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30 November, 2006

Energy Green Paper Submissions,  
Energy Planning Division,  
Dept. of Communications, Marine & Natural Resources,  
Adelaide Road,  
Dublin 2.

## **Submission from Bord na Mona**

**on**

### **The Energy Green Paper: “Towards a Sustainable Energy Future for Ireland”**

Dear Sir/Madam,

I refer to the Green Paper on energy policy “Towards a Sustainable Energy Future for Ireland”, released for public consultation and comment at the beginning of October 2006. Bord na Mona welcomes the opportunity to comment on the paper and to input into the formulation of Ireland’s energy policy and development strategy for the medium term.

At a macro level, we would support the broad thrust of the Paper: to ensure the security of energy supply; to promote sustainability and environmental protection; and to enhance cost competitiveness. Recognising Ireland’s current dependence on external sources of primary energy, the major challenge facing our policy makers and project developers is how to increase the amount of sustainable, indigenous and renewable energy used in the electricity, heating and transport sectors. Coupled with this is Ireland’s need to increase the use of energy sources with a lower carbon intensity, in order to help meet our international obligations under the Kyoto Protocol.

The principal areas of energy policy which we believe should be the focus of attention, and clearly defined action plans, in the forthcoming White Paper include:

- Ø Enhancement of the electricity grid in order to support the introduction of additional generation from renewable sources;
- Ø Promotion of the development and diversified ownership of a much more flexible generation portfolio;
- Ø Introduction of a range of support mechanisms which will ensure the adequate supply of bioenergy materials, especially to the heat and power sectors;
- Ø Taking a leadership role in policy support for the development of waste to energy, and the recovery of biofuels from the waste stream.

Our specific comments on the scenarios outlined and the individual measures proposed are listed under the paragraph numbers used in the paper, and are set out in the sections following.

## Section 1 - Background

1.2.6: Bord na Mona considers that the ‘business as usual’ scenario projected, under which more than 70% of our electricity will be generated from natural gas by 2020, entails a considerable degree of risk. In 2005, we supplied only 13% of our total gas demand from indigenous sources. The development of the Corrib gas field, off the Mayo coast, will improve domestic supply significantly for about 10 years, but it is forecast to decline thereafter. In the absence of another domestic gas find, Ireland will again face high import dependency, with the attendant risks associated with weaknesses and bottlenecks in the external gas supply infrastructure. A broader primary fuel mix, coupled with dual-firing capability in gas-fired generating plants will help to mitigate this risk.

1.2.8: Bord na Mona supports the development of an additional North-South interconnector, and also a new East-West interconnector with Britain, which will help to move Ireland towards being part of a larger regional electricity market. However, these developments should not remove the imperative to develop indigenous resources to the optimum extent and, given its comparatively limited capacity, we should not place an over-reliance on the East-West interconnector. The existing electricity transmission system has only very limited capacity to accommodate new generation in many locations throughout the country. Development of the country’s internal electricity grid infrastructure, especially for indigenous resources such as renewable energy, will be critical to meeting the targets proposed and ensuring both generation adequacy and security of supply.

1.2.27: While the share of peat in Ireland’s total primary energy supply declined to 577 ktoe, or 3.8% of primary energy, in 2004, Bord na Mona would not consider this to have been a normal year. As recognised in the paper, demand for peat is primarily driven by peat-fired electricity generation, and during 2004 consumption declined owing to the planned delay between the closure of the older peat-fired plants at Lanesboro and Shannonbridge, and the commissioning of the new ESB peat-fired stations. In a normal year we would expect total peat consumption to be around 560 ktoe for power generation and 270 ktoe for domestic heating.

1.2.30: We commend the Government’s policy in relation to the continued use of indigenous peat for electricity generation and recognise the emission benefits already achieved, through replacing the older peat-fired capacity with three new power plants which generate electricity from peat in a clean and efficient manner. Specific emissions of carbon from the peat-fired generation of electricity have declined from 1.48-1.9 tCO<sub>2</sub>/MWh in the older peat-fired stations to around 1.12 tCO<sub>2</sub>/MWh in the new peat power plants.

The peat bogs currently in production contain sufficient peat to supply the three new peat-fired plants for at least 20 years. Given that the price of peat as a fuel is not directly correlated with oil or gas prices, peat remains an attractive option for maintaining diversity in the fuel supply for electricity generation. The economic benefit of maintaining peat in the generation mix is clearly demonstrated by the fact that the estimated forward price of electricity generated from Edenderry Power Plant for 2007 is €64/MWh, including a €3/MWh carbon cost, which is 25% below the Best New Entrant benchmark price of €86.40/MWh.

1.2.34: Bord na Mona welcomes and supports the intention of Government, industry and agencies working together to remove some of the obstacles to greater penetration by renewables in the generation of electricity. We would emphasise that this must be an urgent priority due to the number of renewable energy projects seeking to connect to the electricity system, the barriers presented by the connection application process (partly due to inadequate or inappropriate electricity infrastructure), and lack of co-ordination between the incentive programmes and other regulatory requirements. The long lead time associated with infrastructure improvement renders both the immediate planning for grid enhancement, and its physical development, absolute priorities.

1.3.13: We would recommend that in order to encourage greater participation of companies in energy RTDI and RD&D programmes, particularly in EU schemes, the application processes need to be simplified and reporting made easier.

## Section 2 – Policy Framework

2.1.6: Bord na Mona welcomes the acknowledgement that greater penetration of renewables will require a more flexible generation portfolio as well as further interconnection. We would also add the requirement for improvements in the internal electricity grid infrastructure and the need for appropriate market signals to be put in place, with a level of risk acceptable to investors, to encourage the development of such a flexible generation portfolio.

2.1.20: Bord na Mona supports the view that coal should remain part of the energy mix, particularly for electricity generation. However, while accepting the obvious merits of improvements in conversion efficiency, the issue of physical carbon sequestration in underground reservoirs or saline aquifers presents long term risks associated with its potential release at a later time. Biological sequestration in living plant material, while perhaps more expensive than pumping carbon dioxide into a reservoir, may provide a more viable and stable storage medium.

2.1.22: Bord na Mona recognises the potential to reduce CO<sub>2</sub> emissions through the co-firing of biomass materials in the peat stations, but a number of issues need to be addressed in order for this to be realised. These include: amendments to the planning and licensing conditions for the peat-fired plants; extension of the PSO support period to cover deferred peat sales under existing contracts; the creation of robust supply chains to ensure continuity of supply of high quality biomass materials; and the introduction of appropriate support mechanisms.

While co-firing trials have shown that it is technically possible to replace up to 30% of the peat fuel, Bord na Mona does not believe that there are sufficient resources of biomass available today to support this scale of substitution. Recognising that new afforestation has lagged behind national planting targets, and competition exists from both the board and panel mills and the developing wood-to-heat sector, new initiatives to encourage the growth and production of biomass materials will be required. A critical issue for the Government will be how much of the supply chain support (covering establishment, fertilisation, protection, harvesting, drying and transportation) will be carried by the agri/forest industry and how much will be passed through to the electricity consumer.

For example, Edenderry Power station has been granted ~ 77% of its required emission allowances under the first phase of the EU Emissions Trading Scheme. The cost of

purchasing allowances on the international carbon markets in 2005, to match verified emission levels from the plant, was €5.5M. Any support mechanism devised to help achieve the 30% co-firing target should include provisions to redirect this external spend to support the purchase of biomass. Even allowing for this purchase of carbon credits, the market price of electricity generated from the Edenderry Power station is still over €20/MWh below the BNE price for 2007. This provides considerable headroom for implementing additional mechanisms to support the use of biomass in the fuel mix at the plant. Such support mechanisms would help to create an immediate market for biomass, and stimulate the growth and development of supply chains.

In developing bioenergy supply chains to the electricity generating sector, we believe that emphasis must be placed on developing the indigenous sources of biomass, as opposed to relying on imports. While imported carbon neutral fuels may help Ireland achieve its international emissions obligations, they will not contribute much to our overall security of supply. Similarly, imported sources of bioenergy will not result in any stimulation of economic activity in our rural communities. Support mechanisms need to be introduced to give the necessary lift in the initial stages to the development of local supply chains, e.g. in the form of establishment grants for energy crops, as the creation of local chains will be essential for the long term, reliable supply of economic sources of biomass to the power generating sector.

2.1.24: In the first instance the level of renewable electricity generation (RES-E) should be set in the context of the foundation stones of energy policy - security of supply, sustainability, and competitiveness – taking account of the key longer-term policy drivers of climate change and fossil fuel resources and their global distribution. We support the new targets of 15% RES-E by 2010 and 30% penetration by 2020. However, in order to achieve these targets using primarily non-dispatchable sources, a much more flexible generation mix is required. Clearly a programme of grid infrastructural improvement to facilitate intermittent sources, coupled with the appropriate market signals to incentivise the development of flexible generation capacity, is needed urgently to achieve the 2020 target. We believe that the target can be achieved, and indeed exceeded, but only if it is set as a firm target and the policies to deliver it are put in place and resourced and enforced accordingly.

2.1.30/2.2.11: The grid infrastructure is already a constraint on renewable energy development and deployment. It is imperative that there are no further delays in taking the actions necessary to address this, and it is hoped that the All-Island Grid Study will accelerate dramatically the pace of infrastructure development necessary for renewables.

2.2.12 – Bord na Mona welcomes the Government's initiatives in bio-energy, including the report of the Bioenergy Strategy Group<sup>1</sup> and the formation of the high-level Ministerial Task Force on bioenergy. We believe that scope exists for bioenergy to contribute to electricity generation, heating and transport, provided the correct incentives and pricing signals are given to the market. Recognising the peat/biofuel complementarities, it is Bord na Mona's intention to be a player in the bioenergy supply chains: including biomass supply to power plants; wood products supply to the heating market; and to examine the scope for liquid biofuel processing.

2.2.14/2.2.26: As outlined above, current indigenous biomass volumes are not capable of supplying all potential markets (existing board and panel mills; 30% co-firing in peat stations;

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<sup>1</sup> Bioenergy in Ireland. Dept. of Communications, Marine & Natural Resources, December 2004.

proposed additional biomass generating capacity; wood pellet manufacture; wood chip supply to the heating market). We therefore welcome the review of incentives for the growth of energy crops, including the premium payable under the EU Energy Crops Scheme and the proposed introduction of establishment grants for Miscanthus and short rotation coppice.

2.2.17: Land based wind farms are a proven technology and are commercially competitive against conventional BNE technologies at the prevailing energy prices experienced during parts of the last year. While support mechanisms are still required for the technology, and a degree of complementary flexible thermal plant is required in the generation mix, what can be achieved with on-shore wind should be acknowledged and recognised. While other technologies should of course also be promoted, we believe that the development of on-shore wind energy should not be constrained in the interim. The imperatives for inclusion of other technologies in the generation mix will still be there in the future and they can be incorporated on a larger scale when they are also proven performers.

2.2.20: Ireland has a poorly-developed waste management system, with the majority of industrial, commercial and domestic waste being consigned to landfill. In line with the EU Landfill Directive (1999/31/EC), it also has ambitions to dramatically reduce the volume that will go to landfill in the future<sup>2</sup>. In order to achieve these targets, and also to increase the amount of energy recovered from waste biomass, we believe that the Government needs to take a more visible leadership role and forceful stance on promoting energy recovery. The Green Paper merely includes a derisory paragraph on page 73, which lists the potential energy recovery technologies. We consider that the White Paper should contain clearly articulated policies, temporal and volume targets and the requisite supporting mechanisms to ensure that the maximum renewable energy can be recovered from our wastes.

2.2.31: The Greener Homes Scheme has been very successful in promoting the use of renewable energy sources for domestic heating. However, the installation of wood pellet boilers and stoves has led to a reported short term pellet supply constraint in the market, especially for bulk deliveries. While wood pellets can be imported to cover the short-term supply constraint, relying on imports over the longer term will not do anything to improve Ireland's degree of energy self sufficiency and will only deal with its security of energy supply in a limited manner. The Government needs to consider what steps are required to promote the indigenous production of wood pellets for the growing domestic market, and also what capital supports will be required to ensure that the pellet products are able to compete with and displace imported fuels.

2.2.33: Bord na Mona considers that a substantial untapped energy resource resides in our oceans and seas and welcomes the Government's Ocean Energy Development Strategy<sup>3</sup>. We also support the current four-phase plan leading to commercial application and believe that, provided adequate resources continue to be made available, the ocean energy sector could also provide export opportunities for Irish developers in the years ahead.

2.2.42: While we support the Government's overall target of reducing energy demand by 20% by 2020, primarily through improvements in the efficiency of energy use, we would add a note of caution in relation to some of the fuel substitution and building design changes that are under way:

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<sup>2</sup> National Strategy on Biodegradable Waste. Dept. of the Environment, Heritage & Local Govt., April 2006.

<sup>3</sup> Ocean Energy in Ireland. Dept. of Communications, Marine & Natural Resources, October 2005.

- Ø **Security of heat supply:** heating in the built environment has been characterised by fuel switching away from solid fuels to oil and natural gas, which are more convenient. However, oil and gas are more subject to supply interruption and price volatility in contrast to solid fuels which have higher stock levels and lower price volatility. In the event of a major interruption in the supply of natural gas (and consequently in electricity to drive central heating systems), solid fuels represent a form of heat security. Some 1.2 million of the 1.5 million homes in the State could, in the case of a heating crisis, use an open fire as the heating method of last resort;
- Ø **Air exchange rate:** while changes in the building regulations have undoubtedly contributed to a reduction in energy use and emissions, reduced rates of air exchange may have contributed to the increasing incidence of asthma in Ireland (we now have the second highest incidence of asthma within the EU). We would caution against further measures which limit the rate of air exchange without additional studies into its possible effects on health;
- Ø **Internal air pollution:** the internal use of gas fires and gas cookers without adequate ventilation leads to the formation of oxides of nitrogen which are an acknowledged trigger for asthma. Similarly, over air tightness, without adequate provision for ventilation with heat recovery, will lead to indoor condensation which is also a trigger for asthma.

We believe that the type of systems being promoted by the Greener Homes Scheme, which utilise secure indigenous sources of energy; and the energy-efficient practices being demonstrated under the ‘House of Tomorrow’ Programme<sup>4</sup>, with associated heat-recovery ventilation, represent the way forward in this sector. Additional provision needs to be made for the training and certification of personnel who will install and service these new heating and building environment control systems.

2.2.50: Bord na Mona recognises the increased emphasis on, and funding provision for, R&D in general and energy research in particular, under the Government’s Science, Technology and Innovation Strategy. We welcome the establishment of the Energy Research Council, to advise on research priorities and to facilitate engagement with international research programmes.

2.3.26: While Bord na Mona would like to acknowledge the contribution of the ESB in developing Ireland’s electricity system to date, it is our view that effective competition is unlikely to be introduced or attracted into the electricity industry unless a substantial restructuring of both power generation and electricity supply takes place. If the all-island market is big enough to support competition in these sectors without excessive costs, then an alternative approach needs to be adopted, especially with regard to the ownership of price-setting generation plant. The creation of a State-owned landbank of sites, which would be available to competitive bidders, is unlikely on its own to have significant competitive impact.

### Section 3 – The Way Forward – Questions for Consultation

3.2.1: *in addition to enhancing the contribution of renewable energy, what actions could be taken to further diversify the fuel mix for electricity generation and reduce dependence on oil and gas?*

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<sup>4</sup> The ‘House of Tomorrow’ Programme is promoted and administered by Sustainable Energy Ireland.

Recognising the likely international pressure for further reductions in Ireland's greenhouse gas emissions post-2012, coupled with advances in pebble bed reactor technology, we consider that the Government should amend its policy and keep the introduction of new, safer, smaller-scale nuclear capacity "under review".

Similarly, when Moneypoint power station reaches the end of its operating life, consideration will need to be given to maintaining coal in the generation mix, through the application of the cleanest, most efficient coal-fired technology at that time.

Considering the importance of gas as a fuel in the generation portfolio, and the proportion that is imported through pipeline(s), the development of an LNG facility on the island would give greater security of supply. While this does not diversify the actual fuel involved itself, it would give greater diversity to the sources of supply and the methods of delivery into the country.

### *3.2.2: how can generation and transmission adequacy in the electricity sector be improved?*

Generation adequacy could be improved by the addition of more flexible generation plant. Transmission system adequacy could be improved by the development of new and improved physical infrastructure, by adopting new technology and by innovative management techniques, e.g. remedial action schemes.

### *3.2.9: what can be done to improve the pace and range of development of renewable energy resources for electricity generation on a sustainable basis?*

Actions to improve the pace and range of RES-E include:

- Ø Upgrade the physical grid, incorporate new control technology, and utilise management techniques such as intertripping that, with the appropriate market mechanisms, can maximise the utilisation of the physical infrastructure;
- Ø Accelerate the stop-start (for renewables) grid connection application process;
- Ø Provide incentive or support mechanisms that give continuity over time and are updated to reflect changing cost/economic factors rather than just support for a defined capacity;
- Ø Encourage and support both RTDI and RD&D to the stage where technologies are proven technically and are acceptable for financing by financial institutions, and then provide technology specific operational support to create the opportunities for their deployment.

### *3.2.10: what actions should be taken to develop renewable energy usage in the transport and heat sectors?*

Actions to increase the usage of renewables in transport and heat include:

- Ø The use of Governmental demand to stimulate the renewable sector – including renewable energy for heat in Government properties; and liquid biofuels in the public service fleet;
- Ø Either expand the current excise exemption for liquid biofuels, or introduce obligations on distribution companies, in order to achieve 5.75% penetration by 2010;
- Ø Establishment grants and/or annual payments in support of energy crops, that can provide raw materials for heating fuels or feedstock for transport fuels;

- Ø Domestic R&D support for growing trials, harvesting, drying and processing technologies;
- Ø Provide support for technology transfer opportunities.

3.2.14: *what are key supply and demand questions to be addressed to underpin a fully cohesive national bioenergy strategy?*

The key supply and demand questions include:

- Ø What raw material resources do we have available today;
- Ø How much material from the forestry sector will be available for bioenergy, rather than for the manufacture of wood products;
- Ø What is the geographical dispersion of forestry in the country by categories of area, ownership, age, species, and likely yield;
- Ø How much land is potentially available for the growth of energy crops;
- Ø What are the total supply chain costs of delivering bioenergy, including crop establishment, fertilisation, spraying and protection, harvesting, drying and transportation;
- Ø What proportion of the total support costs should be attributable to the agri/forest sector, and how much should pass through to the electricity consumer;
- Ø What price will be paid for electricity from bioenergy.

3.2.15: *do we need to choose between mandatory targets and better incentives for renewable energy and energy efficiency – or is a mix of both the best way forward?*

We believe that a mix of the two is the best way forward at this point in time, considering the developmental status of many renewables. Different levels of incentives will be appropriate for different technologies, and different type of incentives depending on the stage of the technology life cycle.

Overall, the Green Paper sets out a comprehensive analysis of Ireland's current energy supply vulnerabilities, it gives an adequate indication of policy direction and it contains a challenging range of targets. However, it is considerably lighter on how these will be achieved. We consider that the subsequent White Paper, which will set out Ireland's strategy for creating a sustainable energy future, should also address in much greater depth the question of the requisite programmes, actions and mechanisms that will make this future a reality.

We will be happy to expand on or clarify any of the views expressed in this submission. Should you require any further information, please contact me at our headquarters at Main Street, Newbridge, Co. Kildare (telephone: 045-439210). A separate copy of this submission has been sent by post.

Yours sincerely,

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**Gerry Ryan**  
Group Secretary