

**Chapter 19 Department of the Environment,  
Heritage and Local Government**

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**Investment in Carbon Credits**



## Investment in Carbon Credits

19.1 The Kyoto Protocol has set mandatory limits on greenhouse gas (GHG) emissions for those states that have adopted it. The overall objective is to reduce emissions in the period 2008-2012 to a level that is on average 5% less than the 1990 level. On foot of these commitments, the EU 15<sup>65</sup>, including Ireland, agreed to reduce emissions by 8%, and under a burden sharing agreement each member state was allocated a specific emissions limit decided by the EU Environment Council on 16 June 1998. Ireland's target is to achieve emissions that are no more than 13% above 1990 levels by 31 December 2012.

19.2 For the purposes of this report, a Kyoto Unit is used to quantify emissions. A Kyoto Unit is defined in the Carbon Fund Act, 2007 as a unit, equivalent to one metric tonne of carbon dioxide.

19.3 Units of measurement for the purpose of emission monitoring and trading are variously described in EU and UN documents. However, they are all equivalent to Kyoto Units as defined in the 2007 Act. The various units are outlined in Annex A to this Chapter.

## National Allocation Plan

19.4 Ireland's emissions limit in relation to the Kyoto Protocol has been set at 314.18 million units for the entire five-year period 2008 – 2012. This equates to an average of 62.8 million units per annum over the period (i.e. 13% above the baseline<sup>66</sup>). Responsibility for achieving this target has been divided between the trading sector and government.

19.5 The basis on which responsibility is shared is set out in a National Allocation Plan (NAP). Ireland's NAP was prepared by the Environmental Protection Agency (EPA) on foot of directions from Government and determined how the emissions permits would be allocated for the period 2008–2012.

19.6 The estimated credits acquired or to be acquired by the State in the 2008-2012 period is 8.3 million.

19.7 The allocation in Ireland took account of the fact that approximately 33% of emissions were generated by the sectors of industry that would engage in the emissions trading scheme while 67% of emissions came from the 'non-trading' sectors of the economy. The obligation fell on the State to make purchases on behalf of those in the non-trading sector to address any potential shortfall in achievement of targets. In particular, it assumed responsibility for the purchase of units to cover emissions from transport, agriculture and the residential sector.

19.8 The allocation to the trading sector in the period 2008-2012 was determined by Government and was set at 22.3 million units per annum. Hence, in respect of the sectors for which the State is responsible, the effective Kyoto limit on emissions for each year in the commitment period is 40.5 million units. Figure 70 sets out how the target is shared between the State and the trading sector over the period to 31 December 2012.

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<sup>65</sup> The EU 15 were the states that comprised the EU in 1998.

<sup>66</sup> The baseline was fixed at 55.6 million units following review by the United Nations Framework Convention on Climate Change in 2006.

**Figure 70 Target Shares – Total Emissions 2008–2012**

Sector	Annual Kyoto Units (Millions)	Cumulative Kyoto Units (Millions)
Trading	22.3	111.6
State	40.5	202.6
<b>National Kyoto Protocol Ceiling</b>	<b>62.8</b>	<b>314.2</b>

19.9 In October 2003, the EU approved a Directive (2003/87/EC) establishing a GHG emissions trading scheme. Under the scheme member states would allocate units to the trading sector. The holder of each unit had the right to emit the equivalent of one metric tonne of carbon dioxide. The amount of units allocated to each emitter in the scheme is set out in NAPs prepared by the Member States and approved by the European Commission. Unused allocations may be traded by entities in that sector.

## State Purchases of Carbon Credits

19.10 Because Ireland's output of GHGs was projected to exceed the Kyoto Protocol limits, the State commenced purchasing carbon credits<sup>67</sup> to cover the projected excess after taking account of the projected contribution of abatement measures. A Carbon Fund was established to record the transactions.

### Department Investments

19.11 Prior to the establishment of the Carbon Fund in April 2007, the Department of Environment, Heritage and Local Government (the Department) had already entered into commitments with the European Bank for Reconstruction and Development (EBRD) and the World Bank. Under these arrangements the Department initially paid €20 million into an escrow account with the EBRD in December 2006, and subsequently invested in a Multilateral Carbon Credit Fund. Later, it committed to further investments in two other funds. Based on projections at the time, the Government allocated a budget of €90 million over five years to acquire units, including the €20 million that had been invested, up to that point, by the Department in the EBRD Multilateral Carbon Credit Fund. Figure 71 outlines the 2006 investments by the Department.

**Figure 71 Carbon Credits Purchased by Department**

Vendor	Cost	Paid to 31 December 2008	Outstanding Obligation at 31 December 2008
	€m	€m	€m
EBRD Multilateral Carbon Credit Fund	20	20	0
World Bank Carbon Fund for Europe	10	2.2	7.8
World Bank Bio Carbon Fund	9.3	1.5	7.8
<b>Total</b>	<b>39.3</b>	<b>23.7</b>	<b>15.6</b>

19.12 While the Department retains responsibility for general management of these investments, the NTMA administer the payments on its behalf.

<sup>67</sup> A carbon credit is equivalent to a Kyoto Unit.

19.13 At this stage, no value can be attributed to the investment by the Department in 2006 as the actual number of units that the funds will deliver and their final unit price are not yet known. However, based on risk-adjusted projections from the fund managers in the World Bank and the EBRD, the Department expects that these funds taken together will yield some three million units at an estimated cost of €9.30 per unit.

### **NTMA Investments**

19.14 From 2007 onwards, all transactions and associated fund management was handled by the NTMA and processed through the Carbon Fund. The NTMA is reimbursed by the Department out of voted funds. The NTMA policy is to purchase units where feasible at no more than an average unit purchase price of €16.07 before VAT between 2008 and 2012<sup>68</sup>.

19.15 The NTMA has discretion as to what type of unit to invest in and the timing of investment once it stays within its annual budget.

19.16 The NTMA could use the following mechanisms to purchase Kyoto Units

- Direct purchase of Kyoto Units from other Kyoto Protocol parties
- Direct investment in Joint Implementation and Clean Development Mechanism projects<sup>69</sup>
- Investment in managed funds
- Direct market purchases of carbon credits.

19.17 The Fund made its first investments in 2008. To manage the risks identified in purchasing Kyoto Units, the NTMA adopted the following procedures

- Units would be purchased from a limited number of counterparties, typically large banks and specialist firms dealing in carbon credits.
- The interim between transaction and settlement dates would, in general, be minimised to manage any risks related to settlement and counterparty failure.

19.18 Up to end February 2009<sup>70</sup> the NTMA had contracted to pay €3.7 million (exclusive of VAT) for 5.255 million Kyoto Units at an average price of €4.03 per unit. The price per unit at 31 December 2008 on the European Climate Exchange CER Future Market was €3.64, which values Ireland's Kyoto Units at €1.7 million at that date.

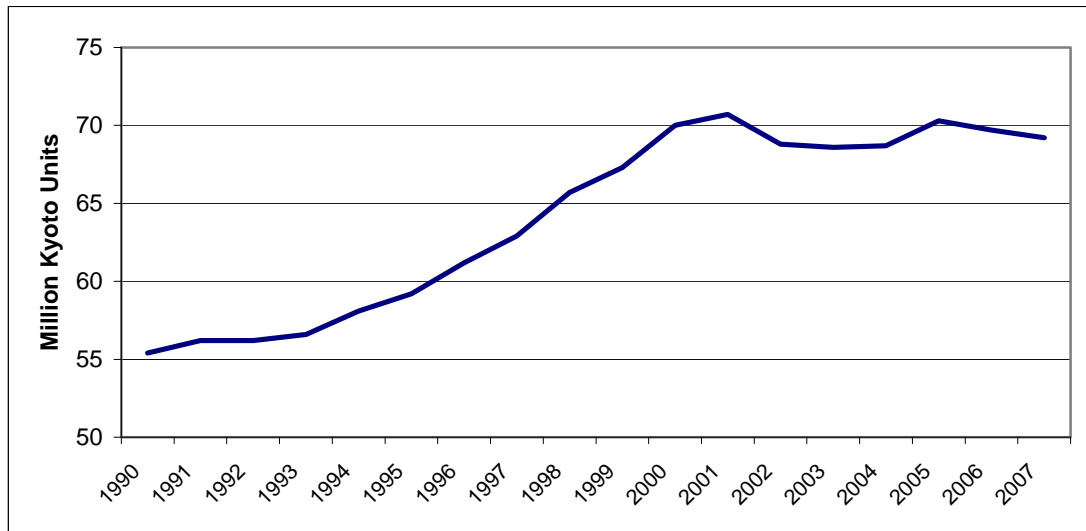
### **Matching Excess Emissions with Purchase of Credits**

19.19 For 2007 Ireland has reported total GHG emissions of 69.2 million units. This exceeded the annual target to be achieved in the 2008-2012 period by 6.4 million units. The trend since 1990 is set out in Figure 72.

<sup>68</sup> The unit target price is the €290 million allocated to the Fund divided by the 18.035 million units that were originally calculated as the States' additional requirement for the period 2008-2012 (see Figure 73).

<sup>69</sup> See Annex A for definition.

<sup>70</sup> The point where a direction to cease purchases was given by the Minister.

**Figure 72 GHG Emissions 1990-2007**

Source: EPA Report, Ireland's GHG Emissions in 2007

19.20 Overall national planning in 2006/7 was based on a projected overshoot of the Kyoto obligations by 7.2 million units per annum or 36 million units over the five year period. It was planned to address this through a combination of abatement measures and purchases of units.

19.21 Figure 73 sets out how the projected excess emissions of 36 million tonnes of carbon dioxide equivalent as foreseen in 2006/7 was to be managed over the commitment period 2008–2012.

**Figure 73 Cumulative Measures 2008-2012**

	Abatement Kyoto Units (Millions)	Purchase Kyoto Units (Millions)
Trading Sector	5.0	10.5
Other Sectors (State <sup>a</sup> )	2.5	18.0
<b>Total</b>	<b>7.5</b>	<b>28.5</b>

Note:

a The State assumed the national obligation for all other sectors.

## Revised Projections

19.22 Following the economic downturn being experienced since the second half of 2008, the EPA revised these projections in March 2009. It set out three scenarios and projected potential emissions under each in the period 2008–2012. Under all scenarios, the trading sector would meet its target. The three scenarios are outlined in Figure 74.

**Figure 74 Three Scenarios and Projected Potential Emissions under each 2008-2012**

<b>Scenario One</b>	Takes account of anticipated impacts of measures that were in place (and legislatively provided for) by end 2007.
<b>Scenario Two</b>	Factors in existing and future measures, assumes all measures will be adopted and fully implemented on time, and all relevant measures will achieve the full emissions reductions anticipated (includes measures outlined in the Energy White Paper and the National Energy Efficiency Action Plan).
<b>Scenario Three<sup>a</sup></b>	Took account of the impact of the economic downturn.

Note:

- a Scenario 3 is considered to be the most likely outcome because it takes account of the impact of the economic downturn.

19.23 Figure 75 sets out the extent to which emissions will exceed or fall short of the Kyoto limits under each scenario.

**Figure 75 Summary of EPA Scenarios (million Kyoto units per annum)**

	<b>Scenario 1</b>		<b>Scenario 2</b>		<b>Scenario 3<sup>a</sup></b>	
	<b>Kyoto Units</b>		<b>Kyoto Units</b>		<b>Kyoto Units</b>	
Kyoto Target	62.8		62.8		62.8	
Revised Projections:						
Trading Sector <sup>b</sup>	19.6		17.6		16.6	
Non-Trading Sector <sup>c</sup>	45.8	65.4	44.2	61.8	41.8-42.3	58.4-58.9
<b>National Excess (Reduction)</b>	<b>2.6</b>		<b>(1)</b>		<b>(4.4)-(3.9)</b>	

Notes:

- a EPA provided a range for Scenario 3 to account for some degree of uncertainty in the impact of the economic downturn over the entire Kyoto period (2008-2012).
- b As set out in Figure 70 the trading sector ceiling was 22.3 million Kyoto Units per annum.
- c Includes impact of *forest sinks* as permitted under Article 3 of the Kyoto Protocol.

19.24 While nationally only a small excess or, under the most likely scenario, a reduction is being projected the benefit of this may not be available to the State since reductions do not accrue proportionately to the State and trading sectors. Excess Kyoto units, as a result of reductions in the trading sector, are available for sale under the EU Emissions Trading Scheme.

19.25 The revised projections have implications for the level of investment which it may be necessary for the State to make in fulfilment of its Kyoto obligations. Figure 76 sets out the implications of the projected excess or reduction for national funding related to the non-trading sector (the sector for which the State is responsible).

**Figure 76 Implications for Carbon Credit Investment (million Kyoto units per annum)**

	Scenario 1 Kyoto Units	Scenario 2 Kyoto Units	Scenario 3 Kyoto Units
Non-Trading Sector Projected Emissions	45.8	44.2	41.8-42.3
National Target (Non-Trading Sector)	<u>40.5</u>	<u>40.5</u>	<u>40.5</u>
Annual Exchequer Requirement	5.3	3.7	1.3-1.8
<b>Exchequer Requirement 2008-2012</b>	<b>26.5</b>	<b>18.5</b>	<b>6.5-9.0</b>

### Audit Focus

The State had purchased or contracted to purchase 8.3 million units by end February 2009.

- Under the most likely scenario outlined by the EPA excess units may be acquired in the 2008-2012 period.
- Because of the balance of allocations in the NAP between the State and the trading sector the State was exposed to relatively greater obligations in the event of an economic downturn than the trading sector.
- The exact credit value of investments costing €39.3 million made by the Department is not capable of being quantified at this time.

I sought the views of the Accounting Officer on these matters.

### Views of the Accounting Officer

19.26 The Accounting Officer stated that the share of the burden to be borne by the trading sector and the non-trading sector for the 2008-2012 period was determined by the Government and conveyed to the EPA on behalf of the Minister for Environment, Heritage and Local Government (the Minister) following an extensive process involving

- appointing consultants to report to the Minister on the appropriate cap
- engaging in consultation with participants and the public
- taking the views of all relevant Government Departments into account
- forwarding the proposed limit to the European Commission for their approval
- reducing the limit as requested by the European Commission as part of their approval.

19.27 The Accounting Officer informed me that the carbon purchasing programme to date had been based on a Government Decision of March 2006 to purchase up to 18 million units over the 2008-2012 period, or 3.6 million units per year.

19.28 The economic downturn had had implications for this purchasing programme and the EPA was asked to apply a sensitivity analysis that might better reflect the changed economic situation. This analysis, based on the ESRI's Economic Shock scenario, was published in March 2009. The updated figures indicated a need to purchase around 1.3-1.8 million Kyoto units per annum, a reduction of around 3 million units from the projections of Autumn 2008. In the circumstances, the NTMA had been asked to put its purchasing programme on hold for the foreseeable future.

19.29 Overall, the NTMA had purchased 5.3 million units and investments completed by the Department in the World Bank and the EBRD managed carbon funds were expected to yield some

3 million units in the period 2008-2012. Based on current projections, this amount could be more than enough to meet Ireland's Kyoto requirements.

19.30 In regard to the split between the trading sector and the State, the Accounting Officer informed me that the total limit for the trading sector was set at around 87% of expected emissions in that sector in order to encourage emissions reductions. In addition, approximately half a million units were retained in reserve by the EPA on behalf of the State for sale to defray the operating costs of the scheme in Ireland. Any unused allocations resulting from business closures were also retained and routed to a new entrant set aside, and to the extent that they remained in the set-aside after 2012 they could be used by the State to help Ireland meet its Kyoto obligations on behalf of the non-trading sector.

19.31 The most recent information available for verified emissions in the trading sector showed that in 2008 (the first year of the Kyoto period) the total emissions were 20.38 million units compared to an actual free allocation to those same companies of 19.97 million units i.e. an under allocation of 0.41 million units.

19.32 The Accounting Officer stated that the apportionment of burden between trading and non-trading was carried out in good faith having regard to the economic circumstances prevailing at that time and could not have anticipated the possible depth of the current economic crisis. The most recent emission projections attempt to take the economic recession into account and to anticipate the likely outturn to the end of 2012. Any failure by new entrants to the trading sector to fully utilise the available pool of allowances (supplemented by allowances saved as a result of closures) resulted in the amount unused reverting to the State and was effectively a feedback loop to reduce the total allocation to the trading sector in the event of a severe economic downturn.

19.33 The Accounting Officer stated that the investments made with the World Bank and the EBRD, which were made on foot of Dáil resolutions, would deliver carbon units in a cost effective manner. Based on the most up-to-date information available from the managers of these individual funds, they were expected to yield some 3 million units in the period 2008-2012 at a cost of some €27.6 million. The overall inclusive cost per unit was expected to average out at some €30. This cost was significantly below the spot prices on the secondary market. Even allowing for the economic downturn, units on the secondary market were currently trading above €2 per unit. The prices for the majority of purchases entered into, to date, by Ireland through the Funds had ranged between €0.50 and €1.50 per unit.

19.34 The Accounting Officer stated that the ongoing management of the carbon purchasing programme was based on the best professional advice available to the Department.

## Conclusions

At end February 2009, the State has paid or contracted to pay €13.7 million for carbon credits<sup>a</sup>.

Ireland has contracted to acquire an estimated 8.3 million Kyoto units to meet its obligations arising out of any excess emissions over and above the limit set at the EU Environmental Council implementing the Kyoto commitments.

Action has been taken to estimate the future emissions following the economic downturn and further purchase of carbon credits has ceased. However, the degree of certainty that can be achieved in forecasting the need for future investment in carbon credits is limited and the situation will need to be kept under ongoing review.

Currently, based on the latest ESRI and EPA projections, investments to date would be adequate to meet the State's obligations and any excess could be carried forward to the post-2012 period.

Overall, the emissions of the trading sector are projected to be lower than the allowances allocated to them. However, any excess allowances in that sector can be sold by the bodies to which they were allocated and are not available to reduce the State's commitment in respect of the non-trading sector either in the period 2008-2012 or thereafter<sup>71</sup>.

The Department has assured me that Ireland's purchasing requirements are being kept under review and will be revised as necessary in the light of future economic projections. If it transpires that units which have already been secured are not needed to meet obligations in the Kyoto period the benefit can be carried forward for use in the next commitment period after 2012.

a The foregoing is a correction of the printed version which referred only to NTMA investment.

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<sup>71</sup> The State retained a reserve for new entrants at the allocation stage which may not now be fully allocated and together with reversions following closures can be used to satisfy some non-trading sector obligations.

## Annex A Kyoto Unit Equivalents

### ***Emission Reduction Unit***

Emission Reduction Units (ERUs) are emissions certificates issued by bodies of the UN Framework Convention on Climate Change and the Kyoto Protocol for the successful completion of climate protection projects part-financed by one country but located in another country (Joint Implementation Measures).

### ***Certified Emission Reductions***

Certified Emission Reductions (CERs) are emissions certificates issued by bodies of the UN Framework Convention on Climate Change and the Kyoto Protocol to developed countries for the successful completion of climate protection projects designed to reduce emissions in developing countries as an alternative to more expensive emission reduction measures in their own countries (Clean Development Mechanisms).

### ***Assigned Amount Units***

An Assigned Amount Unit (AAU) is an emission certificate as defined by the Kyoto Protocol. Participating countries, of which Ireland is one, can use AAUs to fulfil their obligations as stipulated in the Kyoto Protocol.

### ***Removal Units***

Removal Units (RMUs) are credits arising from emissions reductions created by means of projects that reduce emissions (land-use change and forestry) according to Article 3 of the Kyoto Protocol. RMUs are only traded at country level, and can be used towards fulfilling national obligations from 2008 onwards.

### ***EU Allowances***

EU Allowances (EUAs) are emissions certificates as defined for purposes of emissions trading in an EU Emissions Trading Scheme. Operators of designated installations can use EUAs to fulfil their obligations.

### ***Carbon Credits***

Purchases by the Department and the NTMA are referred to, generally, as carbon credits. Each such credit is equivalent to a Kyoto Unit.

