

Tax Strategy Group

Energy and Environmental Taxes and Vehicle Registration Tax

Introduction

This paper examines options in respect of Energy and Environmental Taxes and Vehicle Registration Tax for Budget 2016:

- Part 1 – Introduction
- Part 2 - Overview
- Part 3 – Transport Fuels
- Part 4 – Carbon Tax
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Part 1 – Introduction

- 1.1 Energy consumption is essential in any developed economy, however, the combustion of fossil fuels causes negative environmental and social externalities. Energy and environmental taxation aims to reduce these externalities by influencing both the amount and type of fuel consumed with the aim of reducing the negative side effects.
- 1.2 Ireland has binding targets to reduce greenhouse gas emissions by 20% in 2020 on 2005 levels as part of the wider Europe 2020¹ initiative which also sets a target of 16% of energy consumed coming from renewable sources and an improvement in energy efficiency by 13.9% in 2020. Failure to achieve these ambitious targets will result in financial penalties.
- 1.3 Environmental taxation is a useful tool to achieve emissions targets and such increases are less detrimental to economic growth than increases in labour taxes.

¹ http://ec.europa.eu/europe2020/pdf/annexii_en.pdf

Part 2 – Overview

2.1 As well as shaping behaviour energy taxes yield significant revenues for the Exchequer. Environmental taxes generated over €2.9bn in 2014. In 2013 Environmental taxes were equal to 2.43% of Ireland's gross domestic product (GDP) in line with the EU average of 2.45% GDP.

2.2 The below table shows the excise receipts for environmental taxes over the past number of years and the expected yield for 2015.

Receipts €m	2011	2012	2013	2014	2015 est.
Light Oils (Petrol)	992.6	904.1	854.2	799.6	770
Heavy Oils (Diesel, MGO etc.)	1130.1	1116.2	1177.1	1218.6	1264
LPG	0.03	0.06	0.14	0.23	0.3
Carbon Tax	298	354	388	385	415
Electricity Tax	7.05	6.32	5.65	4.48	5.6
VRT	388	379	437	542	660

2.3 Indexation of environmental taxation has been suggested by the European Commission as a way of maintaining the impact of environmental taxes. Indexation of energy taxation could be viewed as a pro-cyclical measure and could decrease revenues as well as increase them. The consumer price index is susceptible to shocks, especially as a small open economy, and linking it to energy prices could create uncertainty. Energy taxation is considered annually in the context of the budget and this allows for a more measured approach.

Part 3 - Transport fuels

3.1 Currently the excise on petrol is 59c per litre and the excise on diesel is 48c per litre. The below table shows the increase in excise rates for petrol and diesel since 2008.

Increase in Excise on Motor Fuels (VAT inclusive) since 2009							
Budget	2009	2010	2011	2012	2013	2014	2015
Petrol	8c (Oct 08)	4.2c*	4c	1.4c*	Nil	Nil	Nil
Diesel	5c (Apr 09)	4.8c*	2c	1.6c*	Nil	Nil	Nil

*increase applied via carbon tax.

Increase in Sales of Diesel Cars

3.2 One of the effects of moving to emissions based VRT and motor tax has been a marked migration from petrol powered vehicles to diesel powered vehicles by private motorists. Together with obligations on car manufacturers to improve the efficiency of their new car fleets this has led to the adoption of the lower excise more carbon intensive product and will have a negative impact on excise receipts in the longer term as well as causing an increase in more harmful emissions such as carbon dioxide (CO₂), nitrogen oxides (NO_x) and particulate matter than petrol based equivalents.

3.3 On 15 October 2008, the rate of excise duty on petrol was increased by 8 cents per litre (inc. VAT), while duty on diesel was increased by 5 cents per litre (inc. VAT) in April 2009. This decreased the marginal cost of diesel vehicles vis-à-vis petrol.

3.4 In 2013 new diesel passenger car registrations accounted for 71.4% of the total in Ireland which is significantly higher than the EU average of 54.9%.

3.5 The price of diesel is lower than the price of petrol, this is largely due to the different rates of excise. In Ireland the excise rate on diesel (48c per litre) is 18.5% cheaper than the excise rate on petrol (59c per litre) which is slightly less than the EU average of 20.1%. The UK are currently the only EU Member State to have the same excise rate for petrol and diesel.

3.6 The OECD have recommended an equalisation of excise rates on petrol and diesel to address negative externalities. This would lead to increased costs for commercial transport, however, the diesel rebate scheme could be extended to offset any increase.

3.7 Some Member States with emissions based circulation taxes levy a higher rate on diesel engines to take account of differential taxation of petrol and diesel (e.g. Denmark, Germany, Luxembourg, Malta, the Netherlands, Finland and Sweden) while others such as Belgium have a reduced commercial rate of excise on diesel. These may be options to be explored in the future.

Part 4 –Carbon Tax

4.1 The carbon tax on fossil fuels was introduced in Budget 2010 on a phased basis.

Phase 1 – Petrol and Auto Diesel on 10 December 2009

Phase 2 – Kerosene, marked gas oil (green diesel), Liquefied petroleum gas (LPG), fuel oil and natural gas on 1 May 2010

The initial rate of €15 per tonne of CO₂ emitted was increased to €20 in 2012.

Phase 3 – Solid fuel at €10 per tonne on 1 May 2013, increased to €20 per tonne on 1 May 2014.

4.2 In 2014 the yield from carbon tax (including VAT) was €385m. The expected yield for 2015 is €415m.

History of Irelands Carbon Tax		
Year	Rate	Yield
2010	€15	€223m
2011	€15	€298m
2012	€20	€354m
2013	€20	€388m
2014	€20	€385m
2015	€20	€415m (est)

4.3 Any increase in the rate of carbon tax would have an impact on the rate of fuel poverty. According to the ESRI low income households are more likely to use cheaper but more carbon intensive solid fuels. A rate increase could also lead to an upsurge in solid fuels being sourced from Northern Ireland (see section on cross border prices).

Part 5 - Cross Border Prices

5.1 There are three distinct variables which impact on cross border prices: excise, VAT and the currency exchange rate. A survey taken on 23 July this year shows that both petrol and auto-diesel remain cheaper in the State than in Northern Ireland.

Cross Border Comparisons (Prices & rates in €)

Product	ROI Price	N.I. Price	Price Differential	ROI Excise	N.I. Excise	Excise Differential	ROI VAT 23%	N.I. VAT 20%	VAT Differential
Petrol (litre)	1.46	1.69	-0.23	0.59	0.82	-0.23	0.27	0.28	-0.01
Auto-diesel (litre)	1.31	1.68	-0.37	0.48	0.82	-0.34	0.25	0.28	-0.03

5.2 The extension of carbon tax further increased the cross border tax differential on domestic heating fuels with the application of 13.5% VAT here as against 5% in the North. This has given rise to consumers sourcing solid fuel from the North. Solid fuel suppliers have expressed concerns around Northern suppliers arranging for solid fuel, whose sulphur content is not compatible with the SWiFT 7 robust verification mechanism. Since such deliveries are illegal the associated tax liabilities are also being circumvented. Any further increase in carbon tax would exacerbate this.

Fuel Tourism

5.3 The cross border price differential can lead to “fuel tourism” where fuel is purchased in one jurisdiction and consumed in another. All fuel sold counts towards Ireland’s emissions and impacts negatively upon our ability to achieve our binding EU 2020 targets.

5.4 A 2013 report by the National Roads Authority (NRA)² indicated 22.7% of auto-diesel and 8.6% of petrol sold in the South is consumed in Northern Ireland. Fuel purchased in the South by qualifying operators and consumed in the Northern Ireland can also avail of tax relief via the Diesel Rebate Scheme³.

5.5 Equalisation of rates with Northern Ireland has been suggested as a measure to eliminate fuel tourism and thereby reduce measured emissions. Any alteration in the excise rates would impact on the comparable overall cost of motoring vis-à-vis the North as other vehicle related taxes, such as annual motor tax and VRT, are lower in the North. A further consequence of the equalisation of rates would be an increased payment under the diesel rebate scheme. Movement in exchange rates would make equalised rates almost impossible to maintain.

² The Impact of Fuel Prices on Fuel Consumption and Traffic in Ireland – NRA Nov 2013

³ <http://www.revenue.ie/en/tax/excise/diesel-rebate-scheme/>

Part 6 - Options

Options for increasing excise rates on fuels

6.1 Petrol and auto-diesel offer the highest revenue raising potential whether it is through either the excise rate or carbon tax.

6.2 The expected yield in 2015 for Petrol is €770m and Auto-Diesel is €1,264m. The table to the right indicates the additional revenue which would be generated by increasing the excise duty rate.

Increase (VAT inclusive)	Petrol	Auto-diesel
Cent per litre	Yield €m	Yield €m
2	26.3	45.4
3	39.3	68.0
4	52.3	90.6
5	65.2	113.0
6	78.1	135.4
8	103.8	179.9
10	129.3	224.1

6.3 Given the challenges that may accompany increasing the price of home-heating oils and natural gas during the winter season, increasing the excise rates on petrol and auto-diesel will impact less on fuel poverty.

6.4 Another option which has been suggested by the OECD, is to equalise the rates of duty on petrol and auto-diesel by increasing the duty on diesel (€479.02 per 1,000 litres) to that of petrol (€587.71 per 1,000 litres). The basis of this suggestion is the lower tax rate on diesel fails to account for the social and health environmental externalities caused by its combustion. The estimated yield would be €298m.

Options for increasing the Carbon Tax rate

6.5 An increase of €5 in the rate of carbon tax would yield €102m in a full year and an increase of €10 in the rate would yield €203.4m in a full year.

6.6 The table on the right illustrates the impact increases of €5 and €10 per tonne of CO₂ emissions would have on selected individual energy products.

6.7 Any increase in the rate of carbon tax would have an impact on the rate of fuel poverty.

Impact of Increases in Carbon Tax (including VAT)			
Product	Unit	€5	€10
Petrol	Litre	1.40c	2.80c
Diesel	Litre	1.64c	3.27c
Coal	40kg bag	60c	120c
Peat briquettes	Bale	13c	26c

6.8 The table at Annex I sets out the impact of an increase in the rate of carbon tax by €5 and €10 per tonne of CO₂ emissions.

Aggregates Levy

6.9 There have been a number of calls from environmental organisations⁴ to introduce an Aggregates Levy on aggregates extracted from the ground, such as rock, sand and gravel and used in construction. It is proposed that the introduction of an aggregates levy would reduce demand for aggregates and encourage recycling of previously used construction materials and compensate for environmental externalities caused by quarry activities.

6.10 In the 2014 Country Specific Recommendations for Ireland the European Commission indicated scope for Ireland to broaden the tax base and improve the environmentally friendliness of the tax system. An aggregates levy would contribute to achieving both of these objectives.

6.11 A similar levy was introduced in the UK in 2002 and the current charge is £2 per tonne of extracted aggregate in Northern Ireland. The introduction of an Aggregates Levy in line with the UK rate, i.e. €2.50 per tonne, could be expected to yield €79m per annum as well as incentivising the recycling of construction materials.

6.12 Following the introduction of the aggregates levy in the UK aggregate recycling increased from 5% to 25%. The EU average of aggregate recycling is 5%.

6.13 If introduced this measure would likely be met with strong opposition from the construction sector at a time when significant residential construction is needed to address supply side issues. Also, quarries are not currently regulated, aside from requiring planning permission, and this might lead to a significant lead in time to implement.

⁴ Environmental Pillar, An Taisce, Social Justice Ireland, EUnomia and the European Environment Agency.
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Electricity Tax

6.14 The electricity tax in Ireland was introduced in October 2008 and is currently set at the minimum rate allowable under the EU Energy Tax Directive. The rate for business use is €0.50 per MegaWatt Hour (MWh) and the rate for non-business use is €1.00 per MWh. These rates are significantly below the EU average of €8.42 for business use and €14.53 for non-business use. The OECD have indicated that electricity taxes are regressive when compared with transport and heating as it is difficult for poorer households to reduce consumption and for this reason household use is exempt in Ireland.⁵

6.15 A recent report⁶ commissioned by the European Commission on Environmental Fiscal Reform recommended the equalisation of electricity tax rates in Ireland between business and non-business.

6.16 A relatively small number of consumers, such as government agencies and local and public authorities fall into the non-business category, and the categorisation of electricity use as business or non-business for tax purposes has caused administrative difficulties for Revenue.

6.17 To equalise the rate for business and non-business use at €1.00 per MWh would allow for a more transparent system and also significantly reduce the administrative burden on Revenue.

6.18 The electricity tax receipts for 2014 were €4.48m; approximately 12% was paid at the non-business rate. If the rate for business use was increased to €1.00 per MWh it is expected that the yield would increase to €9m in a full year.

Electricity Tax Receipts

Year of liability	Tax (€m)
2008	1.94
2009	7.08
2010	6.86
2011	7.05
2012	6.32
2013	5.65
2014	4.48
2015	5.6 est

⁵ The Distributional Effects of Energy Taxes – OECD Jan 2015

⁶ En Study on Environmental Fiscal Reform Potential in 14 EU Member States – EU 2015
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Part 7 - Vehicle Registration Tax

- 7.1 Vehicle Registration Tax (VRT) is a tax chargeable on the registration of motor vehicles in the State, and has been in place since 1993, when it replaced the Motor Vehicle Excise Duty (MVED). VRT is levied as a percentage of the open market selling price (OMSP) of a passenger motor car. Since 1 July 2008, both VRT and Motor Tax on private motor cars have been calculated on the basis of CO2 emissions, so that motor cars with higher emissions attracted a higher tax liability.
- 7.2 The bulk of revenue from VRT (nearly 96%) is raised on private motor cars. VRT is, by virtue of the nature of the Irish motor car market, an extremely pro-cyclical tax. Car registrations and VRT receipts have declined significantly since their peak in 2007. New car registrations fell by 19% in 2008 and 63% in 2009. The operation of a scrappage scheme between January 2010 and June 2011 led to a temporary boost in registrations in 2010 and 2011, though new car sales again declined in 2012 and 2013. New car registrations increased in 2014, and have rapidly accelerated in 2015, with new car sales in July 2015 over 49% higher than in July 2014. The relative strength of the Euro vis-à-vis Sterling in recent years has contributed to a larger number of used car sales vis-à-vis new car sales. This trend has reversed in 2014 and 2015, as the euro has depreciated and the economy began to expand.

Year	VRT Yield	New Car registrations	Used Car registrations
2008	€1,121m	146,637	55,819
2009	€375m	54,055	45,055
2010	€383m	85,264	37,125
2011	€388m	87,086	38,214
2012	€379m	76,237	37,902
2013	€437m	71,317	48,146
2014	€542m	92,613	32,806
2015*	€499m	106,668	28,349

*To end July 2015.

- 7.3 The introduction of a second registration period beginning in July 2013 changed the pattern of car sales, with a 58% increase in car sales taking place in July 2013, the first month the new second registration period was introduced, over July 2012. This has smoothed car sales somewhat over the calendar year, improving cash flow in the motor trade. The pattern of car sales in recent years has led to a relative aging of private cars. In 2002, over 45% of licenced private cars were under four years old, while in 2013 18% of private cars were under four years old. However, the recent increase in new cars can be expected to address this issue over time.
- 7.4 In Budget 2013, the emissions bands were adjusted to increase the incentive to purchase less environmentally harmful motor cars and to increase revenue. These changes are set out below:

Old VRT Band	Old VRT Rate	New VRT Band	CO2 g/km	New VRT Rate
A	14%	A1	0-80	14%
		A2	81-100	15%
		A3	101-110	16%
		A4	111-120	17%
B	16%	B1	121-130	18%
		B2	131-140	19%
C	20%	C	141-155	23%
D	24%	D	156-170	27%
E	28%	E	171-190	30%
F	32%	F	191-225	34%
G	36%	G	Over 225	36%

STRUCTURAL REDUCTION IN VRT YIELDS

7.5 There has been marked shift towards lower CO2 emitting vehicles in recent years, as consumers have moved towards purchasing cleaner and cheaper motor cars, and car manufacturers have produced more fuel efficient motor vehicles. The table below indicates the percentage of new cars sold by CO2 emission. As of July 2014, 68.4% of new motor cars sold emitted between 0 and 120 CO2 g per kilometre, compared to 12.5% of motor cars sold in 2009.

CO2 g/km	2009	2010	2011	2012	CO2 g/km	2013	2014	2015
0-120	13.0%	35.4%	42.7%	54.6%	0-80	0.1%	0.3%	0.81%
					81-100	12.4%	19.4%	21.04%
					101-110	13.6%	20.4%	27.52%
					111-120	35.7%	28.3%	22.03%
121-140	44.7%	45.4%	48.0%	38.0%	121-130	17.6%	14.6%	13.89%
					131-140	14.8%	12.4%	10.44%
141-155	19.7%	10.1%	4.9%	3.9%	141-155	3.6%	2.9%	2.59%
156-170	13.4%	6.2%	2.6%	1.8%	156-170	0.9%	0.9%	0.93%
171-190	6.7%	2.0%	1.0%	1.0%	171-190	0.8%	0.4%	0.6%
191-225	2.0%	0.7%	0.6%	0.6%	191-225	0.3%	0.4%	0.14%
>225	0.4%	0.3%	0.2%	0.0%	Over 225	0.3%	0.3%	0.02%

7.6 EU Regulation 443/2009 (as amended) mandated average CO2 emissions targets for motor vehicle manufacturers that new cars do not emit more than an average of 130g CO2/km by 2015 and an average of 95g CO2/km by 2020/2021. These targets will further shift the new cars registered into the lower VRT bands, thus reducing VRT receipts. Accordingly, for a given steady level of car sales there is a structural reduction in VRT yield.

7.7 In addition to the need to reduce CO2 emissions, the current manufacturer tests, the New European Driving Cycle (NEDC), for CO2 and fuel consumption are due to be replaced by the newly developed Worldwide Harmonised Light Vehicles Test

Procedure (WLTP). The WLTP was developed to address the deviation between official laboratory and real-world fuel consumption and CO2 values.

- 7.8 Following a period of using both standards between September 2017 and the end of 2019 the WLTP is expected to be the sole standard beginning in 2020. The use of this different standard will likely require the current system of bands for VRT and motor tax in Ireland to be redrawn.

RELIEFS FOR LESS ENVIRONMENTALLY HARMFUL VEHICLES

- 7.9 Reliefs for hybrid electric vehicles were first introduced in the Finance Act 2001. At that time the relief amounted to 50 per cent of the VRT payable on such a vehicle. In Finance Acts 2006 and 2007, the 50 per cent relief was extended to flexible fuel vehicles, whose engines utilise a mix of ethanol and petrol, and to electric vehicles respectively. In concert with movement of VRT to a CO2 basis, the reliefs for hybrid electric, and flexible fuel vehicles (FFVs) were reduced in the Finance Act 2008, and electric motorcycles and vehicles were exempted from VRT. Reliefs of up to €2,500 were provided in respect of hybrid electric and flexible fuel vehicles. The Finance Act 2010 extended the relief to plug-in electric hybrid, to encourage their entry onto the Irish car market.
- 7.10 The Finance Act 2011 reduced the maximum relief available for flexible fuel vehicles and hybrid electric vehicles from €2,500 to €1,500, which recognised the reduction in price of those vehicles and that plug-in hybrid electric vehicles, which retained relief of up to €2,500, were less environmentally damaging. The VRT relief in respect of electric vehicles was also limited to a maximum of €5,000. In the Finance (No. 2) Act 2013 the relief for FFVs were phased out, as those type of vehicles were no longer available on the market. In Budget 2015, reliefs for electric, hybrid electric and plug-in hybrid electric vehicles were extended to 31 December 2016. The table below indicates the present reliefs, which will be in place until 31 December 2016:

Type of vehicle	Maximum Relief	Average CO2 emissions
Hybrid Electric Vehicles	€1,500	92g/km
Plug-in Hybrid Electric Vehicles	€2,500	50g/km
Electric Vehicles	€5,000	0g/km
Electric Motorcycles	Exempt	0g/km

- 7.11 The policy rationale for these reliefs has been historically to encourage the purchase of less environmentally harmful vehicles, with a view to reducing Ireland's transport-related greenhouse gas emissions. Relief is highest for those vehicles with no emissions. In October 2008, the Government outlined a target that 10% of all passenger vehicles would be electric by 2020. Under Directive 2009/28/EC ('the Renewable Energy Supply Directive') Ireland has a target that 10% of its transport energy will come from renewable sources by 2020.

7.12 To date, despite the relative generosity of the VRT relief for less environmentally harmful vehicles, and despite a Sustainable Energy Authority of Ireland (SEAI) grant of up to €5,000 there has been a limited uptake of electric vehicles, perhaps reflecting other bottlenecks such as until relatively recently the lack of infrastructure, and broader transport patterns in Ireland. As chart 1 shows, the cost of the relief peaked in 2008 before the relief for hybrids and FFVs was restricted. As of 2014, there were 8,607 licenced hybrid electric motor cars, 9,293 licenced flexible fuel motor cars and 529 licenced electric motor cars in Ireland, representing 0.44%, 0.48% and 0.03% of the total private cars respectively.

Chart 1. No. of less environmentally harmful motor cars sold (lhs) and total VRT foregone (rhs), 2001-2014

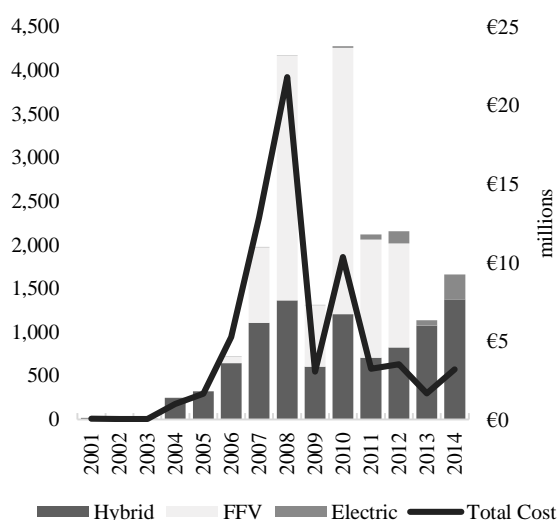
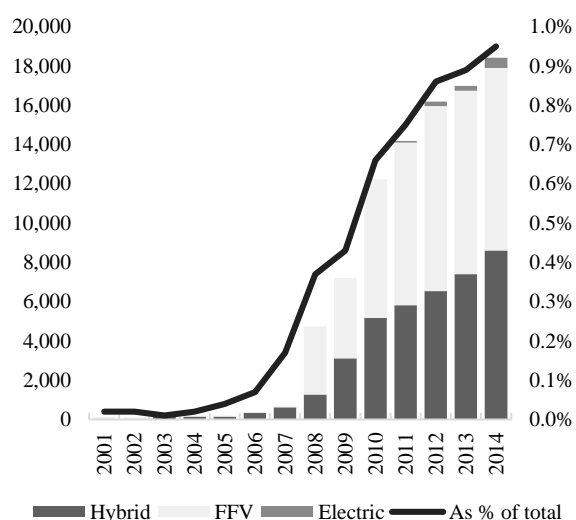


Chart 1. Number of less environmentally harmful motor cars licenced (lhs) and as % of total cars licenced (rhs), 2001-2014



Revenue Raising Options

7.13 SIMI have requested in their pre-Budget submission that there should be no increase in VRT in 2016.

7.14 It should be noted that as consumers move to lower CO₂ emitting vehicles, the VRT yield per motor car declines given the structure of the VRT rates. In terms of revenue raising options a 1% increase across all rate bands would have the following effect:

No. of new car sales	120,000	125,000	130,000	135,000
Additional yield	€30m	€31.3m	€32.5m	€33.8m

Part 8 – Commercial Motor Tax

8.1 Following the introduction of a Heavy Goods Vehicle levy in Northern Ireland hauliers' representatives have campaigned for a reduction in Commercial Vehicle Motor Tax to rebalance operational costs with their northern counterparts and prevent rebadging of vehicles in other States.

8.2 In July 2013, after a sustained campaign by the hauliers' representatives, a diesel rebate scheme was introduced at an estimated cost of €70m per annum. The rebates issued via the scheme in 2014 amounted to €22.6m.

8.3 In October 2014 the Minister gave a commitment to the IRHA (Irish Road Hauliers Association) to reduce Commercial Vehicle Motor Tax for vehicles over 12,000kgs in Budget 2016. The IRHA have proposed a revised banding which would reduce the 18 bands for vehicles over 3,000kgs to 2. The proposal suggests a €500 annual rate for vehicles between 3,001kgs and 12,000kg and a €900 annual rate for vehicles more than 12,000kgs. While decreasing the tax rate for the largest vehicles, as a counter balance the IRHA's proposal would increase the rate for 296,000 vehicles which is 91% of all commercial vehicles.

8.4 The overall cost of this measure would be €41.3m or 25% of commercial motor tax. If the IRHA suggestion was only applied to vehicles over 12,000kg it would cost €25m or 72.5% of the receipts for vehicles above 12,000kgs.

8.5 The cost of the HGV levy in the UK ranges from £85 to £1,000 per annum and this equates to €120 to €1,402 (as at 20/8/2015). The IRHA proposal would introduce a maximum motor tax rate of €900 for HGV's in the South and would reduce tax by €2,379 on average with savings ranging from €1,892 to €4,295 for vehicles over 12,000kg.

8.6 Returning to flat rates of motor tax on commercial vehicles could be viewed as an environmentally regressive measure as it removes the cost of the associated externalities and incentive to have less pollutant vehicles or lighter vehicles which cause less damage to the road network.

8.7 An alternative approach to reducing the commercial motor tax burden is to keep the current banding system and reduce the annual rate for each. Where the current tax rates were halved in all categories 12,001kgs or above and reduced the rate in 5% increments for vehicles from 3,001kgs to 12,000Kgs. This would lead to a 5% reduction for vehicles between 3,001Kgs and 4,000Kgs and vehicles between 11,001Kgs and 12,000Kgs would have the rate reduced by 45% with a 50% reduction for all vehicles over 12,000Kgs. Annex III sets out how this might work in practice. The cost of this measure would be €26.4m or 16% of the overall tax.

Annex I

Estimate of additional Revenue yield from an increase of €5 /Tonne CO2 in rate of 'Carbon Tax'

			VAT Exclusive	VAT Inclusive						
Fuel Type	Unit	Price	Carbon tax per unit	Carbon tax per unit	% price increase	Gross Carbon Tax	Exempt under ETS	Net Carbon Tax	VAT	Revenue yield VAT inc. € m
Auto-diesel	litre	1.339	0.0133	0.01636	1.22%	31.44*	0.0	31.44*	0.58*	32.02*
Petrol	litre	1.439	0.0114	0.01399	0.97%	14.08*	0.0	14.08*	3.13*	17.20*
Kerosene	k/litre	688	12.6426	14.3494	2.086%	10.83	0.0	10.83	1.46	12.29
Marked Gas Oil	k/litre	748	13.6361	15.4769	2.069%	13.60	0.06	13.54	0.73	14.28
LPG	k/litre	740	8.1075	9.2020	1.244%	1.87	0.02	1.85	0.20	2.05
Fuel Oil	k/litre	720	15.4077	17.4878	2.429%	0.44	0.41	0.02	0.00	0.02
Natural Gas	1 MWH	75	0.9097	1.0325	1.377%	48.78	34.19	14.58	1.18	15.77
Peat Briquette	Bale	4.6	0.1146	0.1301	2.828%	2.11	0.00	2.11	0.28	2.39
Coal	40kg	19	0.5268	0.5979	3.147%	30.82	25.49	5.33	0.65	5.98
Total						153.96	60.18	93.78	8.21	102.00

Estimate of additional Revenue yield from an increase of €10 /Tonne CO2 in rate of 'Carbon Tax'

			VAT Exclusive	VAT Inclusive						
Fuel Type	Unit	Price	Carbon tax per unit	Carbon tax per unit	% price increase	Gross Carbon Tax	Exempt under ETS	Net Carbon Tax	VAT	Revenue yield VAT inc. € m
Auto- diesel	litre	1.339	0.0266	0.03273	2.44%	62.58*	0.0	62.58*	1.16*	63.74*
Petrol	litre	1.439	0.0228	0.02799	1.94%	28.08*	0.0	28.08*	6.03*	34.11*
Kerosene	k/litre	688	25.2852	28.6987	4.171%	21.66	0.0	21.66	2.92	24.59
Marked Gas Oil	k/litre	748	27.2721	30.9539	4.138%	27.20	0.12	27.09	1.46	28.55
LPG	k/litre	740	16.2150	18.4041	2.487%	3.74	0.04	3.70	0.40	4.10
Fuel Oil	k/litre	720	30.8155	34.9756	4.858%	0.87	0.83	0.04	0.00	0.04
Natural Gas	1 MWH	75	1.8194	2.0650	2.753%	97.55	68.38	29.17	2.36	31.53
Peat Briquette	Bale	4.6	0.2292	0.2601	5.655%	4.22	0.00	4.22	0.57	4.79
Coal	40kg	19	1.0535	1.1958	6.294%	61.65	50.99	10.66	1.29	11.95
Total						307.56	120.36	187.20	16.20	203.40

* Elasticities applied to calculations relating to auto-fuels

Annex II

Comparison of Excise Tax Rates for Petrol and Diesel in EU Member States

Unleaded petrol			Diesel	
Member State	€ per 1,000 Litres		Member State	€ per 1,000 Litres
UK *	794.92	1	UK *	794.92
Netherlands	766.07	2	Italy	617.40
Italy	728.40	3	Sweden	555.47
Finland	681.30	4	Finland	506.10
Greece	670.00	5	Netherlands	482.06
Germany	654.50	6	Ireland	479.02
Sweden	643.34	7	Germany	470.40
France	624.10	8	France	468.20
Portugal	617.51	9	Slovenia	454.91
Belgium	615.23	10	Cyprus	450.00
Denmark	607.90	11	Romania	430.25
Ireland	587.71	12	Belgium	428.84
Slovenia	527.53	13	Malta	422.40
Malta	519.38	14	Denmark	413.77
Slovakia	514.50	15	Portugal	402.01
Croatia	505.07	16	Croatia	400.39
Austria	482.00	17	Czech Republic	398.15
Cyprus	479.00	18	Austria	397.00
Czech Republic	466.88	19	Estonia	392.92
Luxembourg	462.09	20	Slovakia	386.40
Romania	461.62	21	Hungary	365.95
Lithuania	434.43	22	Poland	348.93
Spain	424.69	23	Luxembourg	335.00
Estonia	422.77	24	Latvia	332.95
Latvia	411.21	25	Spain	331.00
Poland	399.24	26	Lithuania	330.17
Hungary	397.36	27	Greece	330.00
Bulgaria	363.02	28	Bulgaria	329.79
EU Average (28)	545.06		EU Average (28)	430.51
EU Average (15)	623.98		EU Average (15)	467.41
EU minimum Rate	359.00		EU Minimum Rate	330.00
* UK Exchange Rate taken as €1 = £0.72900 GBP (25/08/2015)				
Source EU Commission Excise Tables – July 2015				

Annex III

Unladen weight (kg)	Number of vehicles	Current annual rate of tax (€)	Annual income (€)	IRHA Proposal	Alternative Option
Not Over 3,000	292,435	333	97,380,855	337	333
3,001 to 4,000	3,810	420	1,600,200	500	399
4,001 to 5,000	3,261	543	1,770,723	500	488.7
5,001 to 6,000	2,243	753	1,688,979	500	640.05
6,001 to 7,000	1,405	1,019	1,431,695	500	815
7,001 to 8,000	1,743	1,282	2,234,526	500	962
8,001 to 9,000	2,228	1,584	3,529,152	500	1,109
9,001 to 10,000	1,708	1,886	3,221,288	500	1,226
10,001 to 11,000	2,192	2,188	4,796,096	500	1,313
11,001 to 12,000	3,194	2,490	7,953,060	500	1,370
12,001 to 13,000	3,302	2,792	9,219,184	900	1,396
13,001 to 14,000	2,842	3,094	8,793,148	900	1,547
14,001 to 15,000	2,027	3,396	6,883,692	900	1,698
15,001 to 16,000	1,026	3,698	3,794,148	900	1,849
16,001 to 17,000	612	4,000	2,448,000	900	2,000
17,001 to 18,000	383	4,302	1,647,666	900	2,151
18,001 to 19,000	129	4,604	593,916	900	2,302
19,001 to 20,000	46	4,906	225,676	900	2,453
20,001 or more	205	5,195	1,064,975	900	2,598
Total	324,791		160,276,979	40,041,984	26,374,114