

Irish Regions Office

POLICY BRIEFING

EU Policy and Initiatives for Renewable Energy and Energy Efficiency: an Irish Perspective

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Background

The combination of high oil prices, Europe's energy dependency on OPEC and Russia, growing concerns over long-term availability of fossil fuels and the urgency of new greenhouse gas mitigation measures have restarted a debate in the EU on the need for a European Energy Policy and in particular, on promoting renewable energy and energy efficiency.

Oil prices have risen almost 600% since 1998, from around \$10 a barrel to their current price of over \$60. In the context of surging demand (in China and the US in particular) and concerns over long-term reserves, it is generally expected that prices will continue to rise. This has important implications for the global economy, which is heavily dependant on oil, but also for the development of the renewable energy sector, which, heretofore, has struggled to compete with relatively cheap supplies of fossil fuels.

In the context surging global demand for oil, security of energy supply has become an increasingly important issue for the EU. The EU currently imports around 56% of its energy requirements and this is expected to rise to 70% in the next 20 to 30 years unless action is taken. This dependence on external energy sources presents considerable risks for the EU, particularly given that 45% of all oil imports come from the Middle East and 40% of natural gas comes from Russia. The Ukraine-Russia gas dispute in January 2006 highlighted the risks involved.

The enhanced competitiveness of the renewable energy sector presents an important opportunity for the EU to address these energy supply issues, while at the same time boosting economic development, particularly in rural and more isolated regions. The EU has already made significant advances in terms of exploiting its renewable energy resource and is currently the world leader in the development and exploitation of renewable energy technologies.

Furthermore, under the terms of the Kyoto Protocol (1997), the EU is committed to reducing its greenhouse gas emissions by 8 per cent below the 1990 level in the period between 2008-2012. The burning of fossil fuels for electricity and heat generation and in the transport sector are the main sources of greenhouse gas emission in the EU and, therefore, the promotion of alternative renewable energies and energy efficiency are also expected to play an important role in meeting the Kyoto target.

The following paper looks at some recent developments in relation to EU policy for renewable energy and energy efficiency and the response, to date, to these developments in Ireland. It also presents some perspectives on future developments, both at EU and national level and, where possible, highlights some of the implications of these developments for local and regional bodies in Ireland.

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1. Overview of Renewable Energy Policy

1.1 EU Policy Developments

The EU's first policy initiative in the area of renewable energy came in 1997, with the publication of the White Paper, 'Energy for the future: renewable sources of energy - White Paper for a Community Strategy and Action Plan,' setting the EU the target of increasing the share of renewable energy to 12 per cent of total energy consumption by 2010.

In November 2000, the European Commission published a Green Paper entitled, "Towards a European strategy for the security of energy supply," which drew attention to the problems of the EU's energy dependency and also to the EU's commitments under the Kyoto Protocol. The Green Paper called for urgent action in the areas of renewable energy and energy efficiency and put forward specific targets and proposals for measures which would help to achieve these targets.

These targets (see Box 1) have since been incorporated into specific legislative proposals, covering the areas of renewable electricity, biomass and biofuels, and energy efficiency. Details of these legislative, and related policy proposals are outlined below. At the European Council in June 2006 EU leaders restated their commitment to achieving these targets and to setting more ambitious targets for the longer term.

Box 1: Key EU Targets for Renewable Energy and Energy Efficiency

Total renewable energy: 12% of energy consumption by 2010 (from 6% in 2001. It is proposed that this target will be increased to 15% by 2015)

Renewable electricity: 21% of electricity consumption by 2010 (from 13.9% in 1997 and 15.2% in 2001)

Biofuels: 2.0% of transport fuel mix by 2005 (the actual result was 1.4%) and 5.75% by 2010 (it is proposed that this target will rise to 8% by 2015)

Energy efficiency: an overall saving of 9% of final energy consumption over 9 years until 2017 (in the context of an overall target of 20% by 2020)

1.2 Developments in Ireland

Initial support for renewable energy in Ireland, as in most countries, arose in the form of research and development (R&D) funding in the 1980s in response to the oil crises of the late 1970s. This funding peaked in the early 1980s and declined notably after 1983, with no significant funding between 1990 and 2001

The first policy document on renewable energy in Ireland was published in 1996 and was entitled Renewable Energy- A Strategy for the Future. Policy on renewables was reviewed in 1999 with the publication of a, "Green Paper on Sustainable Energy". In December 2003 a further review of the sector was launched with the publication of the

consultation document "Options for Future Renewable Energy Policy, Targets and Programmes".

This was followed in May 2004 with the setting up of the Renewable Energy Development Group, which is chaired by a representative of the Department of Communications Marine and Natural Resources. This Group has been considering the future options on policies, targets, programmes and support measures to develop the increased use of renewable energy up to 2010 and beyond.

Box 2: Ireland's Targets for Renewable Energy and Energy Efficiency

Renewable electricity: 15% of electricity consumption by 2010

Biofuels: 0.13% of total transport fuel mix by the end of 2006. A target of 2.2% has since been set for 2008

Energy efficiency: 1% energy saving each year over 9 years (from 2008 to 2017)

A criticism of policy in Ireland to date has been the absence of a coherent energy policy, which would address, in an integrated manner the issues of security of energy supply, environmental sustainability and economic competitiveness. In response to this criticism, the Government is expected to publish a Green Paper on Energy on 1 October 2006.

As a forerunner to the Green Paper, in August 2006, Mr Noel Dempsey T.D., Minister for Communications, Marine & Natural Resources, launched the report, "Renewable Energy Development 2006," which provides a broad overview of current policies in the field of renewable energy and serves as a concise introduction to the topical issues and challenges in the area. The report also introduces additional reports on alternative technologies, including: combined heat and power ("CHP"); bioenergy technologies; ocean power; and wind-power.

In July 2006, the Minister also established a new Ministerial Task Force on bio-energy, as part of the ongoing policy to increase the share of indigenous renewable energy in the Irish heat, electricity and transport markets.

Box 3. Key Energy Issues for Ireland

The Irish Government is expected to publish a Green Paper on Energy in October 2006, which will attempt to address the challenges in balancing the three key principles of energy policy in an Irish context: security of supply; environmental sustainability; and maintain economic competitiveness. While Ireland shares many of the same challenges as other countries, it also has a number of specific characteristics, which require distinct policy responses. These include:

- the Irish energy market is small and geographically peripheral;
- Ireland is heavily dependent on imported energy. Ireland spends over €7 billion per year on energy. 87% of this is currently imported, significantly higher than the EU average of 50%, and this percentage is rising as the contribution from natural gas declines.
- Ireland is experiencing continued high levels of demand growth (in the order of 4% p.a.) in line with buoyant economic growth;
- there has been limited new entry/ competition into the generation/ supply sectors;

- there are low levels of international physical interconnection to wider markets, unlike our European counterparts;
- there has been an historic under-investment in energy networks;
- energy consumption in the transport sector has increased significantly in recent years (151% between 1990 and 2005), and is almost totally reliant on imported oil;
- overall energy and electricity costs in particular, have risen sharply since 2000
- the Government's commitment to avoid the development of nuclear power.

Ireland must also take account of its commitments under the Kyoto protocol, which will come into operation in 2008. In October 2000, the Government published its National Climate Change Strategy (NCCS). The strategy sets out a ten-year policy framework for achieving the necessary reductions to meet Ireland's target of limiting its greenhouse gas emissions to 13% above 1990 levels by the first commitment period 2008-2012 (as its contribution to the overall EU target). Ireland ratified the Kyoto Protocol on 31 May 2002, along with the EU and its Member States, and is now internationally legally bound to meet this greenhouse gas emissions reduction target.

2. Renewable Electricity

2.1 EU Policy Developments

In September 2001, the EU adopted the Directive on the Promotion of Electricity produced from Renewable Energy Sources ('Renewables Directive'), which aims to increase the EU's share of electricity produced from renewable energy sources (RES) to 21% by 2010 (up from 15.2% in 2001), thus contributing to the overall target of 12% of energy consumption from renewables by 2010.

The Renewables Directive defines national indicative targets for the share of electricity to be produced from renewable sources by 2010 (see Box 4). Member States were required to publish a report setting national indicative targets for renewable electricity, and outlining measures (taken or planned) to achieve these targets by October 2002 and every five years thereafter.

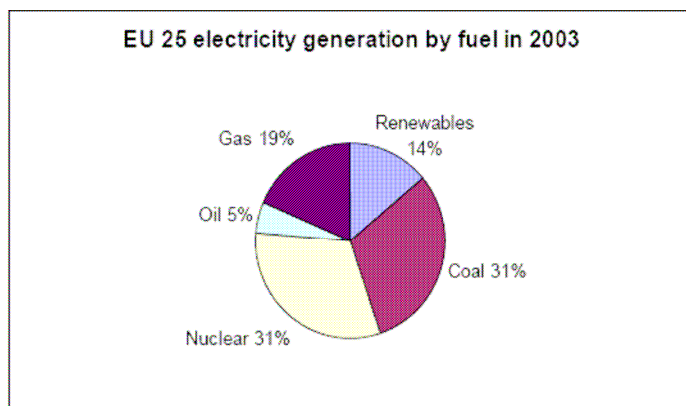
Box 4: National (EU15) targets for electricity from renewables by 2010 (compared with 1997)

Belgium:	6.0% (1.1%)
Denmark:	29.0% (8.7%)
Germany:	12.5% (4.5%)
Greece:	20.1% (8.6%)
Spain:	29.4% (19.9%)
France:	21.0% (15.0%)
<u>Ireland:</u>	<u>13.2% (3.6%)*</u>
Italy:	25.0% (16.0%)
Luxembourg:	5.7% (2.1%)
Netherlands:	9.0% (3.5%)
Austria:	78.1% (70.0%)
Portugal:	39.0% (38.5%)
Finland:	31.5% (24.7%)
Sweden:	60.0% (49.1%)
UK:	22.1% (13.9%)

2.2 Developments in the Member States

Member States are free to choose their preferred support mechanism in order to achieve the targets and/or are allowed to continue to do so for a transitional period of at least seven years after the new EU-wide regulatory framework was adopted (October 2003).

In May 2004, the Commission reported that Member States were not on track to meet their national indicative targets for renewable energy. Based on the rate of progress, it said that only 18 or 19% of electricity from renewables would be achieved by 2010, instead of the 21% foreseen in the Directive.



Only four Member States (Germany, Denmark, Spain and Finland) were on track to achieve their national targets. These countries had implemented an attractive framework for renewable energies. However, a number of other Member States had also adopted new legislative measures that could allow them to achieve their national targets.

The report also identified significant differences in the rate of progress in the different types of renewable sources. While hydropower remained the most important source of renewable energy, wind was by far the fastest growth area. The report indicated that almost twice as much wind power was likely to be installed by 2010 than was previously projected.

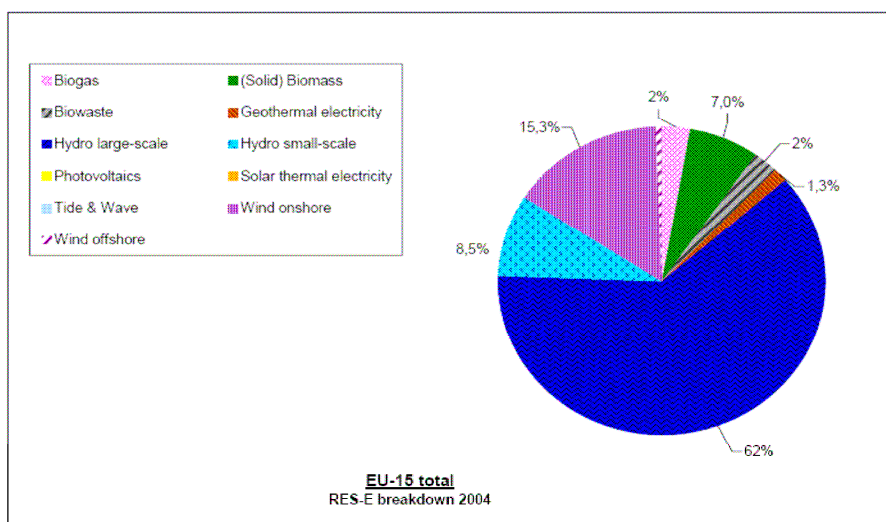


Figure 3:
RES-E as a share of the total achieved potential in 2004 for the EU-15.

In a follow-up report in 2005, the Commission concluded that more than half of EU Member States, including Ireland, were still not giving enough support to renewable electricity. On top of social and financial obstacles, the report pointed at administrative barriers and lack of transparency in grid access as key deterrents.

2.3 Developments in Ireland

Ireland launched its programme to promote electricity from renewable energy sources in 1996 in "Renewable Energy - A Strategy for the Future". Policy on renewable electricity was further reviewed in the 1999 "Green Paper on Sustainable Energy," which included a decision to support the building of up to 500 Megawatts (MW) of renewable energy based electricity plants, primarily wind powered, to be connected to the electricity network by 2005. In late 2004, the 500MW target was revised upwards to 718MW.

The bulk of this revised target will be reached through contracts offered under the government's Alternative Energy Requirement (AER) programme. Under the AER programme, competitions were organised in which project developers bid prices at which they were willing to sell electricity from renewable energy powered electricity generating stations to the ESB for 15 years. The lowest priced bids, up to capacity limits announced in the competition, received contracts with the ESB. The ESB is compensated for the net additional costs incurred from a public service obligation (PSO) levy funded by electricity consumers.

Since the Programme was launched in 1995, six AER competitions have been held. The technologies supported include wind energy, small-scale hydropower, combined heat and power (CHP), biomass (landfill gas, CHP and anaerobic digestion) and offshore wind. The final AER competitions, AER V & AER VI, are currently in progress and aim to ensure, in the main, that the current 718MW target is reached.

By June 2005, Ireland had an installed renewable electricity generating capacity of 664MW (see Box 5), equivalent to approximately 6.8% of total electricity supply. This was up from 5.2% in 2004. By June 2006, 846MW of renewable electricity generating capacity was fully connected to the national grid.

Box 5. Installed renewable electricity generating capacities in June 2005.

Technology	Capacity (MW)
Large scale Hydro (ESB operated)	223.600
Small scale Hydro	13.400
On-shore Wind energy	378.000
Offshore Wind energy	25.200
Biomass Landfill Gas	21.488
Biomass Anaerobic Digestion	0.100
Biomass Combined Heat and Power	2.875
Total	664.663

In June 2006, Communications, Marine and Natural Resources Minister Noel Dempsey increased Ireland's target for renewable energy-generated electricity from 13.2pc to 15pc by 2010. The forthcoming Energy Green Paper is expected to propose an even more ambitious target for electricity consumed to come from renewable sources by 2020.

In order to help achieve this target, a new market support mechanism, the Renewable Energy Feed In Tariff (REFIT) Programme was launched in May 2006 to replace the AER programme. REFIT is operated by the Department of Communications Marine and Natural Resources and provides support of €119m to renewable energy projects over a fifteen-year period.

Under REFIT, project developers are free to negotiate with any electricity suppliers in the liberalised electricity market, not just the ESB. The purchase price is negotiated between the generator and supplier directly. The consumer interest is protected by imposing price caps or fixed price tariffs beyond which compensation to suppliers will not be paid.

Contracting suppliers will be compensated for the net additional costs incurred (up to the price caps notified in the programme notes) from the PSO levy funded by electricity consumers (the government predicts the new program to add €3.40 to annual domestic bills). This type of support is based on the “fixed feed in tariffs” approach, which has proven successful in many EU Member States. The new fixed price tariffs are:

1. Large wind energy (> 5 MW) 5.7 cent/kWh
2. Small wind energy (< 5 MW) 5.9 cent/kWh
3. Biomass (landfill gas) 7.0 cent/kWh
4. Hydro and other biomass technologies 7.2 cent/kWh

REFIT will support the construction of an initial target of at least 400 MW of new renewable energy powered electricity generating plants. REFIT aims to more than double the contribution of renewable sources in electricity production from 5.2% in 2004 to 13.2% by 2010 (recently increased to 15%) by increasing the total capacity of renewable energy technologies built to 1,433 MWs.

This target could be met by various combinations of renewable energy technologies but it is expected that wind, hydro and biomass will be the dominant technologies, with the most likely scenario being approximately 1,100 MW of wind energy, 240 MW of hydro, 92 MW of bioenergy and 1 MW of ocean energy installed by the end of 2009.

Box 6. Wind Energy in Ireland

Ireland has one of the best wind resources in the world. The European Wind Atlas shows almost the entire country of Ireland as having either an excellent or very good wind resource and in recent years efforts to exploit this resource have begun to gather pace. In 2004, the installed capacity of wind farms in Ireland reached 339MW, up from 167MW in 2003. By the end of 2005 this had risen a further 46pc to 496MW. By the end of 2006 it is expected to reach 736MW (enough electricity to supply around 400,000 homes). In the longer term it is considered feasible that up to 50% of Ireland’s total electricity consumption could come from wind energy.

By March 2006 there was a total of 50 wind farms in Ireland. The largest onshore wind farm in Ireland is located at Meentycat, Co. Donegal. The project was completed in 2004 and has an installed capacity of 72.4 MW (38 turbines). There is currently one offshore wind farm in Ireland, situated 10 km off the coast of Arklow. The project began operation in 2004 and has an installed capacity of 25.2MWe.

It is envisaged that wind power will make the most significant contribution to the achievement of national and international targets for green electricity, due to its environmental benefits and increasing competitiveness. Europe is currently the world leader in wind power, responsible for around 75% of the world's production of wind-generated electricity and 90% of the market for wind energy equipment. Current constraints in the development of the wind sector include the insufficient supply of turbines (due to the huge increase in demand in the US and Europe) and delays in grid access, which is a particular issue in Ireland

Recent developments in wind turbine design and engineering have greatly enhanced the competitiveness of the wind energy sector and have also helped to overcome some concerns in relation to the environmental impact of wind farms (noise, visual impact, landslide, impact on wildlife, etc.). However, because the best sites for wind farms are often also high amenity areas, this remains an important consideration.

In June 2006 Mr. Dick Roche, Minister for the Environment, Heritage and Local Government launched the Wind Energy Development Guidelines, which provides advice to local authorities on planning for wind energy through the development plan process and in determining applications for planning permission.

These guidelines, in general, encourage local authorities to look favourably on the development of the wind energy sector, which not only has an important role to play in reducing CO2 emissions (every extra MW of wind energy installed avoids, on average, the release of 2,008 tons of CO2 per annum) and securing energy supply, but also helps to boost local authority revenue. All wind farms pay rates on the amount of electricity sales, typically in the region of €5,000 per MW installed.

Sources of information:

The Irish Wind Energy Association: www.iwea.com
Sustainable Energy Ireland: www.sei.ie
Meitheal na Gaoithe www.mnag.ie

Box 7. Other Sources of Renewable Electricity in Ireland

Hydroelectricity

Hydroelectricity is Ireland's second most important source of renewable electricity, after wind. The bulk of the large-scale resource (over 10 MW) has already been developed and is operated by the ESB (220MW in total). The technology is mature and reliable and further technical improvements in hydro plant are likely to be limited. The main scope for development, therefore, lies in the capability to install further small-scale systems.

Waste Biomass

Energy from waste biomass encompasses the production of heat, fuels and/or electricity from agriculture and municipal wastes. Seven landfill gas projects (totaling 21.48 MW) have so far reached commercial operation in Ireland. Technologies to produce electricity and heat from landfill gas are now well established and environmental legislation, which requires the collection of methane at landfill sites, is being widely introduced. The Department of the Environment, Heritage and Local Government has estimated that approximately 70 MW of electrical energy can be generated annually from municipal solid waste.

Biomass - Energy Crops and Forestry Residues

Biomass is the oldest of the renewable energy sources. In Ireland, its main use is as fuel-wood for domestic and process heating, which amounts for just under 1% of total primary energy

demand. There is an established market for Combined Heat & Power (CHP) generation using straightforward biomass. However, further R&D and demonstration is needed for gasification technologies. The Department of Agriculture and Food is currently finalising plans for a scheme to support the purchase of specialised wood biomass harvesting and processing equipment and a support scheme for the planting of short-rotation willow coppice as a source of energy.

Ocean energy (covering both wave and tidal energy)

Ireland possesses some of the greatest potential wave power resources in Europe, with a potential wave energy resource at least as large as that for offshore wind energy. In theory, wave energy could provide Ireland's entire electricity demand, though of course this is subject to practical and economic limits. Tidal energy could supply an estimated 6% of Ireland's electricity demand. The Marine Institute and Sustainable Energy Ireland (SEI) are currently implementing a strategy for the development of Ireland's ocean energy. An important milestone in this strategy is the establishment of a wave energy test site a mile and a half off the coast of Spiddal in Co. Galway. The 37-hectare site is now open to entrepreneurs and engineers to test prototype ocean energy generators. The first wave energy generator, 'Wavebob,' was deployed at the site in March 2006.

Solar

Active solar heating systems convert solar radiation into thermal energy (heat) which can be used directly or converted to electricity. In Ireland this technology is best suited to low-temperature heating applications, which do not require direct sunlight (e.g. domestic water systems, space heating, etc.). It is now a well-established technology and commercially available across Europe. Photovoltaics, on the other hand use semiconductor materials to convert solar energy to electricity. Costs are still high, but reducing, and the technology is beginning to be more attractive for use in commercial and industrial buildings.

2.4 Grid Issues

Access to the grid, at a reasonable and transparent price, is one of the main objectives of the Renewables Directive and is considered to be essential for the development of renewable electricity generation. It requires Member States to put in place measures to facilitate access to the grid for renewable electricity.

In Ireland, the existing grid infrastructure was mainly built when the electricity sector was publicly owned and was designed to allow access to large power plants. Renewable sources of electricity, however, tend to be smaller scale and more dispersed and it is generally uneconomical, and potentially destabilizing to connect them directly to the existing transmission system.

In 2003, the ESB raised concerns relating to the security and stability of electricity supply as the total amount of wind power in the system grew. This led to a moratorium on grid connections for wind generation in 2003. The Commission for Energy Regulation (CER) established working groups to address some of the technical concerns raised by the ESB and to develop new grid codes at transmission and distribution level.

Following the adoption of these new grid codes, the moratorium was lifted in December 2004, and a group processing approach for grid connection applications was put in place.

The first set of connection offers under this approach ('Gate 1') was made during the course of 2005, with a total of 370 MW of new renewable generation across 33 developments receiving offers. The capacity remaining in the queue for connection after the Gate 1 process totals almost 3000 MW, indicating the considerable potential that remains for increasing renewable energy input to the grid. Gate 2 is currently in progress.

Analysis of current and proposed renewable energy projects in Ireland highlights some significant complications, including:

- There is nearly 2000 MW of renewable energy capacity in the grid connection application process (after Gate 2)
- There are several hundred MW of renewable capacity with planning permission and a Power Purchase Agreement (PPA) but no signed grid connection agreement, including 268 MW of wind energy capacity with AER V / VI offers
- Given the proposed timeline for processing grid connection applications, some of the planning permissions for these projects with PPAs may lapse
- There are several hundred megawatts of wind energy capacity with signed grid connection agreements and planning permission but no PPA, including 381 MW of wind energy capacity on the AER VI Reserve List.

3. Energy Efficiency

3.1 EU Policy Developments

Several measures aimed at promoting energy efficiency have already been adopted at EU level, or are currently in the pipeline. These include: a 2002 Directive on the Energy Performance of Buildings (implementation due as of 2006); a Directive in 2004 on promoting Cogeneration (already in force); a proposed Directive on Eco-Design in 2005, which aims to make increased energy savings from domestic appliances (fridges, hairdryers, etc.) and is currently making its way through the EU decision making process; and, finally, the Energy Efficiency End-use and Energy Services Directive, which was adopted in December 2005.

The latter requires Member States to draw up national action plans to achieve 1% yearly energy savings over nine years, starting from 2008 until 2017. Sectors covered include households, agriculture, commercial and the public sector. The target is only indicative but the national action plans will have to be submitted to the Commission for approval and will be reviewed every three years. The Directive also provides for a public sector obligation to take energy efficiency into account in public procurements related to the purchase of vehicles, buildings and other equipment.

In June 2005, the European Commission presented a Green Paper on Energy Efficiency, which has opened a wider debate on energy savings and has potentially far-reaching consequences, particularly for the building and transport sectors, which have been identified as offering the greatest savings potential.

The paper outlines proposals aimed at reducing energy consumption by 20% by 2020. According to the Commission, half of the 20% energy savings mentioned in the paper could be met by simply improving the enforcement of existing legislation. The remaining 10% would need to come from new innovative solutions. Examples of specific ideas put forward in the paper include:

- Establishing Annual Energy Efficiency Action Plans at national level;
- Improve citizen awareness on energy savings through information campaigns and product labeling;
- Better targeted State Aid to encourage eco-industries and eco-innovation;
- Using the Structural Funds and other support mechanisms at national level to support projects such as clean urban transport, including public transport;
- Doing more on the energy-efficiency of buildings by extending existing measures to smaller premises (according to the Commission, the buildings sector accounts for 40% of the EU's energy requirements and offers the largest single potential for energy efficiency - up to 30-45 million tonnes of CO₂ per year).
- A number of measures to promote cleaner fuels and greater fuel efficiency in the road transport sector (harmonised tax regimes, technical standards, etc..).

As a follow-up to the Green Paper, the European Commission is expected to published an EU action plan on energy efficiency at the end of September 2006.

3.2 Developments in Ireland

In December 2005, the Minister for the Environment, Heritage and Local Government introduced the new Building Control Bill, which gives effect to the Energy Performance of Buildings Directive (2002/91/EC). The new Bill requires the energy performance certification of buildings. These Building Energy Rating (BER) certificates will be required for new dwellings from January 2007, for new non-domestic houses from January 2008, and for existing buildings (when sold or let) from January 2009.

It is estimated that there are some 10,000 lettings or re-lettings of local authority and voluntary housing each year, which will in future require energy certificates. The Bill will also require that consideration be given to alternative energy systems during the design of new buildings of over 1,000m².

In relation to the Energy Efficiency End-use and Energy Services Directive, Ireland is now committed to improving energy efficiency by at least 1% each year over 9 years, (from 2008). Ireland's proposals in this regard will be outlined in a new National Energy Efficiency Action Plan, which, under the terms of Directive, must be presented to the European Commission by July 2007.

It is expected that this plan will include targets for public bodies, including local authorities, for cuts in energy consumption across a range of service areas, including: energy savings in local authority buildings and housing stock, adaptation of public procurement practices to include energy efficiency criteria, energy audits of local authority activities, and an increased emphasis on the building control function and the activities of local energy agencies.

In addition to these developments, a number of initiatives have already been introduced in Ireland in order to promote greater energy efficiency (see Box 4).

Box 4 Energy Efficiency Initiatives Currently Operating in Ireland

The Greener Homes Scheme, which provides assistance to homeowners who intend to purchase a new renewable energy heating system for either new or existing homes. The scheme is administered by Sustainable Energy Ireland (SEI) and aims to increase the use of sustainable energy technologies in Irish homes. Further details at: <http://www.sei.ie/index.asp?locID=756&docID=-1>

Ireland's House of Tomorrow is a research, development and demonstration programme, which provides financial support to encourage developers of housing, new and refurbished, involving clusters of 5 or more homes, to incorporate design and technology features, which deliver significantly superior energy and CO₂ performance. The aim is to establish, over a number of years, a nationwide network of accessible examples of more sustainable energy design and technology practices. Further details at: <http://www.sei.ie/index.asp?locID=665&docID=-1>

The Warmer Homes Scheme aims to improve the energy efficiency and comfort conditions of homes occupied by low-income households. This approach is founded on a social employment delivery model, which engages regional community based organisations to acquire and apply the skills to carry out the work – which includes attic insulation, draught proofing, lagging jackets, energy efficient lighting, cavity wall insulation and energy advice. Further details at: <http://www.sei.ie/index.asp?locID=666&docID=-1>

The annual Sustainable Energy Awards are intended to encourage, recognise and reward excellence in energy management in the industrial, commercial and public sectors. The awards focus on individuals, groups and organizations, who demonstrate a commitment to include energy management as part of their overall management structure. Further details at: <http://www.sei.ie/index.asp?locID=215&docID=-1>

The Large Industry Energy Network (LIEN) is a voluntary networking initiative, aimed at improving the management and efficiency of energy use in industry. Currently it has 80 members, representing 51.3% of the Total Primary Energy Requirement of industry in Ireland. Members share information on energy saving technologies and techniques to maximise savings. Further details at: <http://www.sei.ie/index.asp?locID=198&docID=-1>

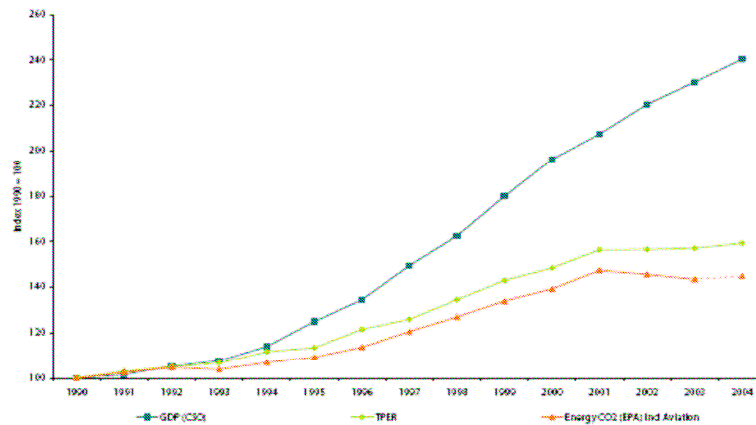
The Energy Agreements Programme is targeted at Ireland's largest energy using companies and requires participating firms to work towards the energy management standard, IS 393. Further details at: <http://www.sei.ie/index.asp?locID=628&docID=-1>

National Awareness Campaign

In the autumn of 2006, the government is expected to launch a multi-annual national campaign aimed at increasing awareness of the benefits of energy efficiency.

These energy efficiency initiatives aim to contribute to a decoupling of energy use and, crucially, of carbon dioxide (CO₂) emissions, from economic growth in Ireland. This decoupling effect has been steadily increasing since 1992 (see figure 1). In 2004, for example, the Irish economy grew at a rate of 4.4%, however, energy use in Ireland increased by only 1.4%, while energy-related CO₂ emissions increased by just 1.1%.

Figure 1: Index of Gross Domestic Product, TPER and Energy-Related CO₂



Source: Based on SEI, CSO and EPA data.

Figure 1 shows the relative decoupling of total primary energy requirement (TPER, also known as gross inland consumption¹) from economic growth since 1992 in particular during 2002 and 2003². This is a result of changes in the structure of the economy and improvements in energy efficiency. To a lesser extent, the decoupling of CO₂ emissions³ from energy use is also evident, particularly since 1993.

Much of what has been achieved to date has come from Industry, where final energy use fell by 1.5% to 2.2 million tonnes of oil equivalent (Mtoe) in 2004, and the commercial and public services sector, where final energy use fell by 3% to 1.7 Mtoe in 2004. Both sectors also recorded significant reductions in CO₂ emissions. In the residential and transport sectors energy use and CO₂ emissions continue to experience growth. These sectors will, therefore, be targeted for greater attention in the future.

4. Biofuels

4.1 EU Policy Developments

In its Green Paper, Towards an European Strategy for the Security of Energy Supply (2000), the EU expressed its aim of a 20% substitution of traditional automotive fuels by alternative fuels by the year 2020. In November 2001, the European Commission presented a Communication on Alternative Fuels for Road Transport, in which it identified biofuels, natural gas and hydrogen as offering the best potential as possible alternative energy sources for transport.

In 2003, the EU adopted Directive 2003/30 EC on the Promotion of the Use of Biofuels. This "Biofuels Directive" urged Member States to set indicative targets for a minimum proportion of biofuels in the overall transport fuel mix. These targets were set at 2% by 2005 and 5.75% by 2010.

As biofuels are still more expensive to produce than traditional fuels, in October 2003 the EU also introduced Directive 2003/96 EC on the Taxation of Energy Products and Electricity, which allowed Member States to apply a total or partial exemption of taxation for biofuels. Germany, Austria, the UK and other Member States have taken this opportunity, providing exemptions on all biofuels. Ireland has recently introduced an exemption on a limited volume of biofuel (see below).

Biofuels

Biofuel is bio-energy produced from biomass. The term commonly applies to liquid transport fuels, but also includes gas and solid fuels such as wood pellets and chips, and also the combustion of organic material. Generally, a distinction is made between first-generation biofuels (mainly produced from food crops such as cereals, sugar beet and rapeseed) and second-generation biofuels (produced from non-food feedstocks, such as 'woody' sources or via new technologies to convert biomass to liquid (BTL)).

At present, three biofuels account for almost all consumption in the transport sector world-wide: Bioethanol, biodiesel, and biogas. Bioethanol is the world's main biofuel. Biodiesel, which until recently was produced almost solely in the EU, is now gaining a foothold in many regions across the world. Biogas comes third and has so far made a breakthrough only in Sweden.

Brazil and the US are the main production regions for bio-ethanol (in Brazil, over 11 million vehicles run on either pure or blended bioethanol, representing 45 per cent of the national fuel consumption); the EU has the largest production of bio-diesel. Germany, France, Sweden and Spain are the leading EU countries regarding the use of biofuels for transport.

Biofuels: the Pros and Cons

PROS

- Low emissions of greenhouse gases in comparison to fossil fuels (In principle, biofuels are "carbon neutral": when they are used, no more carbon dioxide is released than has been absorbed during the growth of the plants used to make these biofuels);
- Biofuels can help to develop new markets for agricultural and forestry produce;

- First-generation biofuels can currently be used in low-percentage blends with conventional fuels in most vehicles and can be distributed through the existing infrastructure (Some diesel vehicles can run on 100% biodiesel)
- Biofuels can displace petroleum-based fuels that are currently dominant in the transport sector and can provide a domestic rather than imported source of transport fuel.

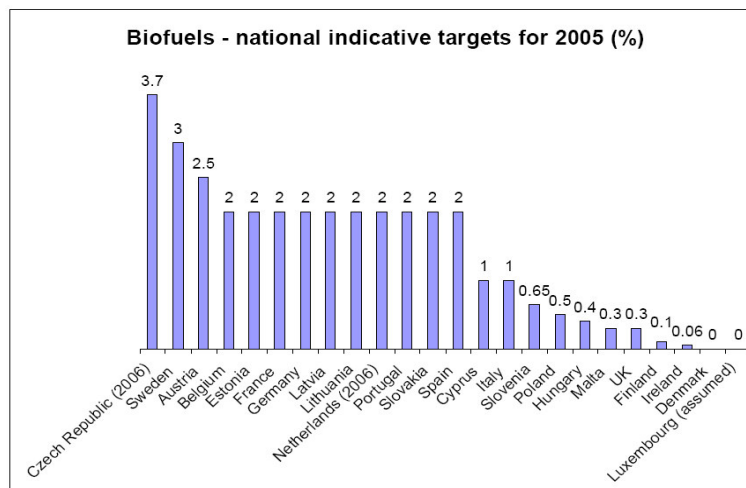
CONS

- Possible environmental risks (there are dangers, particularly with first generation biofuels, of more use of fertilisers and pesticides to grow energy crops, giving rise to greater risks for biodiversity and soil quality. Growing energy crops for export could also lead to more deforestation in developing countries, with negative implications for global warming.
- Using agricultural land to grow bio-energy crops would compete with the use of land for food and animal feed production. To reach the 5.75% target of the Biofuels Directive, biofuel crops would take up between 4% and 13% of the total agriculture area of the EU-25.
- High production costs (with current technology, EU-produced biodiesel breaks even at around €60 per barrel, while bioethanol becomes competitive at around €90 per barrel).
- Losses to the exchequer in tax revenue.

Despite the possible risks, encouraging the use of currently available biofuels is seen as an important intermediate step to reducing greenhouse gas emissions, to diversifying transport energy sources, and to preparing the EU economy for other alternatives in the transport sector which are not yet mature, such as second generation biofuels, natural gas and hydrogen fuel cells.

Second generation biofuels should be more cost effective and are expected to have much lower overall greenhouse gas emissions and other environmental impacts than first generation biofuels, which currently dominate production in the EU. A Biofuels Technology Platform, launched by the European Commission in June 2006, aims to advance research and development on second generation biofuels.

The Biofuels Directive requires Member States to report annually on the promotional measures taken and targets reached. Every two years, starting from 2006, the Commission will then evaluate progress and if necessary, introduce new or changed policies (for example, if the indicate targets are not being achieved, then the Commission may, as of 2006, introduce mandatory targets). The first reports from the Member States, submitted in July 2004, included individual Member State's indicative target for the first phase (31 Dec. 2005).



The variation in national indicative biofuel targets set by the Member States in response to the Directive gives some indication of political ambition. A number of Member States set 2% or higher as their reference target for December 2005. However, seven Member States suggested significantly lower targets, which were rejected by the European Commission. These included: Denmark (0.0% target), Ireland (0.06 %), Finland (0.1 %), the UK (0.3 %), Hungary (0.4-0.6 %), Poland (0.5 %) and Greece (0.7 %).

At the end of 2005, with a market share of just 1.4%, it was clear that the biofuels would not reach the 2% target for that year, and would probably also fail to reach the 2010 target unless new measures were undertaken. In order to give new impetus to the biofuels sector, the Commission, therefore, presented a Biomass Action Plan in December 2005.

The plan includes proposals for more than 20 actions aimed at encouraging the use of biomass for transport, heating and electricity generation. For transport, this includes a proposal for “biofuels obligations”, whereby suppliers would have to include a minimum proportion of biofuels in the conventional fuel they place on the market.

In February 2006, the European Commission published a new Communication, "An EU Strategy for Biofuels" preparing the ground for a review of the Biofuels Directive by the end of 2006. This review is widely expected to propose mandatory targets instead of the indicative ones set in 2003. The Strategy also encourages Member States to give favourable treatment to second-generation biofuels, biofuels obligations, and the setting up of an ad hoc group to consider the production of biomass and biofuels in national rural development programmes. Other proposals included in the biofuels strategy include:

- encourage Member States and regions to consider the benefits of biofuels and other bioenergy when preparing their Structural Funds and rural development programmes;
- to work with relevant industries to remove barriers to the introduction of biofuels;
- to make sugar production for bioethanol eligible for both the non-food regime on set-aside land and the energy crop premium;
- assess the opportunities for additional processing of cereals from existing intervention stocks into biofuels;
- assess the implementation of the energy crop scheme by the end of 2006;
- finance a campaign to inform farmers and forest holders about energy crops;
- bring forward a Forestry Action Plan, in which the energy use of forest material will play an important part;
- review animal by-products legislation in order to facilitate the authorisation and approval of alternative processes for the production of biofuels;
- encouraging the Council and European Parliament to give speedy approval to its recently adopted legislative proposal to promote public procurement of clean and efficient vehicles, including those using high blends of biofuels (see Box 6).

Box 6: Proposals on Procurement of “Green” Vehicles by Public Authorities

The European Commission published a proposal in December 2005 for a new Directive, which would require public authorities to allocate 25% of their annual vehicle procurement budget to

clean vehicles. The clean vehicles Directive, if adopted, would impose strict standards for the type of fuel or engine in vehicles weighing more than 3.5 tonnes, when bought by public bodies, including governments, regional and local authorities and EU institutions. This would include buses and most utility vehicles, such as rubbish collection vans, etc... For a large vehicle to meet the necessary environmental standards, it would have to use an "alternative" fuel, such as biofuels or hydrogen, or alternatively be an electric or hybrid vehicle. *Further details at: <http://europa.eu.int/rapid/pressReleasesAction.do?reference=MEMO/05/495&format=HTML&age d=0&language=EN&guiLanguage=en>*

4.2 Developments in Ireland

Unlike some other EU countries, Ireland's land resource is sufficiently large in relation to its energy use for biofuels to make a significant contribution to national energy supply. The amount of biofuels that can be produced from currently available biomass is about half of the 2005 target. If, on top of this, currently unproductive set-aside land were used for biofuel production, it is estimated that about 79% of the 2005 and 23% of the 2010 target could be fulfilled with indigenous Irish biomass.

Therefore, to fully meet the 2010 target of 5.75% of the transport fuel mix it is estimated that around 80,000 hectares of arable land would have to be converted from food to energy production. The total area currently used for arable crops in Ireland is 0.4 million hectares (Mha), which is 9 % of the total area devoted to agriculture. It is estimated that a further 0.6 Mha has the potential to be converted to arable use in the longer term.

Despite the obvious potential, however, development of the biofuels sector in Ireland has been slow. This has been largely attributed to the lack of fiscal incentives to boost the commercial viability of biofuels. The indicative target set in Ireland's first report on the Biofuels Directive (0.06% of the total transport fuel mix by December 2005) was rejected by the European Commission as being unjustifiably low. It was later accepted, however, on the basis of a significantly higher target of 0.13% of total transport fuel mix by the end of 2006. A target of 2.2% has since been set for 2008 (market penetration of biofuels in 2005 was 0.045%).

In August 2005, the Irish Government launched the Mineral Oil Tax Relief Scheme, which granted an excise exemption to eight biofuels companies for a two-year trial period, allowing for the production of 16 million litres, or 115,200 tonnes of biofuel.

Galway City Council Opts for Biofuels

Eco Ola is one of the companies benefiting from the Mineral Oil Tax Relief Scheme, for the production of biodiesel from vegetable oil recovered from restaurants in the Galway area. The project is being rolled out in conjunction with Galway Mayo Institute of Technology and the company will be providing biodiesel for Galway City Council. Galway City Council announced in July 2006 that it would be using the biodiesel in its fleet of trucks and vans. The Council uses an estimated 350,000 litres of diesel per annum and has introduced a 5% mix of biodiesel to the annual consumption.

Cork City Leading the Way on Biofuels

Cork City Council has been a pioneer in terms of adopting biofuels. In 2003 the City Council modified the engines of 17 light commercial vehicles to operate on pure rapeseed oil. The project is part of the EU programme CIVTAS I, which promotes strategies to achieve Clean Urban Transport. The cost of the conversion was approximately €1,000 per vehicle. The fleet refuels at the Cork city depot, where an old leaded petrol tank has been converted to hold the rapeseed oil. Eilish Oils Ltd. from County Wicklow supplies the rapeseed oil at a price before VAT and excise duty of around €0.52/litre. Further details at: http://www.civitas-initiative.org/measure_sheet.phtml?lan=en&id=26

Building on this scheme, in July 2006, the Government introduced the five-year Biofuels Mineral Oil Tax Relief Scheme II. This relief, when fully operational in 2008, is expected to support the use and production of some 163 million litres of biofuels per year, enough to achieve the target of 2.2% penetration of the transport fuel market by 2008. In parallel, the Government has also announced that it will launch a capital grants programme for biofuels facilities later in 2006.

A new Vehicle Registration Tax (VRT) relief of 50% for flexible fuel vehicles – vehicles capable of operating on high-grade biofuels – was also introduced on a pilot two-year basis, with effect from 1 January, 2006. The existing VRT relief for hybrid electrical vehicles has also been extended by a further year to 31 December 2007.

In July 2006, Mr Noel Dempsey, T.D., Minister for Communications, Marine and Natural Resources established a new Ministerial Task Force on bio-energy, as part of the ongoing policy to increase the share of indigenous renewable energy in the Irish heat, electricity and transport markets.

The Task Force, which had its first meeting on 31 July 2006, is chaired by Minister Dempsey and its members include Mary Harney, T.D., Brian Cowen, T.D., Minister for Finance, Mary Coughlan, T.D., Minister for Agriculture and Food, Dick Roche, T.D., Minister for the Environment, Heritage and Local Government, Martin Cullen, T.D., Minister for Transport and Mícheál Martin, T.D., Minister for Enterprise Trade and Employment. The Taoiseach's office will also be represented on the Task Force.

Ministers participating in the Task Force have agreed that they will draw up a comprehensive National Bio-Energy Action Plan by the end of 2006, which will set ambitious targets for deployment of bioenergy, identify priority areas for development and the necessary support measures to encourage supply and demand.

Biofuels and EU Agriculture & Rural Development Policy

Biofuel production in the EU to date has been based almost entirely on crops grown on set-aside land. This use has increased steadily each year since the introduction of the scheme in the early nineties. About 2 million ha out of 5 million ha of set-aside land in the EU is currently devoted to biofuel crops.

The ongoing process of CAP reform, and particularly the decoupling of income support from production introduced in 2003 should help to boost the supply of energy crops. Under current

rules, crops that were eligible for direct payments only under the non-food regime on set-aside areas, may now be cultivated on any area without loss of income support.

The set-aside obligation, which was introduced with the 1992 reform as a tool to balance the cereals market, has been integrated into the new single payment scheme. The cultivation of non-food crops (including energy crops) is authorised if the use of the biomass is guaranteed either by a contract or by the farmer.

A special aid for energy crops was also introduced by the 2003 CAP reform. A premium of €45 per ha is available, with a maximum guaranteed area of 1.5 million hectares as the budgetary ceiling. This must be land other than set-aside land.

Political agreement has recently been reached on a major reform of the Common Market Organisation for sugar. Under this reform, sugar beet grown for bioethanol will continue to be exempt from quotas. The Commission is also proposing to make sugar beet grown for bioethanol eligible for both the non-food regime on set-aside land and the energy crop premium.

In 2006, for the first time, a tender for rye from intervention stocks will be opened specifically for bioethanol production. Additional processing of cereals into biofuels is seen as a way of contributing to reducing the amount of cereals exported with refunds.

Under the new EU rural development policy for 2007-2013, investments in biomass processing, as well as the mobilisation of unused biomass by forest holders, can be supported. It is also proposed that a specific ad hoc group be established to consider biomass and biofuel opportunities within national rural development programmes. Further details at: http://europa.eu.int/comm/agriculture/biomass/biofuel/index_en.htm.

5. EU Programmes and Funding

Intelligent Energy Europe Programme (IEE)

IEE is the main funding instrument for EU policy for energy efficiency and renewables. The programme specifically supports action in the areas of: new and renewable energy sources; energy efficiency (including the establishment of local energy agencies), energy aspects of transport; and co-operation with developing countries. The current programme finishes at the end of 2006, but a new IEE II programme will run from 2007-2013. Further details at:

http://ec.europa.eu/energy/intelligent/call_for_proposals/index_en.htm

or contact Matthew Kennedy: Sustainable Energy Ireland, Tel: +353 1 808 2070, e-mail: matthew.kennedy@sei.ie

Meath Local Energy Agency

Meath Energy Management Agency (MEMA, <http://www.mema.ie>) is a local energy agency formed in 2002 by Meath County Council, with support from the forerunner to the EU Intelligent Energy Europe programme. MEMA is a non-profit organisation, facilitating individuals and the wider community to become more energy aware and energy efficient. MEMA is part of a Europe wide network and is partnered with two associated agencies: Morlaix (France) and Ribera (Spain). MEMA is also a member of the Association of Irish Energy Agencies (AIEA, <http://www.aiea.ie>), an all-island body, which currently has [16 member agencies](#).

Structural Funds Programmes 2007-2013

A stated objective of the Structural Funds Programmes for the period 2007-2013 is to "address Europe's intensive use of traditional energy sources." This includes measures to improve energy efficiency and increase the use of renewable and alternative energy technologies. In Ireland, funding will be available through two Regional Operational Programmes (covering the Southern & Eastern (S&E) region and the Border, Midland & Western (BMW) region), two cross-border programmes, three transnational programmes and an interregional programme under the Territorial Cooperation Objective. Draft versions of these programmes will be available for public consultation in the autumn 2006. Further details at: http://ec.europa.eu/regional_policy/funds/2007/index_en.htm or <http://www.bmwassembly.ie> (BMW region) and <http://www.seregassembly.ie> (S&E region)

Funding for Solar Heating in Sligo

Sligo County Council received €70,000 under the Interreg IIIA (2000-2006) Ireland-Northern Ireland programme for the project, "Solar Water Heating for Public Buildings." This project seeks to demonstrate the environmental and energy savings potential from the use of solar thermal systems in buildings with a high-energy demand. The project will deploy the use of these systems in local authority buildings in Sligo and Belfast.

The 7th Research Framework Programme 2007-2013 (FP7)

The FP7 programme will include measures focusing on sustainable development, including renewable energy and energy efficiency. It concentrates, in particular on five research priorities: cost-effective supply of renewable energies, large-scale integration of renewable energy, eco-buildings, polygeneration and alternative motor fuels. Further details at: <http://ec.europa.eu/research/fp7/> or contact: Dr Imelda Lambkin, Enterprise Ireland, Tel: +353 (0)1 808 2000, e-mail: imelda.lambkin@enterprise-ireland.com

Kerry County Council

Kerry County Council received support under the EU's Research Framework Programme to develop an 8.52 MW hybrid renewable energy project to demonstrate the potential to supply an Irish local authority from renewable sources. The project includes the development of a 6.8 MW wind farm; a 1 MW hydro power plant combined to water supply upgrading; a 250 kW hydro power plant linked to auxiliary water supply; and a 470 kW landfill gas power plant. The objective is to try and match the output from these renewable sources with the energy demand of the Council. Further details from: Mr Stephen O'Connor, Automated Systems & Controls Ltd. (project coordinators). Tel: +353-217336034 Fax: +353-217336572, Stephen.oconnor@turnkeydev.com

Rural Development Programmes 2007-2013

The new European Agricultural Fund for Rural Development (EAFRD) 2007-2013 will include measures specifically aimed at supporting the development of renewable energy and material sources for bioenergy installations, as well as improving the environmental performance of farms and forestry. Further information is available at: http://ec.europa.eu/agriculture/rurdev/index_en.htm or contact: Mr Donal Coleman, Rural Development 1 Division, Department of Community, Rural & Gaeltacht Affairs. Tel: +353 (0)1 647 3000

Energy Savings for Community Swimming Pool in Carlow

Under the current Rural Development Programme in Ireland, Carlow LEADER group provided assistance to Bagenalstown Swimming Pool Centre to replace the existing LPG boilers with a new water-to-water and air-to-water heatpump system. The new system uses renewable sources of energy. Carlow LEADER provided grant aid €9,000 and facilitated access to Irish and international expertise. Further details at: <http://www.ilsu.ie/Newsletter/Ed7/ProjProf.html>

Sustainable Energy Europe

In July 2005, the European Commission launched a 4-year plan aimed at increasing public awareness of the potential of sustainable energy. The €3.7m campaign, entitled "Sustainable Energy Europe 2005-2008," is designed to help the EU meet its targets of increasing the share of renewable energy to 12% by 2010 and reducing energy consumption by 2020. Measures included in the campaign are annual sustainable energy awards and an annual conference and campaign website for the media and public. The campaign also aims to develop sustainable energy partnerships involving organisations that are planning projects that will impact on the EU's energy environment. Further details at: <http://www.sustenergy.org/> or Tel: +32 2 340 30 64, e-mail: info@sustenergy.org

6. Future Outlook

6.1 Future Perspectives at EU Level

The European Commission opened the debate on a future common European Energy Policy with the publication of the Green Paper, "A European Strategy for Sustainable, Competitive and Secure Energy" in March 2006. Suggestions include completing the opening of European gas and electricity markets, stepping up relations with major suppliers such as Russia and OPEC, boosting renewable energies and energy efficiency, and increasing investment in research on low-carbon technologies.

The Green Paper proposes a new road map for renewable energy, including targets for 2020 and beyond, and an Energy Efficiency Action Plan, to be published later in 2006. It also places considerable emphasis on the importance on investing in energy technology and the need for further debate on nuclear energy.

EU leaders broadly endorsed the Green Paper at their annual spring summit on 24 March 2006 and agreed on "considering raising by 2015 the share of renewable energies" to 15% (up from 12% by 2010) and increasing the share of biofuels to 8% by the same date (up from 5.75% by 2010). There was also agreement on the need to immediately implement the EU's Biomass Action Plan.

Discussions on a common energy policy will continue this year, with the results of a public consultation on the Commission's Energy Green Paper due before the end of 2006 (see Box 5). The results will then feed into a Strategic Energy Review that the Commission will present on the 10 January 2007.

Box 5. Public consultation on EU Energy Green Paper

The Green Paper on a European Strategy for Sustainable, Competitive and Secure Energy is a consultation document designed to stimulate ideas and debate on future EU energy policy. This consultation was open for 6 months, until 24 September 2006. Further details at: http://ec.europa.eu/energy/green-paper-energy/index_en.htm

6.2 Future Perspectives for Ireland

The immediate challenge for Ireland is to meet its commitments and targets arising from existing EU legislation on renewables, energy efficiency and climate change. However, within this, Ireland has considerable scope to decide which sectors (wind, biomass, wave, etc..) to prioritise and the instruments to use to promote these sectors. Ireland also has the option of going beyond its commitments at EU level and setting more ambitious targets on the basis of national policy priorities.

While most of Ireland's renewable electricity targets for 2010 are likely to be met by wind energy deployment, other renewables will become increasingly important beyond 2010 in meeting future targets. Ocean energy (covering both wave and marine tidal energy) is one such source. The Sustainable Energy Ireland report, "Renewable Energy

Development 2006” suggests that Ireland possesses some of the greatest potential wave power resources in Europe, with a potential wave energy market at least as large as that for offshore wind energy. In theory, wave energy could provide Ireland’s entire electricity demand, though of course this is subject to practical and economic limits. It is also estimated that tidal energy could supply up to 6% of Ireland’s electricity demand.

Similarly, while first generation biofuels will be key to meeting Ireland’s biofuels target for 2010, beyond this, second generation biofuels are likely to take on a greater importance due to their lower cost and lower environmental impact. This is likely to result in a shift in investment away from first to second generation biofuels in the next few years.

The government is expected to publish a Green Paper on Energy in October 2006, which should provide greater clarity in relation to future developments in the area of renewables and energy efficiency. The Green Paper will elaborate on the report, “Renewable Energy Development 2006,” published by the Minister for Communications, Marine & Natural Resources on 18 August 2006, which provides a broad overview of current policies in the field of renewable energy and introduces some of the key issues and challenges to be addressed. The report also includes additional reports on the alternative technologies, including: combined heat and power (“CHP”), bioenergy, ocean power, and wind-power.

The Green Paper is also likely to be informed by the “Review of Energy Policy”, published in June 2006 by an Oireachtas Joint Committee on Communications, Marine and Natural Resources. This report outlines 38 recommendations in relation to future energy policy in Ireland, including one on promoting a debate on nuclear energy. On renewable electricity, the report recommends that:

- Ireland must look beyond its 2010 target of providing 15% of gross electricity consumption from renewable energy and should set the goal of achieving the overall EU target of 21%.
- In the longer term, Ireland must provide at least 50% of its electricity from renewable sources by 2050.
- Ireland’s peat fired power stations be fully converted to biomass by 2020;
- Increased Government support is made available in the next National Development Plan (NDP) for renewables and energy efficiency.
- Ireland increases its production and use of liquid biofuels to reach the EU target of 5.75% substitution by 2010 (aided by an overall biofuel blend requirement being placed on suppliers). To meet this target, the Committee calls for the establishment of large-scale biodiesel and bioethanol plants and recommends that the possibility of providing State assistance to encourage the conversion of the Mallow sugar factory to bioethanol production should be investigated.
- The additional excise and VAT receipts accruing from rising oil and gas prices be ring-fenced to be used as fiscal supports for all forms of renewable energy in addition to supports for R&D.

The Joint Committee also recommends that micro-generation or mini-generation CHP for individuals or communities should be permitted, including the use of local distribution over the network (wheeling). It also recommends the establishment of an Energy Consumer Users Body, which would be consulted by all Government bodies and NGO’s in the development of all aspects of energy policy.

All-Island Energy Market

Co-operation between the Republic of Ireland and Northern Ireland on energy matters is being advanced in the context of the development of an All-Island Energy Market. This takes place under the auspices of a Joint Steering Group (JSG) established in July 2003. The JSG is comprised of senior officials from the Department of Communications, Marine & Natural Resources (DCMNR), the Department of Enterprise, Trade and Investment (DETI) in Northern Ireland and the offices of the two Regulatory Authorities, the Commission for Energy Regulation (CER) in the South and the Northern Ireland Authority for Energy Regulation (NIAER).

In November 2004, an All-Island Energy Market Development Framework was published, which includes the delivery of an All Ireland-Electricity Market by November 2007 and the development of a new electricity interconnector with Britain (2012). At the end of 2005, the Sustainable Energy Working Group of the JSG published a paper entitled, "All-island Energy Market: Renewable Electricity – A 2020 Vision", which presents proposals for all-island renewable electricity generation and identifies the policy and electricity system issues required to establish a vision for 2020. It is the intention to advance the process by way of a plenary forum to take place in 2006. Further details at: <http://www.dcmnr.gov.ie/Energy/North-South+Co-operation+in+the+Energy+Sector/>

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2001 - Communication on Alternative Fuels for Road Transport
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2002 - Directive on the Energy Performance of Buildings
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2003 - Directive on restructuring the Community framework for the taxation of energy products and electricity (including exemption of taxation for biofuels)
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http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_123/l_12320030517en00420046.pdf

2004 - Directive on promoting Cogeneration
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2006 Oireachtas Joint Committee on Communications, Marine and Natural Resources published a Review of Energy:

<http://www.oireachtas.ie/viewdoc.asp?DocID=5843&&CatID=78>

2006 ReFIT programme can be found at:

<http://www.dcmnr.gov.ie/Energy/Renewable+Energy+Division/Renewable+Energy+Division.htm>

2006 - Renewable Energy Development 2006

<http://www.dcmnr.gov.ie/NR/rdonlyres/7124BA39-05AF-4717-8E0C-35402B785E18/0/RenewableEnergyDevelopmentOverview.pdf>

Other Useful Publications

The Council of the European Municipalities and Regions (CEMR), in collaboration with Energie-Cités and Climate Alliance, has published a guidebook entitled, "Save Energy, Save the Climate, Save Money - A Guide for Local and Regional Authorities". Available at:

http://www.ccre.org/bases/T_599_34_3524.pdf

In May 2004, the Department of the Environment, Heritage & Local Government published "Local Authorities and Renewable Energy: A Framework for Public Private Partnerships". This document

is intended to provide both general information and guidance to local authorities considering implementing a Public Private Partnership project in the renewable energy sector. Available at: [http://www.environ.ie/DOEI/DOEIPol.nsf/0/7d381a74476b3eff80256f0f003bc838/\\$FILE/PPP%20Energy%20framework.pdf#search=%22Kerry%20County%20Council%20EU%20framework%20programme%20for%20research%22](http://www.environ.ie/DOEI/DOEIPol.nsf/0/7d381a74476b3eff80256f0f003bc838/$FILE/PPP%20Energy%20framework.pdf#search=%22Kerry%20County%20Council%20EU%20framework%20programme%20for%20research%22)

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