

July 2009

**Department of Communications, Energy  
and Natural Resources (DCENR)**  
- Compliance with Directive 2003/30/EC

***“Report on measures taken to promote the use of biofuels or other  
renewable fuels to replace diesel or petrol.  
Compliance with Directive 2003/30/EC (Article 4)”***

**1. Introduction**

*DIRECTIVE 2003/30/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8<sup>th</sup> May 2003 on the promotion of the use of biofuels or other renewable fuels for transport, inter alia, requires Member States to report to the Commission before 1<sup>st</sup> July each year on specific measures to promote biofuels and biomass, indicative targets for market penetration and current market status of biofuels and biomass.*

The sixth report following entry into force of this Directive is now due.

This sixth report sets out Ireland's position as follows:

- The measures taken to promote the use of biofuels or other renewable fuels to replace diesel or petrol for transport purposes;
- The national resources allocated to the production of biomass for energy uses other than transport;
- The total sales of transport fuel and the share of biofuels, pure or blended, and other renewable fuels placed on the market for the preceding year.

The information provided in this report is ***additional*** to information provided in Ireland's 2004 to 2008 (inclusive) reports to the Commission.

**2. Measures taken to promote the use of biofuels or other renewable fuels to replace diesel or petrol for transport purposes.**

**Fiscal Measures**

**Biofuels Mineral Oil Tax Relief Schemes**

The Biofuels Mineral Oil Tax Relief Schemes, which were introduced in Ireland in 2005 and 2006 in order to incentivise the use of biofuels, have resulted in a steady increase in biofuels used in Ireland. Prior to the introduction of the schemes, in common with other Member States, market penetration of biofuels in Ireland was almost non-existent. In 2007,

penetration had risen to 0.6% and penetration had risen to 1.6% in 2008.

The schemes were designed as interim measures to accelerate the level of biofuels in the fuel mix, and were put in place in anticipation of the planned introduction of a Biofuels Obligation Scheme in 2010.

### **Vehicle Registration Tax (VRT) Relief for Hybrid Electric/Flexible Fuel Vehicles**

From 1 July 2008 the current VRT System was introduced replacing a system which used the criterion of engine size (cc). The system is now based on a vehicle's CO<sub>2</sub> emissions, with high emitting vehicles attracting higher taxation and lower emitting vehicles taxed less, thereby promoting the purchase of energy-efficient (i.e. low-emission) vehicles.

A revised system of relief was also introduced from 1 July 2008, for series production hybrid electric and flexible fuel cars whereby a relief of up to €2,500 on the VRT payable is provided. This is in addition to any benefits accrued under the new VRT CO<sub>2</sub> emission related system. This relief will apply until 31 December 2010.

Series production electric cars (i.e. cars which can be propelled solely by a rechargeable battery) and electric/battery-assisted bicycles have been completely exempted from VRT for a three year period, with effect from 1 January 2008.

### **Biofuels Obligation**

The Irish Government is committed to the introduction of a Biofuel Obligation from 2010. The public consultation process on the proposed parameters of the obligation has concluded with 40 submissions received. The introduction of the biofuel obligation, will require fuel suppliers to ensure that they bring a certain volume of biofuels to the Irish market, calculated as a percentage of their mineral oil sales. It is intended to set a 4% penetration rate, with a possible increase to 6% in 2012 in light of a review in 2011. In line with the Government's commitment, details of the scheme are being finalised as a priority in the context of finalising the requisite legislation to underpin introduction of the obligation. It is the intention to introduce the legislation in the Irish Parliament in the Autumn session to ensure that the 2010 timeline is met.

The biofuels obligation will enable Ireland to move progressively towards meeting EU targets for biofuels penetration in a cost-effective way while taking full account of sustainability in line with EU developments.

### **Agricultural Measures**

The agri-food sector is a source of many of the raw materials for the production of biofuel. To encourage the cultivation of crops for energy purposes the Department of Agriculture, Fisheries and Food (DAFF) have implemented a number of incentives. These incentives are intended to complement the measures introduced by the Department of Communications, Energy and Natural Resources to stimulate demand for bioenergy

### **EU Energy Crops Scheme**

The EU Energy Crops Scheme will continue until the end of 2009. The main energy crops claimed for are Oilseed, Wheat, Willow and Miscanthus which can be used for production of biodiesel, ethanol and pellets respectively. To qualify for the aid, farmers must have a contract with an end user in the appropriate processing industry, except where the farmer undertakes the processing himself. In 2008 a total of 479 applicants availed of this grant aid.

### **National Energy Crop Premium**

The national energy crops payment of €80 per hectare is still being made available as a further incentive for farmers to grow energy crops. This scheme will run until the end of 2009. This additional payment is paid to applicants of the EU Energy Crops Scheme. The payment applies for 3 years subject to a maximum ceiling of 37.5 hectares. The aid covers areas sown under energy crops provided they are intended for use in the production of biofuels. In 2008 a total of 479 applicants availed of this grant aid.

### **Bioenergy Scheme**

The Bioenergy Scheme (BES) is being run on a pilot basis over 3 years to the end of 2009 to establish an agricultural sector involved in the growing of miscanthus and willow specifically to produce biomass suitable for use as a clean and renewable source of energy.

Prior to the introduction of the BES, production of miscanthus and willow was relatively underdeveloped due, in large part, to the high establishment costs which were calculated at €2,900 per hectare. In order to encourage increased production the BES made available aid 50% of the approved establishment costs up to a maximum of €1,450 per hectare. The remaining cost is borne by the applicant. Establishment costs would include cost such as those associated with ground preparation, vegetation management, purchase and planting of the stock, fencing etc.

In the first two years of the Scheme, 220 applicants were grant aided to plant 1,600 hectares of miscanthus and willow. (Note: 2008 figures in last years report related to applicants who had been approved i.e. not all of the applicants proceeded and 2008 figures in this current report relate to applicants who have actually drawn down grant aid). A further 185 applicants have been granted approval to plant in excess of 1300 hectares in 2009. The first harvest of miscanthus takes place 3 years after

establishment while willow is after 4 years. Therefore, no miscanthus or willow, grant aided under the BES, has yet been processed.

It is proposed to carry out a comprehensive review of the BES in mid 2009 which will include an assessment of the need for a further Scheme.

### **AGRI/Energy Research**

As outlined in the 2008 report, DAFF supports bioenergy research through its Research Stimulus Fund Programme and all research projects are still ongoing. The Programme facilitates research that supports sustainable and competitive agricultural production practices and policies and contributes to a scientific research capability in the agriculture sector. To date, some €7 million in funding has been made available for 12 research projects. The Research covers a broad range of bioenergy topics including the suitability of Irish grassland for biofuel production, anaerobic digestion, second-generation technologies and energy crop production.

### **Transport Measures**

An earlier commitment in the Programme for Government relating to biofuels has been superseded by the more ambitious targets for transport as set out in the Government's *Smarter Travel* policy, launched in February 2009. Specifically, in relation to public transport fleets *Smarter Travel* proposes that all public transport providers prepare a plan for fleet replacement based on the most sustainable vehicle and fuel type. The actions in *Smarter Travel* are to be implemented over a twelve-year period, to 2020. <http://www.smartertravel.ie/smarter-travel-project-fund>

An immediate focus of Government policy at the moment is to prepare a plan to deliver the 10% target for electric vehicles by 2020, which is likely to see significant use of renewable energy sources such as wind. Progress is also being made on sustainable technology in relation to Dublin Bus and Bus Éireann, the national coach operator. Last year, the Department of Transport provided significant funding for the purchase of a hybrid electric double-deck bus, which is currently being trialed by Dublin Bus. In addition, the Department of Transport is carrying out research of international practice relating to sustainable bus fleets. Progress on fleet replacement plans is envisaged for 2010.

### **Electric Vehicles**

The Irish Government is aware that electrical vehicles offer an increasingly realistic solution in terms of reducing the transport sector's Greenhouse Gas Emissions and Ireland's dependence on imported fossil fuels. There has been very significant global investment in research and development in this field. The technology is now maturing to a point where large scale commercial deployment is looking feasible in the medium term. It is all the more important therefore that Ireland is positioned as a centre for electric vehicles.

In association with the Department of Transport, DCENR announced targets in late 2008 for the deployment of electric vehicles in Ireland. We have set a target of 10% of all vehicles to be powered by electricity by 2020, which will represent up to 250,000 cars on Irish roads.

A number of initiatives to advance our policy in this area have already been put in place. The Minister for Finance has provided a new tax incentive for businesses to purchase electric vehicles in the 2009 Finance Act. This enables businesses to write off 100% of the cost of purchase against tax under the Accelerated Capital Allowance Scheme. Sustainable Energy Ireland (SEI) is also developing a €1 million project on alternative transport technologies including electric vehicles. SEI has also published a Buyers Guide and a Cost of Ownership Calculator to aid individuals interested in purchasing electric vehicles. SEI has also recently published reports on Hybrid Electrical Vehicles and Battery Electric Vehicles. These reports highlight potential measures that could be used to stimulate uptake of electric vehicles in Ireland and make recommendations with regard to how this might be best achieved.

The Electricity Supply Board (ESB) and SEI have been working intensively within the taskforce and visited Israel and Denmark last year to learn from their approaches to fast tracking the deployment of electric vehicles.

An inter-departmental agency Taskforce has been established and is meeting regularly to progress the framework for deployment of electric vehicles in Ireland and is being chaired by DCENR. The Departments of Transport, Finance, the Environment, Heritage and Local Government and Enterprise, Trade and Employment along with SEI, ESB, the Industrial Development Authority (IDA) and Enterprise Ireland are all represented on the taskforce to ensure a fully cohesive approach to facilitating the development of the electric transport model. The Taskforce has set up three separate sub groups to examine in more detail specific issues such as Transport/Infrastructure, Fiscal and Enterprise.

- **Transport / Infrastructure Group** - This group will examine issues such as planning requirements, regulation of standards for charging points and strategy for captive fleets
- **Fiscal Group** - This group will examine possible tax incentives for promotion of electric vehicles.
- **Enterprise Group** - This group will examine the enterprise opportunities in industry and research to be created in Ireland relating to electric vehicles.

The taskforce is assessing the options and timeframe for creating the necessary infrastructure for the national roll-out of electric vehicles. The Government is sending out the message that Ireland is open for business in this area and we will also take account of global developments as the technologies mature. The taskforce will report its initial findings and advise on next steps shortly.

## **Research and Development**

### **Potential of Marine Algae/Seaweed**

The report *A Review of the Potential of Marine Algae as a Source of Biofuel in Ireland* was published in February 2009. The report can be downloaded through the following link [www.sei.ie/algaereport](http://www.sei.ie/algaereport)

The report concluded that the energy potential from marine algae by 2020 is likely to be very limited and that significant R&D effort would be required to realise any meaningful biofuel development. The focus in terms of products from marine algae is, and is likely to remain for the foreseeable future, non-energy products such as nutraceuticals, pigments, proteins, functional foods and other chemical products.

SEI, in concert with Enterprise Ireland and the Marine Institute, will keep the area under review and provide support as appropriate to achieve meaningful progress towards the development of biofuels from marine algae.

### **ERA-Net Bioenergy**

SEI has joined the European network ERA-Net Bioenergy ([www.eranetbioenergy.net](http://www.eranetbioenergy.net)) and is participating in a joint call on clean biomass combustion, with successful projects likely to run from end October 2009 to end November 2012. Other areas for joint calls that are being considered by ERA-Net Bioenergy are

- biomass pre-treatment to deliver outputs of relevance to the realisation of 2<sup>nd</sup> generation biofuels and
- biorefineries.

As and when these come forward for action, SEI will make a decision on participation in light of indigenous capacity to contribute and budget availability.

### **3. The national resources allocated to the production of biomass for energy uses other than transport**

#### **Renewable Energy Grant Aid Package**

The Irish Government's commitment to developing both domestic and commercial scale renewable technologies is ongoing. The Government has committed to a range of measures designed to increase market penetration of renewable energy in the heat sector by setting targets of 5% renewable heating by 2010 and 12% by 2020. This will be supported through programmes such as ReHeat, Combined Heat and Power (CHP) and the Greener Homes Scheme which were reported on in previous reports. These programmes, which provide grants for the installation of renewable heat technologies across a wide range of sectors including the

domestic, community, voluntary, public sector, commercial and business sectors, continue to be very successful.

There have been a total of 26,000 applications approved under the Greener Homes Scheme since its launch in March 2006. Biomass technologies represented 27% by volume and 33% by value of these applications – the relative uptake of biomass technologies in the programme is increasing due to the inclusion of log gasification boilers, and other changes to the structure of the programme. Total annual CO<sub>2</sub> savings for the installed GHS grants is estimated as 46,575 tons.

There have been 579 ReHeat applications received to date, 509 of which are for capital investment and 70 of which are for feasibility studies. Of the 359 approved applications for capital investment, the technologies applied for are biomass boilers (169), solar thermal installations (138) and heat pumps (51). A total of 245 projects completed to date, 131 biomass boiler projects, 82 solar thermal and 32 heat pumps. The total installed boiler capacity is 61,740kw (Thermal) – with a further 15,542kw of capacity approved. A total of 1,362m<sup>2</sup> of solar panels have been installed, with a further 1,682m<sup>2</sup> approved. Finally, the 32 heat pump projects have an installed capacity of 1,566kw, with a further 1,510kw approved. The total estimated CO<sub>2</sub> savings from the installed projects is 46,052 tonnes pa, with a potential further 17,126 tonnes savings arising if all approved projects are built. A total of €4,837,376 has been paid to date, for an average grant of €19,000, with an average cost of installation of €100,000.

There have been 99 applications under the CHP programme, which provides capital assistance (78% of the amount paid) for small scale fossil CHP, and for Biomass/Aerobic Digestion CHP, along with grants for feasibility studies (22% of the amount paid). There have been 68 applications approved, with 50 being for capital investment and 18 for feasibility studies. If all of these approved capital projects are built, the installed capacity will be 12,387kw<sub>e</sub> and 17,176kw<sub>t</sub>.

As reported last year, the CHP Programme was expanded to include provide grant aid for Biomass and Aerobic Digestion CHP in early 2008. To date 4 grant applications for Biomass CHP have been received, 3 of which came in the last number of months. One application for AD CHP has also been received.

From the 4 Biomass applications 1 has been approved in Co. Cork, and that for 1.3 million. This project is not yet fully completed.

### **Charles Parsons Energy Research Awards**

The Charles Parsons Awards Scheme continues to fund research in the area of biofuels and/or biomass. All groups are now actively engaged in research, with the recruitment of postgraduate and postdoctoral researchers to the various teams being almost complete.

Within the **BioGen Group** (Biologically Mediated Sustainable Energy Generation) at National University College, Galway research is currently focussed on low temperature methanogenesis from renewable organic wastes and biocatalytic fuel cells for biological energy production.

At the **Bioresources Research Centre** (BRC) based in University College Dublin current avenues of research include: integrated assessment of biogas technology options; small scale gasification of Irish biomass and peat; evaluation of pyrolysis & co-pyrolysis of biomass and waste plastics for liquid transport fuels; biofuels from micro algae hydrocarbons & biomass; and optimisation of anaerobic digestion of bio-wastes (including animal slurries) in order to optimise gas yields.

One of the research themes within the **Charles Parsons Initiative** in University of Limerick (UL) is chemical technologies for biomass and biofuels. Current areas of investigation include hydrogen from formic acid derived from biomass; micro-reactor technology for fuel re-synthesis; energy efficient optimization of wastewater treatment – study of autothermal thermophilic aerobic digestion; pyrolysis of bio-mass, and thermochemical conversion of bio-waste.

At the **Centre for Sustainable Energy** (University of Ulster) work is ongoing on the control and optimisation of gasifier systems.

### **Renewable Energy Feed in Tariff (REFIT)**

Details of Ireland's Renewable Electricity Feed in Tariff Programme (REFIT) were included in previous reports. At end June 2009 approximately 158 projects had been accepted into REFIT with a combined installed rating of the order of 1785 megawatts. The dominant technology is wind-power. Each project has secured prior planning permission and a connection offer as prior qualifying conditions.

Details on Biomass projects are as follows:

<b>Technology</b>	<b>No of Applicants</b>	<b>REFIT Status</b>
Biomass AD	5	There are 4 Biomass/AD applications for the proposed new Category at the higher REFIT rate pending decision. There is one biomass/AD application at the lower rate pending decision.
Biomass Land Fill Gas	7	Approved
Biomass CHP	1	Approved

### **Bioenergy Working Group**

Bioenergy is more complex than other renewable energy sources, as it relies on integrated supply chains, as well as the technology to convert feedstocks into energy. Bioenergy development can encourage the establishment of new rural enterprises, using raw materials that previously may not have had any value. Forest residues and thinnings, as well as dedicated energy crops and farm wastes, all provide new opportunities, while wastes such as used cooking oil, and meat and bone meal, which incurred disposal costs, can now be converted into biofuels for transport or used to generate electricity.

Because of these complexities bioenergy policy is relevant across several areas of Government responsibility and has benefits across a variety of diverse areas. The Bioenergy Working Group (BWG), which was reported on last year, continues to meet on a regular basis. It is recognised that there is a need to develop the entire supply chain, from producer to energy end-user, in order to develop the sector. There have been a number of sub-groups established to examine particular matters in more detail as follows:

- Fuel Quality and Standards sub-group
- Resources sub-group
- Supply Chain sub-group

It is anticipated that the BWG will have a draft roadmap prepared by the end of 2009.

### **Agricultural Measures**

#### **On-farm waste to energy projects**

The Department of Agriculture, Fisheries and Food is committed to supporting the development of on-farm anaerobic digestion facilities and, under the Scheme of Investment Aid for Demonstration On-Farm Waste Processing Facilities, grant-aid of €4 million was made available to ten such projects in 2007. The environmental benefits of the technology will be assessed under the scheme including a full life cycle analysis of the potential of the technology to abate greenhouse gas emissions. While this scheme has closed for new applications, all projects are still ongoing.

#### **Wood Biomass Harvesting Machinery**

Under the Wood Biomass Harvesting Machinery Grant Scheme to support developing enterprises in the wood chip supply sector, which was reported on in last years report, €500,000 in grant aid has already been approved. This aid has stimulated associated investment of some €1.5 million. A further €600,000 was made available under Phase II of the Scheme, which ran until the end of 2008. This scheme has now closed and drawdown of grants should be concluded in 2009.

**4. Total sales of transport fuel and the share of biofuels, pure or blended, and other renewable fuels placed on the market for the preceding year.**

The following table illustrates the latest statistics available on transport energy consumption by fuel which shows that 1.6% of total road transport fuel consumption is biofuel.

Year	Biofuel	DERV	Gasoline	Total	Biofuel	DERV	Gasoline
2008	58	1860	1665	3583	1.6%	51.9%	46.5%

**Notes**

***Figures in ktoe***

***Data is provisional until later in the year***

The figures indicate that market penetration of biofuels in 2008 was 1.6% which is a significant increase over the 2007 figure which was 0.6%.