

IrBEA Response to the Green Paper on Energy

A response team from the Management Committee of the Irish Bioenergy Association has assembled the following comments in response to the Green Paper. Members are Bernard Supple, Tom Bruton, Noel Gavigan and Michael Hanly. We have also received significant contributions from the members of the association and Teagasc.

What is the Irish Bioenergy Association?

The Irish Bioenergy Association (IrBEA) was launched in May 1999. It has been formed to promote the bioenergy industry and to develop this important sector in the Republic of Ireland and Northern Ireland.

The overall aim of the Irish Bioenergy Association is to promote biomass as an environmentally, economically and socially sustainable indigenous energy resource, and also to promote its non-energy related benefits.

The organisation is a self-governing association of voluntary members and is affiliated to Aebiom, the European Biomass Association <http://www.aebiom.org>. The geographical coverage of IrBEA is Northern Ireland and the Republic of Ireland.

You can find more information about IrBEA on the internet at www.irbea.org.

ENSURING THE SECURITY OF ENERGY SUPPLY

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?*

One of the opening statements in the green paper that "...biomass is forecasted to remain relatively unchanged on a global basis" is somewhat misleading. The efficient use of sustainable sources of biomass for advanced energy applications such as transport fuels, electricity generation and processed fuel such as wood pellets is forecast to increase dramatically both in Ireland and globally. In fact in the Green Paper itself the global forecast for Biomass and waste as primary energy is reported to average 1.4% per annum to 2030. Unfortunately much biomass is used globally for basic energy needs like heating and cooking in inefficient open fires due to fuel poverty issues and this leads to a false statistical representation of biomass as an energy source.

We support the establishment of a dedicated Ministry for Energy with an appropriate mandate to promote a diverse fuel mix and enhance energy security.

2 *How can generation and transmission adequacy in the electricity sector be improved?*

Whilst Irbea supports the development of a strong and vibrant renewable energy industry, it is highly desirable to develop a bias towards biomass generation portfolio, due to it's favourable ability to provide base-load and dispatchable electricity generation. It also has huge long-term benefits to the rural economy and jobs market. Direct firing or co-firing of solid biomass offers reliable year-round electricity supply.

For these reasons, tariffs paid for electricity from biomass merit a premium. Estimates currently show that biomass should be supported at a minimum of 12 c/kWh in order to encourage the development of this sector. The entire REFITT and AER programmes to date have created a paltry contribution from biomass due to the low support levels offered in successive programmes. The current support of 7.2 c/kWh is not adequate to sustain any commercial interest within the sector.

Innovative energy storage methods need to be supported politically and financially. Some pilot projects for batteries and hydrogen methods are being explored. We encourage the use of biomass as an energy-carrier, either in its raw form or as an intermediate fuel such as methanol or hydrogen.

3 What actions should be taken to create strategic storage capacity in the gas sector?

One area that needs further assistance regarding biomass based fuels is the national production of biogas, that can be used for local heating, as a fuel for vehicles or be upgraded and introduced into the grid. Feedstocks for biogas include municipal sewage, abattoir, manure and crops residues.

4 What are the challenges to greater participation by new players in the development and operation of power generation plant - and how should they be addressed?

Planning Process

The planning process for energy projects is a huge burden on new entrants. We support the idea of pre-approved energy sites, similar to the creation of 'advance' factories by the IDA, and would suggest that some or all of these should be dedicated exclusively to renewable energy enterprises. This need not be restricted to electricity generation, but could also be used for liquid or gaseous biofuels production and other biomass processing technologies that can demonstrate a significant contribution to national energy security and CO₂ reduction.

Ignorance regarding best-practice and sustainable energy supply within local authorities and planning bodies is a major barrier to the development of biomass and waste to energy projects.

Grid Connection

In comparison to other E.U. countries, electricity generation is very restricted in Ireland, a monopoly is held by ESB networks who aggressively restrict connection to the grid and then demand excessive fees for power plant connection to the grid. This has prevented many renewable projects and CHP projects from being pursued.

This problem should be addressed by allowing un-restricted access to the grid for power plants that will reduce Ireland's overall energy deficit, and/or spread the fuel mix. We would argue that any plant which conforms to proper Health & Safety, Environmental, and Power Quality Standards, and which will reduce Ireland's energy deficit should be allowed to connect to the grid.

Finance

Raising finance at low cost is a significant barrier that new entrants to the market encounter. This is exacerbated where there is even the smallest of technical risks or

uncertainties surrounding an energy project or its fuel supply reliability and competitiveness. We suggest the allocation of government-secured low-cost loans to support investment in biomass processing and energy conversion.

Logistics

Power generation from biomass in many cases entails considerable logistical challenges, where rail transport is an important alternative with sustainable advantages such as reduced risks for traffic accidents, reduced burden on the road transport system and potentially reduced emissions from transport. Today, Irish Rail policy is geared only towards enhancing passenger transport. We would argue that the main arteries that would support biomass transport from producer to user should be defined and supported.

5 *How, and over what timeframe, should Ireland pursue greater electricity interconnection with Europe?*

IrBEA supports the establishment of a single electricity market, and the development of further interconnection capacity with UK and EU markets.

6 *What measures could be taken to encourage the exploration and production of indigenous energy resources?*

Biomass Imports

As we look increasingly to biomass for electricity, heating and transport applications, it is clear that some biomass must be imported to meet our growing needs. We ask the government to give strong support to the indigenous supply chains for biomass, and not to assume that our indigenous resources are limited without giving the Irish agriculture and business community a fair go at delivering indigenous energy.

The EU Biofuels directive is a good example of what not to do for future processes. Our government has assumed that Ireland is not capable of delivering increased supply of biofuels to meet a 5.75% substitution target by 2010. All indications are that as a result of the MOTR competition held by government in 2006, that Irish entrepreneurs and business leaders can and will deliver significant volumes of biofuels in the short-medium term, provided the right political and fiscal support is available. We need more ambition from government in fulfilling our energy supply issues and suggest we do not give up at the first hurdles presented.

We accept that some level of imports of biofuels and associated feedstocks will be necessary. This is even a healthy market condition, allowing for competitive pricing of biomass and the flexibility to make up for seasonal and other restrictions in indigenous sources of biomass.

There is a strong case for favouring projects which can demonstrate a sustainable supply chain by eliminating unnecessary steps in the supply chain. Projects with short transport distances between feedstock source, process plant and end-user should be favoured over the importation of biofuels.

Carbon Issues

We ask the government to continue to ensure that all biomass is classified as carbon neutral until such time as a fully mature and competitive biomass market exists. It is beyond dispute that virtually all biomass sources are less carbon-intensive than fossil

fuel, and it is counter-productive at this point to prioritise carbon-accounting over and above the development of a market for biomass resources.

We support the re-allocation of the PSO levy on electricity sales to support biomass resources. The PSO levy currently supports peat power-generation at non-market prices and we ask that this level of support be made available to both semi-state and private sector users of biomass for power generation. We would be particularly concerned that this not just be allocated for the purposes of co-firing with fossil fuel in existing power plants.

Agriculture

There are very significant areas of overlap between agricultural and energy policy and here we will highlight some of the barriers to further development of agricultural resources for energy.

The CAP negotiations recently completed have set a limit of 10% reduction in Ireland's land under permanent pastures. This presents a medium-term barrier to any significant expansion of our tillage industry to meet energy needs and we seek exemption from non-food crops in exceeding this target.

The current energy crop payments at €45/Ha are too low to stimulate extra interest in energy crop production on farms. An anomaly exists where farmers who convert grassland to energy crops have their Compensatory Allowance reduced by €8/Ha. The energy crop payment needs to be brought up to at least this level.

The exclusion from REPS of energy crop payments is not acceptable. We feel that REPS farmers will play a key part in delivering sustainable biomass supply and that they should receive full entitlements as energy crop producers. 1.85 million Ha of land is currently farmed under REPS by 50,000 farmers.

Excessive legislation regarding land-spreading of nutrients is preventing the completion of a sustainable biomass production cycle. Both the combustion of dry biomass and the digestion of wet biomass produce by-products which can be sustainably disposed of on land as part of a managed farm nutrient application. We urge the government to take a balanced and fair view of the classification of biomass energy residues. A current example is the classification of digestate from certain anaerobic digestors as animal by-products, despite the fact that the anaerobic digestion process can be clearly demonstrated to kill all pathogens during the course of processing.

Critical Mass

A key barrier met by biomass procurers is the lack of critical mass to allow for competitive and reliable supplies of biomass to their power plant/processing plant. In a common and connected European energy market, such plants must be internationally competitive in all aspects, which often means that economies of scale in production is necessary. We support the development of clusters of biomass producers and suggest that start-up funding be granted to enterprises which deliver reliable and significant quantities of biomass. A possible mechanism to ensure grower commitment is to see growers committed to the profitability of energy supply, either as shareholders or by the delivery of long-term energy supply contracts.

Energy crops

Miscanthus, Willow and Hemp are the principal energy crops being promoted and developed by Irish farmers. We would not see the need to restrict any supports to these crops, but would extend it to all crops which have demonstrable energy applications. Reed canary grass and other perennial grasses have also good possibilities in the Irish climate.

The biggest barriers to development are the high establishment costs and long pay-back associated with energy crops. Both willow and Miscanthus cost in the region of €2,800/Ha to establish and yield their first significant harvest in years 4 and 3 respectively.

We see an urgent need for establishment grants to support energy crop establishment at up to 80% of cost. Additionally as many growers are liable for VAT, the exemption of this activity from VAT would further reduce establishment costs by about €300/Ha.

Forestry

We support a continued strong afforestation programme to build a healthy flow of wood products and energy resources for coming years and generations.

In particular the market for forest thinnings is currently a non-viable enterprise for many foresters and we urge the government to consider this in determining supports of biomass for energy.

Critical issues for accruing a critical mass of economic forest thinnings are road access to plantations, machinery capable of low-cost extraction of resources on poor terrain or in wet weather and the existence of market makers to pool wood resources and sell them as energy products.

Fuel Standards

We should like to see significant government resources allocated to the development and enforcement of high fuel quality standards for biomass. We should also like to see assistance in the development of commercial contracts for efficient procurement of biomass and to assist all elements of the supply chain in removing risk and uncertainty from biomass projects. We support the continuation of the excellent work done in this area by COFORD, Teagasc and WIT in particular.

7 Given the existing level of dependence on imported fossil fuels, what needs to be done to enhance contingency measures?

Ireland and its economy are helplessly and dangerously reliant on imported fuels. It would be our view that a strong and dedicated approach by our government and its departments to reducing this dependence is paramount to our economy remaining healthy. We would firstly advise the government to put this issue on top of their agenda for the next 5 – 7 years, so that this global issue can be properly managed by our government. Policies to encourage indigenous fuel (and power) production must be tailored so that the resulting investments foster an industry that is internationally competitive. For biomass-based power and fuel plants to be established in Ireland,

they must have sufficient economy of scale to compare with what is being developed elsewhere in Europe.

We would advise that there is a strong need (with little or no risk to the government) to adopt policies to allow the development of renewable and sustainable energy, to encourage any project that reduces energy consumption and to ensure that the public sector at large are mobilised to help tackle this problem.

8 *Does the Green Paper generally set out the right policy directions for security of energy supply?*

It is a positive and welcome step. In general it can be criticised for not being ambitious enough in its scope, given the critical energy supply issues we face. Sweden is a role-model in Europe in energy terms. The country has set forth a strong vision for the future, with an aim to provide its residents with options to have no reliance on fossil-fuel by 2020 by pursuing support measures across the entire energy supply chain. Germany and Britain are showing strong political leadership on climate change issues and indeed many EU countries are demonstrating greater ambition than Ireland in cutting energy use and combating climate change.

PROMOTING THE SUSTAINABILITY OF ENERGY SUPPLY

9 *What can be done to improve the pace and range of development of renewable energy resources for electricity generation on a sustainable basis?*

Renewable energy projects should be encouraged by tax incentives, grant aid or favourable planning assessments. The tax incentives and grant aid should be funded in line with the improvement's these projects provide to Ireland's trade deficit.

Again, biomass needs a much higher level of support than, for example wind energy, due to the high capital costs encountered and planning and logistics barriers in place. We believe such a premium is justified based on the rural jobs benefits created, the dispatchability of biomass generation and the significant contribution to the economy generated on a long-term basis. Biomass generation could also play an important role in balancing an increasingly wind-power based generation scheme.

10 *In addition to electricity generation, what actions should be taken to develop renewable energy usage in the transport and heat sectors?*

Transport Sector

Clearly we support a rapid expansion of supports for transport biofuels.

We support mandatory blending of biofuels measures to ensure that as a minimum Ireland meets its targets under the EU Biofuels directive. It will help achieve the scale required to create a mature biofuels market. Recent excise competitions have engendered a boom-bust cycle dependant entirely on difficult and time-consuming tendering processes rather than market forces.

We would like to see mandatory purchase of minimum 10% biofuels by all state-owned vehicle operators. We see a particular opportunity to improve the urban

environment, make significant carbon savings and boost the biofuel industry by giving CIE a mandate to purchase biofuel. The excise exemptions currently enjoyed by public transport operators do not encourage them to switch to biofuel.

We see the evidence in the Green Paper of a lack of support for significant amounts of biofuel on the Irish market. The CO₂ savings attributable to traffic measures in Dublin, such as the Dublin Port tunnel, exceed the expected savings from the current excise relief scheme.

We propose the expansion of the VRT reduction scheme from hybrids and flexi-fuel vehicles, to all vehicles that come with a warranty to run on 100% biodiesel or other renewable fuels.

We would welcome some incentive for the greater uptake of pure plant oil (PPO) fuel as we have a lot of indigenous production capacity. The costs for passenger cars at c. €1600 are prohibitive and a grant of 50% of this amount would encourage the technology greatly. We emphasise that these supports would be somewhat ineffective without the allocation of excise relief to PPO.

Incentives to define and realise the potential of other renewable fuels such as biogas as vehicle fuel, and bioethanol as fuel for diesel (heavy-duty) vehicles should be put in place.

Heating Sector

The supports for both commercial and residential wood heating put in place during 2006 are very welcome.

We note some critical gaps not addressed by the existing schemes. Under the Bioheat scheme all heating applications below 60 kW are excluded. Equally, any building that is not a domestic residence is excluded from the Greener Homes scheme. This gap needs to be addressed, as there are a very large number of SME and community operated buildings which would avail of an expanded scheme. We feel in particular that the size limitations disadvantage buildings in rural areas who must rely on expensive oil or LPG systems for their heating.

We are also concerned with the limited scope regarding fuels taken by existing schemes. The existing schemes support wood products only. There is strong market interest in the utilisation of non-wood crops such as Miscanthus, Hemp and cereals such as Oats for heating applications. We see no reason to exclude these fuels provided some means of quality assurance is demonstrated.

We should like to see significant government resources allocated to the development and enforcement of high fuel quality standards for biomass. We should also like to see assistance in the development of commercial contracts for efficient procurement of biomass and to assist all elements of the supply chain in removing risk and uncertainty from biomass projects.

We should like to see the government lead by example with its own buildings. We would welcome legislation obliging public bodies to demonstrate a minimum of 10% of their heating needs coming from renewable energy. We see enormous opportunity

for the OPW and Local Authorities nationwide to secure their own future energy needs, but also to provide a critical market outlet for the development of a mature biomass industry.

As many of the procurers of biomass for heating are net VAT payers, we maintain that VAT exemption for biomass fuels would provide an additional incentive to home-owners and public-sector purchasers of biomass. We are also aware of lower VAT levies on biomass products (And other fuels) being applied in Northern Ireland and should like to see the VAT rate here reduced to see more biomass produced and distributed on the Irish market.

11 What significant new initiatives could be taken to increase energy efficiency across the economy and in particular in households, businesses, the public sector, the transport sector and the built environment?

We note that the Irish trend forecasts growth in energy consumption of 2-3% annually to 2020. We would welcome support measures to incentivise energy efficiency, both financial reward in the form of tax credits or carbon credits as well as awareness campaigning for individuals to take responsibility for energy waste. We think our government could be more innovative in applying taxation measures to encourage rational use of energy.

An anomaly in motor taxation exists where diesel engines are penalised for their engine capacity at the same rate as petrol engines, despite their greater efficiency.

The recent 'Power of One' media campaign is a welcome initiative and we hope for continued support for this and other energy-efficiency awareness programmes.

Buildings consume approximately one third of all energy. It is possible to construct buildings that can be self sufficient in energy terms by up to 90% by using affordable passive building technology. Grant aid, tax incentives or favourable planning assessments should be used to encourage the development of low energy and passive buildings (see http://www.passivhaustagung.de/elfte/english/01_start_home.html for further details on the possibilities).

12 What additional policy measures should be introduced to significantly expand energy RTDI and what are the priority areas of research, which need to be targeted?

Education

The availability of high quality training and education on sustainable energy at all levels is necessary. We welcome steps like the DKIT Masters in Sustainable Energy, the Tipperary Institute's adult education programmes on renewable energy and support other higher level institutions in the development of quality graduate and undergraduate courses teaching courses with sustainable energy principles.

We particularly see the need for training for key decision-makers in the energy market and government policy departments as to the possibilities for displacement of fossil fuel with biomass in the heating and transport areas.

We see the availability of skilled engineers as critical to the delivery of new energy infrastructure and technologies.

Second generation biofuels

We would welcome aggressive support of R&D to leverage our indigenous lingo-cellulosic feedstock production capacity. We have a strong growth climate for grasses and forestry and need cost-effective 2nd generation biofuels to make this biomass route a reality.

Biomass as Energy Carrier

Innovative energy storage methods need to be supported politically and financially. Some pilot projects for batteries and hydrogen methods are being explored. We encourage the use of biomass as an energy-carrier, either in its raw form or as an intermediate fuel such as methanol or hydrogen and research to speed the delivery of this resource to market is required.

We would prioritise research into innovative processing technology for solid biomass. In particular the densification of a wide range of feedstocks is required to maintain a competitive and flexible biomass market.

Biomass Standards

The development of appropriate standards for a range of biofuels and methods for their testing and application is an absolute necessity to avoid a range of problems and engender long term consumer confidence in the sector.

We see a particular need for the application of commercially realistic quality standards for example for the production of:

- Biomass pellets from a diverse range of agri-forestry feedstocks for combustion
- Biomass briquettes
- Biomass bales
- Chipped biomass
- Pure Plant Oil for CHP and transport applications
- Biogas and Landfill gas for energy and transport applications

Small Scale Biomass Generation

We would allocate a high priority to micro-generation technologies that can efficiently leverage the use of biomass in small-scale or CHP applications. Biomass gasification (<1MW) and micro-turbines are examples of technical areas to be addressed.

R&D into innovative small-scale generation technologies would be best carried out in tandem with research into smart controls for allowing efficient, secure and profitable connection of these projects to our national grid infrastructure.

13 *In light of the Government's Science, Technology and Innovation Strategy, what needs to be done to radically expand the national energy research capacity?*

Renewable Energy sector is by and large a sector that is best developed with entrepreneurial spirit and innovation, renewable energy is by nature, non conforming to the norm and diverse. The government can best support this with grant schemes

and/or tax incentives that are as open and adventurous as the industry itself. The government can support entrepreneurial action by supplying accurate and accessible research results about the present situation, technology alternatives supported and development in other countries.

14 What are the key supply and demand questions to be addressed to underpin a fully cohesive National BioEnergy Strategy?

Hopefully this question has been addressed as the overall theme of this response. There is a strong demand for biomass fuel and safe, reliable technology for its energy conversion and use. There are gaps in the supply chain of biomass at every level between supplier and end-user which often create unacceptable risks when a particular project is assessed as a whole.

We want to see a range of policy changes or support measures from government across the different sectoral areas which address each and every gap in the supply chain.

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?

Mandatory targets with few incentives do very little to change actual practices, as can be seen with the targets set under the Kyoto protocol. We would argue that strong incentives in conjunction with Mandatory targets are essential to effect any real change in regards to renewable energy and energy efficiency.

16 Does the Green Paper generally set the right policy directions for energy sustainability?

ENHANCING THE COMPETITIVENESS OF ENERGY SUPPLY

17 In the context of liberalisation of the Irish energy market, what further actions should be taken to develop more fully competitive electricity and gas markets and what specific barriers need to be overcome?

We would like to see more vigorous enforcement of the split between ESB Networks/Eirgrid and it's related ESB generating activity. There is a conflict of interest in asking the state to regulate control of it's own assets which contribute significantly to the exchequer each year. Regulation of the electricity sector needs to be very clearly independent of government self-interest.

18 What policy measures and targets should be introduced to reform institutional arrangements and market structure, particularly in the electricity and gas sectors?

Again, we refer to the need to diversify the feedstocks from which we generate our electricity. Opening up the grid to new entrants, fast-tracking the planning process and providing favourable conditions to new entrants can only increase the competitiveness

of energy supply. Logistic issues such as rail transport of bulk biomass needs to be addressed.

19 *While a significant proportion of our energy prices are determined by international oil and gas prices, what actions should be taken domestically to reduce the cost of electricity and gas to consumers?*

Much of the problem is not related to high prices in particular, but to fluctuating prices. Energy consumers in all sectors are finding it difficult to plan for stable operating costs and must engage in active risk-management for their fossil energy procurement. Biomass offers the opportunity to deliver stable and reliable energy supply with a consistent pricing over long periods.

20 *State-owned enterprises (e.g. ESB, BGE, Bord na Mona) have played a central role in the development of the energy sector. How should the role of State-owned energy enterprises respond to the challenges of meeting our energy needs in the future?*

We encourage state-owned enterprises to work with the private sector to create viable energy solutions, rather than competing to preserve state resources exclusively for the furtherance of state shareholder enrichment.

We would identify Coillte and Bord na Mona as being particularly important state-owned enterprises within the biomass supply chain and suggest they both interact fully with the private sector to ensure viable biomass supply chains are put in place. We acknowledge the right of state-owned enterprises to pursue sustainable profitability, but are concerned that monopolies are developing within the biomass sector due to excessive control over feedstocks.

We are also concerned about recent developments whereby Bord Na Mona is pursuing a strategy to purchase generation plant from the ESB. This is hardly consistent with the promotion of new entrants to the electricity generation market. It also seems inefficient to spend state money on intra-state asset transfers.

21 *What further action should be taken to alleviate fuel poverty?*

We believe that social housing should be heated and powered by biomass, either through district heating or CHP schemes. Well planned biomass supply allows for stable and predictable energy costs which allow consumers to budget in advance for their energy needs.

22 *Does the Green Paper generally set the right policy directions for enhancing the competitiveness of the Irish energy sector?*

We believe government is often overly risk-averse in the development of new energy supply paths. Entrepreneurial teams, start-ups and people in a position to deliver rapid and radical change need to be supported and given equal opportunities and state supports received by large enterprise and state-owned businesses. It can and will deliver long-term benefits in recognising Ireland's indigenous capacity to innovate and solve problems.