trucks: 3 axle: no trailer >18.0t	42	27567	886	2,490	3376	400	3543	3943	567
Rigid trucks: 3 axle: with trailer: >18.0t	45	47964	7190	4,705	11895	800	6694	7494	-4401
Rigid trucks: 4 axle: no trailer: >25.0t	47	32971	673	3,338	4011	400	4749	5149	1138
Articulated trucks: single trailer: 6 axle rig (avg)	51	88900	5310	9,879	15189	800	14055	14855	-334
Articulated trucks: single trailer: 6 axle rig (low) *	51	44450	5310	4,940	10250	800	7028	7828	-2422
Articulated trucks: single trailer: 6 axle rig (high) *	51	133351	5310	14,819	20129	800	21083	21883	1754
Articulated trucks: B-double/triple: = or > 9 axle rig (avg)	59	178988	12214	23,055	35269	1200	32800	34000	-1269
Articulated trucks: B-double/triple: = or > 9 axle rig (low) *	59	88494	12214	11,527	23741	1200	16400	17600	-6141
Articulated trucks: B-double/triple: = or > 9 axle rig (high) *	59	268482	12214	34,582	46796	1200	49200	50400	3604
Articulated trucks: Road train: 3 trailers	80	89038	12606	15,456	28062	1600	21990	23590	-4473