



Energy Planning Division  
Department of Marine, Communications and Natural Resources  
Adelaide Road  
Dublin 2

15/12/2006

To Whom it May Concern:

**RE : Submission on *Green Paper : Towards a Sustainable Energy Future for Ireland***

The Confederation of European Waste to Energy Plants (CEWEP) welcomes this opportunity to provide input to the Department's consultation paper on energy policy in Ireland.

Waste to Energy (WTE) facilities convert the energy embedded in waste products to electricity and/or heat. At present, WTE facilities in Europe generate enough energy each year to supply electricity for 27 million people or heat for 13 million people. As such, WTE can provide important benefits to the energy sector in line with the pillars of energy policy outlined in the Irish Energy Green Paper; security and sustainability of energy supply.

Please find attached a short outline demonstrating how WTE could enable Ireland to meet waste and energy policy goals. A number of recommendations are also made on how policy or financial intervention could facilitate its development, in line with European best practice.

We would be grateful if you would consider the issues raised here as part of the consultation process, and in the development of the Energy White Paper.

Should you have any queries or comments on this submission or any other matters, please do not hesitate to contact us on the details included below.

Yours Sincerely,

A handwritten signature in black ink that reads 'Jackie Keane'.

Jackie Keane  
Vice-President of CEWEP



## **CEWEP**

CEWEP, the Confederation of European Waste to Energy (WTE) Plants, was founded in 2002 and includes members with over 300 WTE plants across Europe. Our members treat over 45 million tonnes of waste annually with a total turnover of €4.5 billion and represent 90% of the WTE market in Europe.

CEWEP members treat municipal solid waste (MSW) in an environmentally sustainable way using state-of-the-art incineration technology, which reduces the volume of waste going to landfill by up to 90%. This process also recovers energy from the waste, which can be delivered to homes, hospitals and industry.

CEWEP supports EU waste policy, which is primarily based on the hierarchy of preferred waste management options. At a European level, CEWEP is involved in:

- promoting the renewable energy produced by WTE facilities and encouraging support mechanisms for this energy product
- supporting the increased diversion of waste from landfill as set out in EU policy
- ensuring a level playing field for WTE and co-incineration
- promoting the exchange of experience, research and development

CEWEP is currently in discussions with the European Commission regarding the revision of the Waste Framework Directive and proposed change in status of WTE plants. This is concerned with recovering the maximum amount of energy from waste wherever possible. CEWEP is also concerned about the classification of co-firing as a recovery operation, even though co-firing has much lower environmental standards than WTE.

## **CEWEP Ireland**

The mission of CEWEP Ireland is to support Irish waste policy and aid in implementation of this policy by promoting an integrated approach to managing waste. This involves promoting the development of sustainable Waste to Energy (WTE) facilities in Ireland, and banning the landfilling of combustible waste.

CEWEP Ireland has found that the implementation of Irish waste policy is currently under threat in Ireland due a significant excess of landfill capacity<sup>1</sup>. This constrains the development of other technologies higher up the waste hierarchy as it has resulted in significant decreases in waste disposal costs. As landfill has the greatest environmental impacts of waste disposal options currently available and is the least

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<sup>1</sup> CEWEP publication, *Excess Landfill Capacity : Impacts on the Implementation of Irish Waste Policy*, 2006, available at <http://www.cewepireland.com>

efficient at recovering energy from waste materials, this affects both the energy and the waste sectors.

In response to this situation, CEWEP Ireland has been active in promoting the establishment of WTE facilities in Ireland to provide an alternative to landfill, ensure that Ireland can meet EU landfill diversion targets and use waste resources more efficiently. This requires policy intervention in the form of:

- recognition of the contribution that WTE can make to waste and energy policy
- support for the production of energy from renewable waste materials, discussed below
- raising the landfill levy and banning combustible waste to landfill, to provide financial incentive for waste to be diverted from landfill
- financial and policy support, including capital funding, for the implementation of combined heat and power (CHP) and district heating (DH) with WTE projects

CEWEP Ireland would like to take this opportunity to highlight the contribution that WTE can make to the energy sector, and the importance of aligning waste and energy policy to facilitate its development.

## ***Waste to Energy***

WTE facilities convert the energy embedded in waste products into electricity and/or heat. At present, WTE facilities in Europe generate enough energy each year to supply electricity for 27 million people or heat for 13 million people<sup>2</sup>.

The recovery of energy from waste is gaining increased importance at a European level in both waste and energy policy. The EC waste policy paper *Thematic Strategy on Waste Prevention and Recycling*<sup>3</sup> places greater emphasis on energy recovery and efficiency in WTE facilities. Amongst other things, this will help the EU “meet its targets under the Directive on the promotion of electricity produced from renewable energy sources” (see below). Further, WTE can provide a number of benefits to the energy sector in line with EU and Irish Green Papers on Energy, including security and sustainability of energy supply. These points are further addressed below.

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<sup>2</sup> Stengler, E., *The European position : Where is waste-to-energy, and where is it going?*, Waste Management World, November/December 2005

<sup>3</sup> EC Publication, *Taking Sustainable use of Resources Forward : A Thematic Strategy on the Prevention and Recycling of Waste*, 2005, available at <http://ec.europa.eu/>

In addition to this, WTE provides important benefits for the waste sector such as enabling Ireland to achieve Irish and EU waste targets<sup>4</sup> and an integrated waste management system.

## Security of supply

WTE facilities play an important role in capturing the energy in residual MSW, which remains after segregation activities have taken place.

Despite efforts to recycle and recover waste, important quantities of residual MSW will continue to be generated into the future. Volumes of MSW arising are projected to increase by 25% between 2001 and 2010<sup>5</sup>. Ireland is highly dependent on landfill for waste disposal, with over 66% of MSW landfilled in 2004 (over 1.8 million tonnes). Despite Irish and EU policy requiring a reduction in landfill activities, the quantity of residual waste (after recycling and recovery) sent to landfill is decreasing only very slowly; by 0.8% between 2003 and 2004.

Contributing to Ireland's ongoing reliance on landfill is an excess of landfill capacity, with 4 million tpa landfill capacity available for only 2 million tpa residual waste deposited. This is driving down landfill gate fees, creating an unfavourable environment for investment in alternative waste infrastructure. As a result much of the potential energy resource in waste products will continue to be lost to landfill. CEWEP has reported on the instruments required to sever this reliance and improve resource recovery, as described above, in *Excess Landfill Capacity: Impacts on the Implementation of Irish Waste Policy*. From this, **CEWEP would urge an alignment of waste and energy policy to facilitate the energy recovery of waste materials.**

WTE is the preferred treatment method for residual waste. This is recognised in the *National Biodegradable Waste Strategy*<sup>6</sup>, which expresses the urgent need for WTE facilities to help Ireland meet landfill diversion targets. In line with this, most Regional Waste Management Plans for implementing Irish waste policy envisaged WTE for the treatment of residual waste, either within the region or in adjacent regions if capacity becomes available.

As residual waste can be considered a long term resource, WTE can contribute to the security of energy supply by:

- reducing Ireland's reliance on energy products from distant and politically unstable regions

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<sup>4</sup> Targets for Member States are set out in the EU Landfill Directive 1999/31/EC. Ireland's targets have been postponed by a 4 year derogation, and are now to reduce BMW sent to landfill by 75% of the total amount (by weight) of BMW produced in 1995 by 2010. Ireland is currently behind in meeting these targets.

<sup>5</sup> DoEHLG, *National Overview of Waste Management Plans*, 2004, available at

<http://www.environ.ie>

<sup>6</sup> DoEHLG, *National Biodegradable Waste Strategy*, 2006, available at <http://www.environ.ie>.

- mitigating economic threats from unstable prices in world energy markets
- providing a long term stable fuel source

## Sustainability of Energy Supply

The biodegradable fraction of municipal waste (BMW) is recognised as a renewable energy resource in the EU Renewables Directive 2001/77/EEC, and in Irish energy policy. Thus energy recovered from BMW in WTE plants can be considered as replacing fossil fuels, and offsetting greenhouse gas emissions. It can also contribute to the achievement of EU regulatory targets on renewable energy<sup>7</sup>.

The potential for WTE as a bioenergy resource in Europe has been gauged in the European Environment Agency (EEA) report *How Much Bioenergy Can Europe Produce Without Harming the Environment?*<sup>8</sup>. This looks at how much biomass could technically be available for energy production in the EU to support EU renewable energy targets, without increasing pressures on the environment. The report found that in the short term, the largest potential for bioenergy came from the waste sector of which approximately one fifth was BMW, or roughly 15-20 MtOE for the EU-25.

This will contribute to the targets set out in the Renewable Energy Directive 2001/77/EC which requires that 12% of gross domestic energy consumption, and 22.1% of electricity produced, is sourced from renewable resources by 2010 in the EU. Thus BMW will play an important role in achieving European renewable energy targets.

In line with this, a number of Member States have included energy produced from BMW in WTE facilities in renewable energy support schemes. Some of these are illustrated in Table 1.0 below.

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<sup>7</sup> 12 % of gross domestic energy consumption by 2010 as set out in EC Directive 2001/77/EC

<sup>8</sup> EEA Publication, 2006, available from [http://reports.eea.europa.eu/eea\\_report\\_2006\\_7/en](http://reports.eea.europa.eu/eea_report_2006_7/en).

**Table 1.0 : Subsidies for Energy from Waste in Member States**

	<b>Nature of Subsidy</b>	<b>Biodegradable fraction calculation</b>	<b>Subsidy/price € cents</b>
<b>Belgium (Flanders)</b>	Green certificates are awarded for energy generated from the biodegradable fraction.	40%	10 cents/kWh for green certificates (price end 2004)
<b>Denmark<sup>9</sup></b>	Electricity from Waste to Energy plants may qualify for green certificates. In addition, a CO <sub>2</sub> subsidy for electricity from Waste to Energy facilities is paid by the state (~€0.01/kWh). Further, Waste to Energy facilities receive a subsidy that reflects the market spot price (if the market price increases, the subsidy decreases)	80% of the waste used to generate electricity in Waste to Energy plants is considered CO <sub>2</sub> neutral – this figure is based on waste composition surveys	Average/year – 3.598 cents
<b>France<sup>5</sup></b>	Electricity from Waste to Energy plants qualifies for a tender system similar to the AER scheme. Further subsidies for green electricity may be obtained in some cases.	-	Agreements generally at 4,5 to 5 cents/kWh + premium for energy efficiency ranging from 0 to 0,3 cents/kWh (only achievable in case of combined heat and power generation)
<b>Hungary<sup>5</sup></b>	Local energy suppliers have to purchase electricity produced from waste at fixed price	-	Fixed price of 7,19 cents/kWh
<b>Italy</b>	Green certificates	100% <sup>10</sup>	9,6 cents/kWh for green certificates (price end 2004) on top of market price
<b>Netherlands<sup>5</sup></b>	A subsidy is provided for electricity produced from Waste to Energy plants with an efficiency >26% net	47%	1,45 cents/kWh subsidy
<b>Portugal</b>	Feed in tariff	100% <sup>6</sup>	Feed in tariff 7,6 cents/kWh

<sup>9</sup> Denmark, France, Hungary and the Netherlands have designed subsidies specifically for Waste to Energy plants rather than focusing on the renewable fraction of waste.

<sup>10</sup> Energy from WtE is considered 100% renewable and treated as for other renewable sources

In Ireland, the bioenergy potential from the biomass fraction of waste (BMW) in WTE has been estimated<sup>11</sup> at 5.41 PJpa by 2010 and 5.93 PJpa by 2020. This compares with energy generated from other BMW energy pathways including landfill gas and anaerobic digestion, which together are estimated to generate only 0.8 PJpa by 2010 and 1.0 PJpa by 2020.

This means that WTE is predicted to recover over 87% of all of the available energy in BMW by 2010. This is equivalent to over one quarter, or 26.2%, of the total anticipated bioenergy production in Ireland by 2010 and to 18.1% by 2020. Furthermore, this estimate is conservative, relating to:

- only the energy generated by the BMW fraction of MSW (est. 70% according to EPA figures<sup>12</sup>)
- the implementation of only three WTE facilities by 2010 with a limited increase in capacity by 2020

Thus WTE has considerable potential for Ireland's bioenergy production and renewable energy targets<sup>13</sup>.

CEWEP has learnt from its Irish Membership that supports for renewable electricity are not currently available in Ireland, because 2010 targets for renewable electricity generation have been met. Whilst reaching these initial targets is to be commended, CEWEP submits that withdrawing support for renewables after meeting a staged target is unsustainable and will inhibit growth in this sector. CEWEP is unaware of any Member State that does not currently have a renewable energy support mechanism in place.

***CEWEP would urge DCMNR to provide ongoing financial support mechanisms for renewable heat and electricity generation, in line with EU and national waste and energy policy.***

On another key aspect of sustainable energy supply, CEWEP commends the CHP targets and support scheme outlined in the Green Paper. It is noted, however, that district heating is not recognised in the paper. District heating coupled with CHP can provide important efficiency gains for the heat sector. Again, WTE can make a significant contribution to this activity. In Denmark, for example, WTE covered approximately 18% of the total district heating production in 2003 as well as 3% of the total Danish electricity production.

In Ireland, the capital costs of developing a district heating system would be high due to the lack of existing infrastructure. As such, to promote the development of these systems, policy and/or financial support would be required.

<sup>11</sup> SEI Publication, *Bioenergy in Ireland*, 2004, available from <http://www.sei.ie>

<sup>12</sup> EPA Publication, *National Waste Database 2004*, 2005, available from <http://www.epa.ie>

<sup>13</sup> As set out in the Green Paper, renewable energy targets are 15% of electricity consumed by 2010 and 30% by 2020.

***It is important that the potential for district heating is recognised in the Green Paper, and that CHP/DH projects are supported through grant funding and/or policy initiatives.***

Finally, CEWEP is committed to promoting high environmental standards, achieving low emissions and maintaining state of the art energy production from otherwise unusable materials. Of particular concern is the lack of consistent standards for different types of energy recovery facilities.

WTE is a specialised treatment method for reducing the volume of, and recovering energy from, mixed wastes. However, it is also possible to extract useful energy from certain wastes by co-firing it in heavy industry facilities such as cement or power plants.

CEWEP WTE plants have to comply with emission limit values as set out in the Waste Incineration Directive 2000/76/EC, which are more stringent than for any other industrial activity. As a result, flue gas cleaning systems can account for up to 50% of the total investment costs of a WTE plant. By contrast, heavy industries operating co-firing facilities are not subject to the same emission limit values.

It will be important to ensure that where waste is diverted towards co-firing in Irish industry, strict emission limits in line with the Waste Incineration Directive are imposed. This will ensure that the lower costs associated with co-firing do not overshadow environmental standards for waste treatment.

***CEWEP would urge relevant State Agencies to ensure that high standards are applied to emissions limits at all energy recovery facilities for waste treatment.***

This would require a coordinated effort between the DoEHLG, EPA and DCMNR during the planning and licensing process of such activities.

## ***Summary***

WTE can make an important contribution to the waste and energy sectors in line with the key goals of Irish energy policy; security and sustainability of energy supply. From experience in other Member States, CEWEP Ireland would urge DCMNR to:

- recognise the contribution that WTE can make to waste and energy sector goals, and align waste and energy policy for greater consistency
- provide a consistent renewable energy support scheme as available in most other Member States
- recognise and provide support for district heating projects with CHP
- ensure that high environmental standards are applied to emissions limits at all energy recovery facilities for waste treatment



This will facilitate the development of WTE in line with European best practice, optimising resource recovery and enabling Ireland to meet waste and energy policy targets.