Response to the Green Paper
TOWARDS A SUSTAINABLE ENERGY FUTURE FOR IRELAND

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December 1st, 2006

1. General Comments.

Feasta considers that the overall perspective taken by the Green Paper is faulty in that

a) it fails to pay adequate attention to the fact that a peak in global oil production is likely to be reached within the next few years, and will certainly occur within the lifespan of any fossil -fuelled generating plant being built now. The sentence on page 23 “These trends combined with other factors such as concerns over peak oil production will likely result in increasingly high and volatile prices, particularly for oil and natural gas” cannot be said to be a thorough consideration of the implications a crucial turning point in global energy use and in the historical pattern of economic development. The OECD’s expert body, the International Energy Agency, considers the peak will come somewhere between 2020 and 2030, while BP, British Petroleum, believes it will occur in the period 2015-2020. The expert group ASPO, the Association for the Study of Peak Oil and Gas, makes a considerably more pessimistic assessment of the supply of unexploited oil reserves and expects a peak before 2010. According to ASPO, extraction of the conventional oil reserves will decline dramatically in the coming decades. These differing views on oil peak are discussed in Appendix 1.

b) it fails to discuss when a global peak in gas supplies might occur. As a result of this failure to consider both the oil and gas peaks, it accepts that IEA's figures that global energy consumption can grow at 1.6% a year until 2030. If the IEA is incorrect and the global economy remains bouyant, then the prices of all forms of energy will soar as a result of fierce international competition for inadequate supplies.

c) although it continually mentions the need to reduce greenhouse gas emissions, it fails to take the consequences of doing so on board. In particular, it believes that Irish energy use can continue to grow by between 2% and 3% a year until 2020. As more and more sectors of the economy are likley to be brought into the EU's emissions trading system, such a growth would involve the purchase of emissions permits, either from our EU partners or from Joint Implementation or Clean Development Mechanism projects. The cost of these permits would have to be added to the cost of the energy which, as we saw in (b) above, could rise substantially due to international competition.

In sum, then, we feel that the Green Paper fails to raise the possibility that energy is going to be much scarcer in future than it has been in the past and that its price, in real terms, is consequently going to be significantly higher than it is today. If the prospect of these higher prices had been considered and the consequences for the economy of having to import large quantities of increasingly expensive fuel had been explored, then the Green Paper might have suggested responding in the way the Swedish Government is doing. By 2020, Sweden is planning to completely end the use of oil for heating residential and commercial buildings. It will also cut the consumption of oil in road transport by 40-50 per cent and get industry to reduce its consumption of oil by 25-40 per cent by the same date. By replacing this oil, all of which is imported, with energy from its own renewable resources, the Swedish economy will become much more stable, sustainable and secure

than its Irish counterpart. Its energy prices will be more predictable and it will have more people employed meeting its own needs rather than producing goods for sale in unstable export markets to earn the income to buy its fuel.

Another failing of the Green Paper is that it does not appreciate that, because renewable energy resources are not concentrated in a single place but are widely dispersed, the pattern of electricity generation and distribution which has grown up to use fossil fuels involving a small number of large power stations feed the national grid is no longer appropriate for handling a large number of small electricity sources, some of which are highly intermittant. This failure to appreciate the difference between dispersed and highly concentrated sources of power leads it to suggest the possibility of "co-firing" the existing peat power stations with biomass. This would be a very inefficient way of using the biomass as most of the energy it would be lost as the new peat stations turn only 37% of the energy in the peat into electricity and, as a result of line losses, only 31.8% of the peat's energy actually gets to the consumer. Getting large amounts of bulky biomass to the peat stations would involve a further energy loss. The solution the Green Paper should have discussed is the construction of lots of small, local CHP plants which would send their heat into district heating systems and put their power into their local distribution grids rather than into the national transmission grid. Such stations can use 80% or more of the energy in their fuel. However, their construction would mean a major change in which the grid was operated, a change which the Greeen Paper should have considered.

Feasta is completing a major report for the EPA on the effects that restrictions on the use of fossil fuels – whether as a result of measures to combat climate change or the depletion of oil and gas sources – will have on the Irish economy. We obviously cannot release the report, which will be completed before the end of December, as part of this submission. However, runs of a computer model tracking flows of energy in the Irish economy carried out for the study clearly show that the more proactive the government's response to the prospect of higher energy prices, the better the long-term result. In part, this is because it is more profitable to invest energy while it is cheap in re-equipping the economy for an energy scarce world and then using the new equipment when energy is expensive rather than building the facilities when the energy is expensive for use when it is expensive. If the Green Paper's authors had accepted that much higher energy prices were a possibility, we are confident that they would have suggested more pro-active ideas.

2. Responses to specific questions.

Question 3.2.4 *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?* taken together with **3.2.6** *What measures could be taken to encourage the exploration and production of indigenous energy resources?* and with **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?* and with **3.2.18** *What policy measures and targets should be introduced to reform institutional arrangements and market structure, particularly in the electricity and gas sectors?*

So far, the development of renewable energy sources in Ireland has been almost completely monopolised by big companies such as Airtricity and Hibernian Wind, an arm

of the ESB. This came about not because smaller companies and private individuals were reluctant to invest but because the AER rounds favoured the bigger companies. Landowners associated with Meitheal na Goaire are reported to have lost large sums as a result and a report by the Western Development Commission, ***To Catch the Wind***, advises communities not to attempt to develop wind energy projects in the present climate because of the difficulty of getting a grid connection.

The fact is that many people would like to invest in renewable energy but have no way of doing so. The challenge for the government is to find such a way. Our suggestion is that the high prices for power from fossil sources will create the opportunity for the local generation of electricity using local resources such as biomass, biogas, wind and solar PV, wherever these resources exist – which is mainly the rural areas. The amount of power available from each source is small. This not only makes their development unsuited to large centralised companies but also means that the electricity they produce should not be transformed to a high voltage and sold at a wholesale price into the transmission side of the grid. When not produced by the consumers themselves, the renewable-sourced power could, and should, be sold direct to local consumers for the full retail price, with high-cost supplies from the transmission side of the grid being used largely for back-up.

We envisage local authorities or partnership companies developing plans to set up community-owned ESCos to take over responsibility for the electricity supply in areas served by particular electricity sub-stations. Their proposals are likely to involve the ESCo leasing, at a peppercorn rent, all the distribution system downstream of the sub-station and then entering into a contract with ESB Networks or another contractor for its maintenance and, where necessary, improvement and extension.

The ESCos will then either develop some of the renewable energy resources of their areas themselves or enter into contracts with other parties for their development. We expect that, quite frequently, these energy developments will be tied in to, say, the provision of power, heat and cooling for a new factory or hospital, the project providing the impetus and base-load for a scheme which services the wider community as well. This is essentially what happened in Woking in England where the borough council took advantage to the re-development of the town centre to set up an ESCo which now supplies the Civic Offices, a new 161 bedroom hotel, another hotel, a conference and events centre, a bar, a nightclub and an bowling alley with heat, hot water and electricity. Surplus power is exported to other local buildings and the council's sheltered housing over public wires[i].

Indeed, just as factories were located beside water-power sources in the early years of the Industrial Revolution, we expect that businesses using significant quantities of energy will move to where renewable sources are available and enter into long-term contracts with those developing them. This will seem a better option for some firms than buying their energy at the variable, fossil-fuel-based prices demanded by large-scale suppliers using the transmission grid. To some extent, this trend is already apparent in Iceland, where several large aluminium smelters have been located to use the island's geo-thermal power instead of the more usual coal.

The ESCos will draw on several sources for their electricity, three of which - small scale hydro, and CHP from biogas and from biomass - have the potential to provide a continuous supply of power without storage capacity being required. The ESCos' cheapest

power source will almost certainly be the wind but that supply would obviously be intermittent. It would therefore make sense for an ESCo to have a variable tariff and to supply wind electricity at the lowest rate whenever it was available. This would give its customers the option of using the cheap power for such things as water heating, storage heaters, refrigeration and the batteries of electric cars when it was available and of switching off those uses when other power sources had to be used and the price rose.

In effect, selling wind power this way passes the burden of the cost of electricity storage on to the consumer. The technology for such a system is well worked out. Information on the price of the power would be sent to a computerised "smart" meter in the customer's premises by a broadband-over-powerline system. This would allow several prices to be charged for power and for the customer's meter to be programmed to respond to each one. Enel, a large Italian utility with over 27 million customers installed smart meters for all its customers between 2000 and 2005 at a cost of €2.1 billion. The meters communicate over a low voltage power line and allow the company to turn power to a customer on and off remotely, to read usage information from the meter, to detect a service outage or the unauthorised use of electricity, to change the maximum amount of electricity that a customer can demand at any time; and remotely change the meter's billing plan from credit to prepay as well as from flat-rate to multi-tariff. Enel has estimated the savings from the system at €500 million a year[ii].

When wind was not available, an ESCo would fall back its other sources or its storage capacity, all of which would deliver more expensive electricity than the wind. Whenever these sources were inadequate, it would turn to the transmission grid for the shortfall.

Summary: The development of renewable energy sources requires, for the most part, a different approach to electricity generation to that suited to the fossil fuels. The policy should therefore be to allow community-owned companies to take over the control of the distribution grids in their areas and either develop power sources themselves or to enter into contracts with local energy suppliers. This would to a great deal to promote CHP, which, as the Green Paper remarks, has not taken off in Ireland so far. It would also allow a lot of new entrants into the electricity and heat market and thus heighten competition.

Question 3.2.12 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?

Better storage technologies are needed if the supply of electricity from the wind is to be greatly increased. We recommend that the queuing system for grid connections for wind farms be scrapped and, instead, priority being given to farms which install the highest proportion of storage capacity in relation to their maximum output. A farm with a high storage capacity would be as dispatchable and as flexible as, say, an open cycle gas turbine and should therefore be allowed to connect as freely. Handled correctly, (by which we mean if the price offered for stored windpower was attractive) this could create a major market in Ireland for flow batteries and compressed-air storage equipment. This could lead to their R&D and their manufacture here. There are many examples in the energy area of incentives like this leading to the country offering them becoming a world leader in the technology and dominating export markets.

Question 3.2.17 *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?*

The Green Paper discusses competitiveness largely in terms of price. In fact, firms compete in terms of price, quality and service. The quality and service aspects of an electricity supply are related in part to the security of that supply and the risk that prices will change in an unpredictable way.

The Green Paper should have considered whether, in a world in which, as it says, energy prices are likely to be more volatile than in the past, firms might be happier with slightly higher but more stable prices and a supply that will not be curtailed if, say, Russia cuts off the gas supply to Western Europe. An energy supply based on Irish resources ought to be more secure and less exposed to price volatility than one based on internationally-traded oil, gas and coal. Indeed, this has already been shown to be the case. Because Irish wind electricity is now being bought for less than the Best New Entrant gas price, it has been possible to use the savings to reduce the Public Service Obligation payment to zero. Making a "dash for biomass" now might mean slightly more expensive power in the short-term – although there is no evidence that it would cost any more – but it would certainly enable cheaper and more secure energy supplies in the medium term as the world supply gets tighter and tighter. We therefore recommend the introduction of a system of Green Certificates to force power distributors to take an increasing proportion of their electricity from biomass plants, or, if they cannot obtain a supply, to buy enough certificates from a distributor which has over-achieved the quota.

Question 3.2.21 What further action should be taken to alleviate fuel poverty?

Unless special measures are introduced. fuel poverty will increase as energy prices rise in real terms as a result of measures to limit climate change and because of oil and gas depletion. Indeed, fears have already been expressed that fuel poverty could become so acute during Phase 2 of the EU Emissions Trading System that it could cause the ETS to be abandoned. This could happen if the market value of the emissions permits rose to such an extent that the power companies to whom they had been given were making large profits by charging their customers for them, while the old and the poor were dying of hypothermia, no longer able to afford enough power to keep warm.

If energy is scarce, its distribution of such a vital commodity cannot be left entirely to the market. Some form of rationing via tradable permits is required, so that each person is able to get enough to cover their basic needs. Feasta believes that the EU ETS should be reformed so that, each year, each EU resident is allocated their share of the total emissions that the EU has decided to allow itself to emit that year. Recipients would then sell their allocations through the banking system to companies importing or producing fossil energy within the EU. Each company would need to buy enough permits to cover the emissions from the fuel it sold. The tighter the emissions restrictions, the higher the permit price would go but anyone whose lifestyle caused the emission of less greenhouse gas than the average person in the EU would get more from the sale of his or her permits than their cost of living rose because of the higher energy price.

Endnotes

i http://www.fuelcellmarkets.com/article_default_view.fcm?articleid=979&subsite=847

ii From http://en.wikipedia.org/wiki/Smart_meter
See also Bringing meters out of the closet - http://news.bbc.co.uk/2/hi/science/nature/4754109.stm