

## Energy & Environmental Taxes

### **Background**

1. The 2007 Programme for Government states that “appropriate fiscal instruments, including a carbon levy will be phased in on a revenue neutral basis over the lifetime of the Government”. The Commission on Taxation was then asked to “investigate fiscal measures to protect and enhance the environment including the introduction of a carbon tax”. Their recommendations in relation to each of the carbon tax components are summarised in Annex I.
2. The Revised Programme for Government states that the principles underlying the carbon levy should be
  - i. those most at risk of fuel poverty should be protected
  - ii. improving the fuel efficiency of current housing stock
  - iii. the relative tax burden on labour be reduced.
3. This paper concentrates on the core issues to be addressed; they are:
  - Identifying clearly the areas to which a carbon tax will apply
  - Highlighting areas where the carbon tax will not apply and on what basis
  - The level of the carbon tax
  - Cross-border implications of a carbon tax
  - The implementation timeline
  - Assessing the ‘fuel poverty’ implications and options to address them
  - Use of Revenues from a carbon tax.
4. Before addressing each of the points set out above it is worth emphasising the rationale for the move towards carbon taxation. The inability to deal with the growing problem of climate change has been cited as a major market failure. If the market worked efficiently it would price in to the cost of fuels and goods the long-term risks associated with climate change thus leading to appropriate behavioural change. It follows that a carbon pricing policy is needed so that, through taxation, emissions trading or regulation, people are faced with the full social costs of their actions.
5. In December 2008, the EU agreed a set of legally binding obligations for the Member States in respect of greenhouse gas emissions. In regard to the EU Emissions Trading Scheme (ETS) which covers energy-intensive industry, the overall EU cap on emissions is to be reduced by 21% from the 2005 base which will lead to fewer permits being available. For the sectors that fall outside the ETS (which includes agriculture and transport) each Member State has been given a legally binding target. In Ireland’s case we have a 20% reduction target from a 2005 base. This target could be increased on foot of a global deal in Copenhagen at the UN Climate Change conference in December, aimed at creating a successor to the Kyoto protocol.

6. Designing policy measures to meet ambitious targets will prove challenging. However, while it is generally accepted that a carbon tax should be at the forefront of Ireland's policy approach in this area, it is also acknowledged that a carbon tax is likely only to have a limited impact on emissions.

### **Applicability of a Carbon Tax**

7. The carbon tax would apply to all fossil fuels relative to their CO<sub>2</sub> emission levels, that is petrol, auto-diesel, kerosene, Marked Gas Oil, Liquid Petroleum Gas (LPG), fuel oil, natural gas, coal and peat. To whom the carbon tax will apply will have implications on both the effectiveness of the tax as an environmental initiative *and* the revenue yield. While the underlying principle of carbon taxation is that "the tax should apply to energy products released for consumption in Ireland", the Commission on Taxation recommended that a carbon tax should "not apply to EU Emissions Trading Scheme (ETS) participants" and that "certain exemptions may apply in relation to businesses with legally binding negotiated agreements to reduce emissions".
8. The exemption of firms that fall within the EU ETS from a carbon tax is consistent with views expressed by the European Commission, the ESRI, the Department of Finance and the OECD. These firms should be exempted because they are already motivated through the ETS to move towards low carbon production processes. Consequently large scale industrial installations and power plants will be outside the remit of a carbon tax. At consumer level it will mean that a carbon tax will not impact on electricity prices.
9. Of course, thousands of businesses in Ireland are outside the ETS, largely because they are far more likely to be involved in the provision of a range of services or light industrial processes rather than heavy industry. The Commission on Taxation expressed the view that companies with legally binding action and/or target-based emission reduction agreement with SEI should be accommodated, i.e. exempted from the carbon tax. Currently engagement by sectors or companies with SEI is on a voluntary basis.
10. There is some evidence internationally that negotiated agreements can be successful in driving down emissions within a sector. However, reservations are also expressed about legislating for an exemption here. There has been considerable engagement by SEI with all strands of the economy about energy efficiency. Businesses are generally aware and in light of financial pressures are likely to be implementing such measures where possible. There are also concerns, on an equity front, that expanding exemptions to business sectors would in time result in a carbon tax that was predominantly payable by households.
11. In addition, the OECD, on this subject has stated that "such agreements tend not to bring any environmental improvements beyond what would happen in any case". In other

words, businesses know much more about their future emissions than public authorities do. The ESRI is also opposed to exemption for businesses other than those in the ETS.

### **The level of the Carbon Tax**

12. The Commission on Taxation recommended that “the tax rate should approximate the permit price under the EU ETS. This should be established annually on a recognised market place for trading carbon credits. A floor price, below which the tax rate should not fall, is also appropriate.” The Commission then goes on to recommend that “any phasing in of the tax rate should depend on the scale of the price”.
13. The Commission on Taxation based on estimates from the ESRI suggest that a carbon tax of €20 per tonne would raise revenues of some €550m in 2010. The Department’s view is that while the gross yield from a carbon tax of €20 per tonne would be around €850m, when firms subject to the ETS are exempted the yield is reduced by some €380 and would be around €470m in a full year. If other exemptions are allowed then the yield would decline further.
14. Potential rates for a carbon tax are set out in the Table below and in Annex II with an estimated impact the rate will have on the price of those products affected and the potential revenue yields that may accrue. It is assumed that those businesses that participate in the EU ETS will be exempt from the tax and this is reflected in the estimated yields.
15. Tables I look at the impact of a carbon tax rate of €20, while Annex II also includes a carbon tax rate of €15 and €10. In recognition of the high price impacts on some of the non-transport fuels, Annex II, in the final column, looks at the impact of a carbon tax rate of €15 for transport fuels and €10 for non-transport fuels.

**Table I - Carbon Tax rate of €20 for all fuels**

Fuel Type	Unit	Price	Carbon Tax @ €20 / tonne CO2 (VAT incl.)	% price increase	Gross Carbon Tax	Exempt Under ETS	Net Carbon Tax	Revenue Yield VAT incl. € m
<b>Auto-diesel</b>	litre	1.049	6.5 cents	6.2%	135.0	0.0	135.0	137.9
<b>Petrol</b>	litre	1.149	5.6 cents	4.8%	93.1	0.0	93.1	113.1
<b>Kerosene</b>	1,000 L	536.5	€57.52	10.7%	64.0	8.7	55.3	62.8
<b>Marked Gas Oil</b>	1,000 L	563.76	€62.49	11.1%	64.1	9.6	54.5	57.4
<b>LPG</b>	1,000 L	720.00	€37.29	5.2%	8.0	3.5	4.5	5.4
<b>Fuel Oil</b>	1,000 L	600.00	€69.54	11.6%	29.4	29.0	0.4	0.4
<b>Natural Gas</b>	13,750 kWh <sup>1</sup>	800.00	€63.80	7.9%	237.2	178.9	58.3	63.0
<b>Peat Briquette</b>	Bale	3.85	52 cents	13.5%	8.0	0.0	8.0	9.0
<b>Peat Milled</b>	Tonne		€19.72		50.6	50.6	0.0	0.0
<b>Coal</b>	40kg	16.20	€2.39	14.8%	113.1	92.7	20.4	22.8
<b>Totals</b>					<b>802.4</b>	<b>373.0</b>	<b>429.4</b>	<b>471.8</b>
<i>1. Elasticities not applied to revenue yield calculations</i>								
<i>2. Natural gas consumption figure from Bord Gais annual report 2008</i>								
<i>3. Peat consumption figures from Bord na Móna 2008/2009 annual report</i>								
<i>4. Coal consumption figure from SEI Provisional Energy Balance 2008</i>								

### **Cross-Border Implications of a Carbon Tax**

16. While there has been much attention in the last year or so of North-South price differentials and how these and the fall in Sterling have motivated shoppers to head North, the situation with fuels is somewhat different. The UK, over the past ten years or more, has adopted a policy approach of high excise rates on transport fuels (now having the highest excise rates in the EU, considerably so in the case of diesel). Lower excise taxes in the South brought considerable business here with estimates of between 5% and 9% of petrol, and 17% in diesel, being purchased in the State but used out of State. These fuel purchases are reported in the inventory of transport emissions for the State.

<sup>1</sup> 13,750 kw hours is taken as the average annual bill for households

17. Recent price differentials have narrowed significantly given Excise increases in petrol (8 cent) and diesel (5 cent) in the last two Budgets and the weakness of Sterling. The table below shows that petrol prices are broadly the same with diesel around 10 cents cheaper per litre in the State. A carbon tax of €20, given current exchange rates, will lead to petrol 6 cents per litre cheaper in Northern Ireland and diesel around 5 cents cheaper in the State.

**Cross Border Comparisons (Rates in €)**

Product	ROI Price	N.I. Price	Price Differential	ROI Excise	N.I. Excise	Excise Differential
<b>Petrol (litre)</b>	1.149	1.148	+0.001	0.51	0.61	-0.10
<b>Auto- diesel (litre)</b>	1.049	1.155	-0.106	0.41	0.61	-0.20

18. It is also worth recalling that Excise on home heating oil kerosene was halved in Budget 06 and subsequently reduced to zero in Budget 07. This was in response to cross-border excise differentials (zero rate in UK) leading to consumers sourcing supplies from outside the jurisdiction.

**Implementation Timeline**

19. The price increases arising from the introduction of a carbon tax could be implemented on Budget night by way of excise duty increases on products already subject to excise e.g. petrol, auto-diesel, MGO, Kerosene and LPG, with the necessary legislation underpinning this charge to follow in the Finance Bill. Those products not within the excise regime presently are natural gas, peat and effectively coal, so the carbon tax could only be introduced on them when the Finance Bill has been enacted.
20. Essentially there are broadly three options. One option might be to implement transport fuel increases from Budget night but have a post-winter implementation date for all non-transport fuels. Obviously this would have an impact on the yield (55% of yield is from petrol and diesel) but a lead-in time would allow consumers to examine possible choices and a fuller examination of how best to address fuel poverty implications. A second option involves all products being increased on Budget night (with the exception of peat, natural gas and coal) with simultaneous Budget increases in the National Fuel Scheme to address fuel poverty. A third option is to defer any increases, and the introduction of a carbon tax until mid year (July) 2010, when it could be brought in for all fuels together.

## Fuel Poverty

21. One of the key issues is the extent to which a carbon tax exacerbates problems surrounding fuel poverty. Households are deemed to be in fuel poverty when energy bills are more than 10% of income and around one in seven households are in this position according to the Combat Poverty Agency. In a recent paper published by the ESRI, *The Distributional Impact of a Carbon Tax in Ireland*, the pattern of direct energy consumption is virtually flat across income distribution. In other words, households with varying amounts of disposable income tend to spend similar amounts on heating and household appliances etc. Therefore, if the cost of energy was to increase through the introduction of a carbon tax, a household with less disposable income would be disproportionately affected compared to a household with higher disposable income.
22. Appropriate measures through existing mechanisms such as the National Fuel Scheme may need to be considered depending on the level of a carbon tax that is introduced. The National Fuel Scheme is intended to help households that depend on long-term social welfare or Health Service Executive payments and are unable to provide for their own heating needs. A household may receive only one Fuel Allowance.
23. The present weekly rate of the fuel allowance is €20 payable for thirty two weeks from September to April each year. The rate was last increased by €2 from €18 to €20 and the number of weeks under which the payment is made was extended to 32 weeks from 30 in Budget 2009.
24. The payment is mainly made to means tested social welfare payments for retired people (non-contributory pension) and people of working age (long term social welfare recipients, disability allowance, blind pension, farm assist, one parent family payment). The means test is based on household income and not the income of individual recipients.
25. The cost of the scheme in 2008 was €176m approximately with 300,000 households receiving the weekly payment, a rise of 1.4% over 2007. It is estimated that the cost of the scheme will be circa €207 million in 2009 and up to €220 million in 2010.
26. The introduction of a carbon tax will, if all social welfare customers in receipt of some form of fuel subsidy are compensated in full could have significant consequences for social welfare expenditure in this area. This is an important issue given the need to effect general reductions in Exchequer expenditure. Careful analysis will be required to determine the level of any compensation and who should receive such compensation.
27. On the basis that those in receipt of the National Fuel Scheme are regarded as those being affected by fuel poverty, compensation for the increase in home heating fuels

would cost in the region of €45m<sup>2</sup>. However, rather than continue reliance on such fuels, some consideration might be given as to how this 'compensation' could be delivered. Redirecting compensation to support even small scale energy efficient investments in households is an option. This would deliver more long term gains for the household; enhancing energy efficiency in the housing stock increases disposable income and should reduce our considerable level of dependency on imported energy.

### **Use of Revenues from a Carbon Tax**

28. The commitment in the 2007 Government programme is that the carbon tax would be revenue neutral i.e. no net gain to the Exchequer. The revenue will be "recycled" to address some issues such as fuel poverty and its economic implications. The Commission on Taxation has recommended that revenue "should be used, in the first instance to combat fuel poverty" and this is also cited in the revised Programme for Government. Furthermore, the Commission has stated that it would be appropriate that revenues from a carbon tax might be recycled to fund energy efficiency incentives for business, noting that competitiveness issues are very important. In this regard the Commission has stated that "at a more general level, the availability of carbon taxation revenues to fund lowering of direct taxes to improve competitiveness and lessen the labour tax wedge is a valuable tool".
29. On a separate issue, the Commission on Taxation raised the issue of collection arrangements for Excise on fuels. The current arrangements require fuel suppliers to pay Excise to Revenue once the products are released for consumption although there is generally a time lag until payment for this fuel is made to the suppliers. In the event that fuel suppliers use the introduction of a carbon tax to seek speedier payments from companies and sectors to which fuel is supplied, this will result in cash flow implications.

---

<sup>2</sup> The basis for this estimate is as follows: compensation would only apply to the yield from home heating fuels; this would be €220m under a €20 tonne carbon tax; approximately one fifth of households are receiving assistance through the National Fuel Scheme so using that as a proxy would assume compensatory increases amounting to €45m

**Commission on Taxation – Rationale behind each component of a carbon tax**

*[1] Carbon tax should be charged on a standardised measure of the carbon dioxide content of the energy product; the measurement factors that are used should accord with international norms.*

*[2] The tax should apply to energy products released for consumption in Ireland.*

*[3] The tax rate should approximate the permit price under the EU ETS. This should be established annually on a recognised market place for trading carbon credits. A floor price, below which the tax should not fall, is also appropriate.*

*[4] Any phasing in of the tax rate should depend on the scale of the price.*

*[5] The tax should be collected at the earliest point of supply. It should be clearly visible at the point of final consumption.*

*[6] In general, there should be no preferential rates of carbon tax, although certain exceptions may apply in relation to businesses with legally binding negotiated agreements to reduce emissions.*

*[7] Carbon tax should not apply to EU ETS participants, nor should tax be imposed at this time on such participants in respect of the gains they made from the free allocation of permits.*

*[8] Administration rules for the new carbon tax should fit in with existing tax provisions wherever practicable.*



## PRICE IMPACT AND YIELD FROM CARBON TAXES AT VARIOUS RATES

Fuel Type	Unit	Price	Carbon tax @ €20 per tonne			Carbon tax @€15 per tonne			Carbon tax @ €10 per tonne			'Hybrid option'		
			Carbon Tax@ €20	% increase in price	Revenue (VAT incl.) €m	Carbon Tax@ €15	% increase in price	Revenue (VAT incl.) €m	Carbon Tax@ €10	% increase in price	Revenue (VAT incl.) €m	Carbon Tax@ €15	% increase in price	Revenue (VAT incl.) €m
Auto-diesel	litre	1.149	6.5cents	6.2%	137.9	4.9 cents	4.6%	103.4	3.2cents	3.10%	68.9	4.9 cents	4.6%	103.4
Petrol	litre	1.049	5.6 cents	4.8%	113.1	4.2 cents	3.6	84.8	2.8 cents	2.40%	56.5	4.2 cents	3.6%	84.8
<b>Kerosene</b>	1,000L	536.5	€57.52	10.7%	62.8	€43.14	8.0%	47.1	€28.76	5.40%	31.4	€28.76	5.4%	31.4
<b>Marked Gas Oil</b>	1,000L	563.76	€62.49	11.1%	57.4	€46.87	8.3%	43.0	€31.24	5.50%	28.7	€31.24	5.5%	28.7
<b>LPG</b>	1,000L	720	€37.29	5.2%	5.4	€27.97	3.9%	4.0	€18.64	2.60%	2.7	€18.64	2.6%	2.7
<b>Fuel Oil</b>	1,000L	600	€69.54	11.6%	0.4	€52.15	8.7%	0.3	€34.77	5.80%	0.2	€34.77	5.8%	0.2
<b>Natural Gas</b>	13,750 kWh <sup>3</sup>	800	€63.80	7.9%	63.0	€47.85	6.0%	47.2	€31.90	3.9%	31.5	€31.90	3.9%	31.5
<b>Peat Briquette</b>	Bale	3.85	52 cents	13.5%	9.0	39 cents	10.1%	6.8	26 cents	6.80%	4.5	26 cents	6.8%	4.5
<b>Peat Milled</b>	Tonne		€19.72	0	0.0	€14.79		0.0	€9.86		0.0	€9.86		0.0
<b>Coal</b>	40kg	16.2	€2.39	14.8%	22.8	€1.79	11.1%	17.1	€1.20	7.40%	11.4	€1.20	7.4%	11.4
<b>Totals</b>					<b>471.8</b>			<b>353.7</b>			<b>235.8</b>			<b>298.6</b>

<sup>3</sup> 13,750 kw hours is taken as the average annual bill for households

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

#### Unleaded Petrol

Member State	€ per 1,000 Litres
Netherlands	700.68
Germany	654.50
Finland	627.00
Belgium	613.57
France	606.90
UK*	592.47
Portugal	582.95
Sweden	567.50
Italy	564.00
Denmark	561.23
Slovakia	514.50
<b>Ireland</b>	<b>508.79</b>
Poland	488.19
Czech Rep	483.10
Austria	475.00
Luxembourg	462.09
Slovenia	462.05
Malta	459.38
Hungary	451.06
Lithuania	434.43
Spain	424.69
Estonia	398.04
Latvia	379.35
Greece	359.00
Bulgaria	350.24
Romania	335.72
Cyprus	298.66
EU Average	<b>494.63</b>
EU Average (15 older)	<b>553.36</b>
<b>EU Minimum Rate 359</b>	

#### Diesel

Member State	€ per 1,000 Litres
1 UK	592.47
2 Slovakia	481.31
3 Germany	470.04
4 Sweden	446.09
5 Slovenia	433.33
6 France	428.40
7 Italy	423.00
8 Netherlands	413.22
9 <b>Ireland</b>	<b>409.20</b>
10 Czech Rep	405.91
11 Denmark	382.02
12 Austria	375.00
13 Hungary	374.50
14 Estonia	369.86
15 Portugal	364.41
16 Finland	364.00
17 Belgium	352.89
18 Malta	352.40
19 Poland	338.86
20 Spain	331.00
21 Lithuania	330.17
22 Latvia	330.00
23 Bulgaria	306.78
24 Luxembourg	302.00
25 Greece	302.00
26 Romania	283.92
27 Cyprus	245.00
EU Average	<b>378.07</b>
EU Average (15 older)	<b>397.05</b>
<b>EU Minimum Rate 302</b>	

Source: EU Excise Duty Table July 2009

\* UK Exchange Rate taken as €1 = £0.9147 (15 October 2009)