ESB COMMENTS ON GREEN PAPER - "TOWARDS A SUSTAINABLE ENERGY FUTURE FOR IRELAND"

INTRODUCTION

ESB welcomes the development of a national energy policy and appreciates this opportunity to comment on the Green Paper. This section contains comments on the overall thrust of energy policy, and offers specific comment on each of the policy planks; the Annex is responsive to selected specific questions posed in the Green Paper. Finally, attached is a copy of a letter which provides comments on a number of specific issues raised by the report *A Review of the Electricity Sector in Ireland* prepared by Deloitte and Touche**.**

Sustainable, secure and affordable energy supplies are critical to modern society and the economy and there is now widespread awareness of this. The challenge is to secure adequate, reliable and affordable supplies of energy whilst limiting the impact on the environment of their extraction, transformation and use.

Energy issues now dominate the policy agenda at global and EU levels arising from concerns related to supply security in the face of growing demand, geopolitical risk and also due to concerns about mankind's impact on the climate system. The 'G8' has highlighted this latter point having adopted a *Plan-of-Action on Climate Change, Clean Energy and Sustainable Development* and issued a statement on *Global Energy Security* at their summits at Gleneagles (2005) and St Petersburg (2006) respectively.

The European Commission published a *Green Paper on a European Strategy for Sustainable, Competitive and Secure Energy* and now, significantly, intends imminent publication of the *Strategic Energy Review* with an accompanying energy package. The High-Level Group on Competitiveness, Energy and the Environment has recently published its second report with recommendations on integration of competitiveness, energy and environmental policies.

The UK is finalising its *Energy Review* which will contain a package of measures to tackle climate change by reducing carbon dioxide emissions and delivering secure, clean energy at affordable prices. These proposed actions are reinforced by the recently published *Stern Review: The Economics of Climate Change*. The production of a national energy policy for Ireland is timely and appropriate in the context of the evolving debate globally.

Energy infrastructure investments, including those in the electricity sector, are long-term and therefore the proposed policy horizon of 2020 needs to be supplemented by projections and analysis to 2050. ESB welcomes the commitment to on-going regular review in the light of experience and as further information and data become available.

ESB welcomes the statement that the policy is intended to bring a new level of cohesion to a number of existing policies including environmental, economic, industrial, agricultural,

and transport policies across a number of Government Departments and Agencies. Given the complexity of this subject and the policy interdependencies and policy conflicts, much action is needed by many stakeholders to implement the adopted policy and to realise its benefits. Appropriate delivery mechanisms will be key to the success of this policy. For example the Green Paper references several studies in progress or yet to be undertaken, committees/task forces to review and report on specialised topics etc. Policy targets should be set by comprehensive policy analysis which takes full account of the necessary and difficult trade-offs the cornerstone of which is a justification against a cost effectiveness principle. In addition, careful consideration will need to be given to transition measures.

The Green Paper is properly based on three policy planks – security of supply, environmental sustainability and economic competitiveness – covering three roughly equally sized energy sectors: electricity, transport and heating/buildings. There is an undue focus on the electricity industry and on competition policy within the power generation sector of that industry. Given that electricity accounts for approximately 30% of primary energy requirements and 18% of final energy demand, the other energy sectors merit equivalent focus. For example, there is a large potential for energy efficiency improvements within the heating/buildings sector and the transport sector is a significant and growing source of greenhouse gas emissions. ESB suggest that these sectors be reconsidered with the view to bringing overall balance to the policy.

Policies and measures to address climate change are and will increasingly influence energy policy. Government has entered into significant commitments in respect of climate change. Furthermore, in the light of various decisions agreed at European Council, Government has indicated that that it intends to undertake further commitments that will require major reductions in greenhouse gas emissions from the energy sectors. The Green Paper does not establish the measures to be adopted to deliver the reductions required in greenhouse gas emissions and in ESB's view this must be addressed before the policy can be finalized.

SECURITY-OF- SUPPLY

Ireland enjoys few indigenous energy sources - over 90% of our energy requirements are imported – which combined with our peripheral location and small scale of the market, leaves us vulnerable to supply-disruption and imported price volatility and/or duress. Indeed, a high proportion of fuel reserves, upon which we are reliant, are located in politically unstable regions. Lately, security-of-supply issues have risen in popular awareness especially in the aftermath of the energy dispute that arose between Russian Federation and Ukraine. Energy now features prominently in the on-going energy dialogue between the EU and Russia under the *Partnership and Co-Operation Agreement* and the on-going negotiations on the Transit Protocol to the *Energy Charter Treaty.* Moreover, following the EC Council Directive (2004/67/EC) concerning measures to safeguard security of natural gas supply, the EU formed the *Gas Coordination Group* to facilitate coordination of security of supply measures by the Community in the event of a major supply disruption.

Security of supply is not an 'electricity only' issue but is a global issue involving managing access to fuel supplies in the context of increasingly troublesome geopolitical factors and ensuring the necessary, secure infrastructure and navigable channels to transport that fuel. Higher levels of security come at higher prices and efficient markets are generally regarded as the most appropriate way to achieve this balance. There are nonetheless a number of domestic measures that can be adopted which will improve our energy security.

Further interconnection is fundamental to further market development. ESB supports further electricity interconnection with Northern Ireland and with Britain and welcomes the announcement that these new interconnectors will be completed no later than 2012. ESB believes that this is extremely challenging given progress to date. Further interconnection will have benefits for security of supply and for competition.

ESB supports use of indigenous resources (e.g. renewables, hydro and peat) in as far as is practicable and cost effective and in the light of possible policy conflicts. Given our dependence on natural gas, especially for electricity generation, diversification of sources is important. Diversified supplies from the Corrib field and potential liquefied natural gas, supported by appropriate commercial and strategic storage are the substantial practical measures available to Ireland to addresses the security-of-supply issues in the medium term**.** These initiatives are appropriate and in our view ought to be prioritised.

Within the power generation sector, ESB has traditionally planned and operated its generation fleet as a balanced portfolio with a diverse range of technologies and fuels, implementing national policy goals. This was possible for ESB given its scale: a company of scale is an important component of achieving a national policy. ESB welcomes the Green Paper's reaffirmation of the central role that a strong and commercially viable ESB can play in the delivery of key energy and other policies: a company of national scale is important to facilitate energy security.

There is a looming generation adequacy deficit forecast for Winter 2008/9. ESB is prepared to make an investment immediately in a base-load power plant to be located at Co. Cork. This will address the imminent security of supply concerns.

In conclusion, security of supply is a global issue and Ireland should continue to dialogue with its EU and global partners to promote energy security. There are a number of measures that can be taken domestically including diversifying our supplies of natural gas, promoting use of indigenous resources where cost effective and increasing electricity interconnection.

COMPETITION POLICY

ESB is committed to and supports competition in the electricity industry in Ireland. Substantial investment is needed in the industry over the coming years and efficient,

market based prices are an essential signal to deliver the required volume and type of investment.

In common with global and EU trends, the electricity industry in Ireland continues to be in transition from a centrally planned system to a market-based system: much has already been achieved and much more change is imminent. As the industry transition continues, the coming years will see even more radical change as the all-island market is established and, following further interconnection, closer convergence of markets in Ireland, Britain and France. This outlook is dramatically different from that which prevailed just a few years ago when the Irish market was small and isolated. In the context of the long-term investment horizon of this industry the scale of the change in recent years is extraordinary.

ESB has consistently enabled and supported the electricity market's transition in partnership with Government, CER and its staff/Trade Unions. All of the commitments that ESB has made to support the market place have been honoured and include:

- **Early Market Opening** - In collaboration with industry, ESB developed the necessary systems and process to enable market opening proceed smoothly ahead of the requirements of the EU Internal Energy Market Directives – the retail market opening was completed 2 years ahead of schedule.

- **Institutions** – ESB supported the establishment of the necessary market institutions and implemented the necessary ring-fencing arrangements of the common carriage functions: the ownership unbundling of the Transmission System Operator exceeded EU requirements and ESB is committed to legal unbundling of the Distribution System Operator on or before the July 2007 deadline.

- **Capacity Release** – ESB established a capacity release (aka the virtual independent power producer) mechanism making ESB power available to competitors at a discounted price to kick-start the supply market.

- **Generation Adequacy** - ESB providing 'off take' contracts to secure the entry of competitors and to ameliorate security of supply concerns in the early years of the market. <u>It is important not to repeat this process and allow the market to mature without further intervention of this kind.</u>

- **Market Share Reduction** - In agreement with Government and staff/Trade Unions. ESB made voluntary committement to reduction in market share to 60% by the end of 2005.

ESB has been at the forefront of EU electricity companies in terms of compliance with the internal energy market directives and supporting the development of the competitive market.

ESB is an active supporter of the single electricity market being created on the island of Ireland by the northern and southern regulators with the objective of establishing a liquid, functioning market for all participants and where convergence of the current markets north and south becomes a reality. The establishment of an all-island market is critical to the further development of the Irish electricity market to bring greater customer benefits. In the longer term, ESB supports initiatives to foster greater cooperation between markets in Ireland, Britain and France being spearheaded by the European Regulators' Group for Electricity and Gas. All of these initiatives will have a positive impact on competition and on security of supply.

At this point in its evolution, the industry has reached an unusual and possibly unique situation. A state agency (CER) is charged with regulating an industry which comprises a number of state-owned companies, of which ESB is the largest, competing with state-encouraged private enterprise. In counterpoint, in Northern Ireland, a crown agency (NIAER) is regulating an industry comprising of private enterprise. As the markets converge, this situation will need thoughtful consideration. ESB supports a review of regulation scheduled to takes place after the establishment of the single electricity market, as contemplated in the Green Paper.

This industry transformation has occurred against a background of high demand growth creating the need for unprecedented investment in Ireland's network infrastructure. ESB Networks continues to deliver this enormous programme of work. The electricity supply industry has fundamentally changed in the period since market opening and it is notable that in the wholesale market, a common barometer of success, a total of over 2,000MW of new plant will have been commissioned in Ireland by 2007, of which approximately three quarters will have been built by parties other than ESB. However the advent of competition has unfortunately coincided with a period of rapidly rising fossil fuel prices. This has necessitated a rise in electricity prices. Otherwise security of supply, would have been adversely impacted. Regrettably, these price rises, driven by factors beyond the control of local market participants and policy makers, have overshadowed the benefits that de-regulation has delivered.

Irish generation prices are systematically above the EU average as a result of structural issues, namely high fossil fuel dependence and the small scale and peripheral location of the market and a highly distributed population. Over 80% of Irish electricity is derived from imported fossil fuels: this compares to an average of c. 40% of EU generation which is significantly derived from hydro and nuclear sources, where costs are not impacted by the rises in fossil fuel prices. All of Ireland's material hydro resources have been utilised and nuclear power has been eliminated from the policy mix. It is therefore difficult to address the systematic higher cost base of Ireland's generation in an era of dearer fossil fuels. While additional wind has a role to play it is not a panacea as the cost of the additional conventional back-up capacity must also be taken into account. Given Ireland's geography and policy decisions in relation to fuel sources, it will be difficult to bring generation costs towards the EU average, even in the long-term. What is important

however is that price are set by the outcome of an efficient competitiveness process and that the issue of energy efficiency receives the highest priority.

Notwithstanding the successes of the Irish market in attracting generation investments to date, there remain strong concerns about ESB's 'dominance' in the power generation sector. Accordingly ESB is prepared to commit itself to close/divest up to 1,500MW of mid-merit/peaking capacity (i.e. 50% of its capacity in the segment of the market) over the coming years to 2010. ESB is confident that the removal of this level of mid-merit capacity ought to attract investment of new, more efficient mid merit plant from third parties in this segment.

Entry by competitors to date has been concentrated in the baseload sector of the generation market and has led to the displacement of ESB plant and an increasingly unbalanced portfolio. ESB's generation market share has been halved over the past six years since the market opened. Accordingly, ESB has an urgent imperative to invest and renew its portfolio in a way which will not impair the proper functioning of the evolving competitive market and accordingly propose an immediate investment at Aghada, Co. Cork.

In conclusion, the development of competition in the electricity market is a process and not an event, and is progressing well: much has been achieved to date and more is yet to be done. To further this evolution, ESB has offered to address the perception of its 'dominance' by closing/divesting up to 1,500 MW of existing mid-merit plant. At this juncture, Ireland is compliant with, and ahead of the EU internal energy market requirements.

ENVIRONMENTAL SUSTAINABILITY

In light of growing scientific concerns regarding the impact on the climate system of increasing concentrations of greenhouse gases, it is apparent that carbon dioxide emissions from energy use must be significantly reduced in the coming years. This is now accepted by a variety of international authorities[1] and Governments[2] and the policy conflicts are being addressed in the evolution of energy policies of EU Member States.

The Green Paper does not reflect Government agreement with European partners to promulgate policies to avoid an increase in global temperatures of more than 2^{o} centigrade by 2100. This implies a Community-wide emission reduction target of 15-30% by 2020 and 60-80% by 2050, of carbon dioxide on 1990 levels. Separately, the UK government has identified a national target of 60% by 2050; France 75% by 2050 and Germany 40% to 2020. The Green Paper does not establish the measures needed to deliver greenhouse gas emission reduction in the context of rising national energy consumption.

[1] For example, the International Energy Agency the *World Energy Outlook* concludes that business-as-usual or 'reference scenario' is unsustainable; an 'alternative scenario', incorporating over 1,500 policies, has dangerously high concentrations of CO_2 and a 'beyond alternative scenario' aims to contain CO_2 concentrations in 2030 at levels no greater than those in 2004.

[2] G8 Plan of Action and EU Strategic Energy Review [*ibid*].

It is likely that a reduction trajectory implied from the above targets would require Irish national greenhouse gas emissions to **reduce** by a significant amount by 2020 based on 1990 levels. The magnitude of this challenge is apparent when viewed in light of the current target (i.e. for the period 2008-2012) of +13% on 1990 levels and projections by Sustainable Energy Ireland showing Ireland's total energy needs growing by an estimated 38% to 2020.

Given this inevitable requirement to achieve large cuts in national emissions, it is clear that all sectors (including agriculture) must be involved in emission reduction efforts. Otherwise, emission reduction measures could unduly burden the electricity sector which alone accounts for less than one third of primary energy requirement. In ESB's view the Green Paper does not focus sufficiently on the transport and heat/building sectors and more analysis should be brought to these sectors as part of creating a balanced package of measures.

It is necessary prior to finalising national energy policy in a White Paper to quantify fuel consumption and emission trends in all energy sectors (transport, electricity and heat) and to assess the quantified potential and costs of energy use reduction measures and available implementation mechanisms. The targets proposed in the Green Paper are indicative of the scale of effort that will be required and in general ESB is supportive of the measures identified.

In respect of the identified initiatives, ESB offers the following comments:

- ESB supports the promotion of renewable energy resources which reduce greenhouse gas emissions using market mechanisms. ESB is confident that the Government's revised 2010 renewables target of 15% will be met given the off-take contracts that have already been concluded, and the existing offers for connection to the networks. The cost/benefit analysis of the 2020 renewables target of 30% penetration must include the cost of back-up capacity, especially in light of the retirement of a significant quantum mid-merit capacity.

- The ESB peat stations include a capability for co-firing of biomass and ESB will play our part in working with the target which is set.

- The 20% energy efficiency target is consistent with other EU targets but ought to be allocated appropriately across the electricity, transport and heating/building sectors.

It is critical that a cost effectiveness principle be adopted to minimise the cost and competitiveness impact on the economy of the needed policy initiatives to reduce emissions and address supply security. This is especially so as available measures and policy instruments at our disposal are limited to increased gas, renewables, energy efficiency and biomass, given that nuclear power has been eliminated from the policy mix. Clean coal technology is at present not commercially available but given the considerable investment in research in the USA, this may be an option in the medium term.

CONCLUSIONS

ESB welcomes the production of a long-term integrated national energy policy founded on robust analysis centred on a cost effectiveness principle and which is reviewed periodically. Energy policy and environment policy must dovetail and projections beyond 2020 are needed. Delivery mechanisms will be important to realising the benefits of the policy and careful consideration will be needed of transition measures.

There is an undue strong focus on the electricity industry which accounts for 30% of the primary energy requirement and specifically on competition within the power generation sector; further attention should be brought to bear on the other key energy sectors. (Transport and heat/building sectors).

On security of supply, which comes at a cost, ESB supports the Green Paper's identification of the promotion of indigenous resources, interconnection and supply source diversity of natural gas as key issues and ESB is prepared to invest in a plant at Co. Cork to address the impending generation adequacy deficit in 2008/9 and to restore balance to ESB's diversified portfolio. A commercially strong ESB is vital to Irish Energy Policy.

On competition, it is ESB's intention to close/divest up to 1,500 MW of mid merit/peaking plant. This will address the perception of ESB's potential to abuse a dominant position in this segment of the electricity market. ESB is confident third parties will enter the mid-merit segment following this initiative.

However, in relation to environmental sustainability, ESB is concerned that the extent of the costs and issues facing Ireland together with the implications of existing and prospective Government commitments are not considered in the Green Paper and need to be addressed before a final energy policy can be adopted.

ELECTRICTY SUPPLY BOARD

(original signed by)
TADHG O'DONOGHUE
CHAIRMAN

01 December 2006

ANNEX

RESPONSES TO SELECTED GREEN PAPER QUESTIONS

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?

There are limited technical options in the longer term regarding diversifying the fuel mix for electricity generation, in the absence of nuclear generation and new energy sources (e.g. wave). Clean coal technology, incorporating carbon capture and storage, is correctly identified as having potential in the medium term. However, the timescale for full commercial development of this technology is dependent on research being conducted in the USA. Expanding supply options, especially in relation to gas, will assist. Support for energy system R&D in the near term will assist in bringing forward some of the new renewable technologies required for the post 2020 period.

The purpose of improving fuel diversity in electricity generation is to increase supply security and reduce vulnerability to fuel price movements. Given the establishment of the EU Emissions Trading System and electricity market arrangements, the (now complete) market will find the most economical fuel mix and therefore the only grounds to intervene are for security of supply reasons.

Identification of policy measures to correct any perceived market failure to deliver a common good of appropriate fuel diversity and hence security of national electricity supplies is problematic. In ESB's view any measures aimed at protecting consumers from international energy prices would conflict with the recommendations of international energy authorities.

In the absence of additional specific policy intervention with respect to fuel diversity, the trend in electricity (encouraged by full inclusion of the carbon cost externality) is towards:

- Closure of oil fired plants ;
- Increased back-up capacity requirements to cover significantly increased wind generation;
- Increasing gas-fired capacity, and;
- Decreased competitiveness of coal and peat.

In medium term maintaining fossil fuel diversity revolves around maintaining existing coal in the mix, and diversifying gas supply.

Coal is an important part of a diversified fuel mix and in light of the increasing competitive pressure on existing coal associated with flue gas desulphurisation/selective catalytic reduction and CO_2 costs, no further action should be taken to disadvantage coal relative to other fuels. Market uncertainty, longer lead times, higher capital costs and crucially, uncertainty regarding future regulation of CO_2 emissions, militate against increased new coal plants until such time as clean coal technology becomes technically and economically feasible.

The primary issue for fuel security, given the growing penetration of gas generation is the security and diversity of gas supplies in the near term and including coal in the long-term. In this regard development of the Corrib gas field will significantly enhance gas supply

security. In addition, construction of a liquefied natural gas terminal on the island would benefit both physical security and ameliorate regional gas price risks. In relation to gas storage it is necessary to assess the cost and benefits of developing additional significant gas storage and the stated intention to conduct a study on this issue is welcome.

Also welcome is the commitment to realising the commercial potential of oil and gas resources that exist offshore Ireland through investment in oil and gas exploration.

3.2.2. How can generation and transmission adequacy in the electricity sector be improved?

The intermittency of wind generation means that not all of its capacity can be reckoned for generation adequacy assessments. Moreover, given that winter peak generally coincides with periods of still air, wind generation cannot be relied over this period. Adequacy therefore can be improved by installing sufficient quantities of new firm capacity on the system. New capacity is in the pipeline but further new entrants are likely once greater certainty exists on the structure and operation of the single electricity market. The capacity payment under the single electricity market should also encourage the optimum development of new generation. In the interim, ESB is prepared to invest immediately in new capacity in time for winter 2008/9.

Several existing plants are old and at or near the end of their economic lives. It is to be expected that the performance from these plants will naturally degrade as they approach closure. It is ESB Power Generation's strategy to close/divest c. 1,500MW of capacity over the short to medium term, presenting an opportunity for new flexible mid-merit plant to be constructed by new entrants.

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

The Kinsale gas field is already being operated commercially as a gas storage facility. The Corrib project will further contribute to security of supply. Decisions regarding the appropriate level of strategic gas storage, such as how this might be procured and how costs are allocated, should await completion of the proposed study on this issue.

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?

Please refer to the answer to question 3.2.17.

3.2.5. How, and over what timeframe, should Ireland pursue greater electricity interconnection with Europe?

Interconnection with mainland Europe would involve significant technical and economic risks, due to the inherent cable lengths that would be required. A detailed evaluation of the merits and feasibility of interconnection will be necessary before a decision could be taken.

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

The most significant contingency requiring consideration in relation to security of electricity supply is that of gas supply interruption. Due to the projected closure of a significant quantum of mid-merit capacity, the ability of the electricity and gas systems to diversify risk will decline. If the technical and economic issues with clean coal technology can be overcome, this fuel source will have a major role to play.

As the degree of dependence of the electricity system and the domestic heat sector on gas increases the consequences of a gas supply interruption escalate. In this regard the gas and electricity systems are significantly linked at times of gas interruption as a significant portion of the gas domestic heat load can be expected to transfer to electricity as the source of last resort, exacerbating problems on the electricity network.

The potential for back-up supplies via proposed increased electricity interconnection would reduce the possible scale of impact that could arise from a gas interruption which did not simultaneously affect the UK and is a significant benefit of interconnection.

Diversification of gas supplies will reduce the scale of potential interruption and associated impacts on the electricity system.

Dual firing capability on all gas-fired plants and an appropriate level of gasoil storage on-site provides a short-term level of protection against gas supply interruption. However there are economic and some physical limits to the levels of on-site oil storage that can be carried. In addition since some existing sites are supplied with oil by roads tanker, there are severe limitations on the rate with which supplies can be replenished. In many circumstances fuel usage significantly outstrips the maximum refuelling rate. It should also be noted that the ability and timing of replenishment of gasoil by sea does not guarantee continuity of gasoil supplies.

Consideration should be given to allocating priority access for dual fuel gas turbines to national oil reserves in times of significant gas supply interruption. It may be appropriate to develop detailed contingency plans regarding gas oil refuelling of gas turbine plants on a unit-by-unit basis.

In general, consideration of the consequences of gas supply interruption for the electricity system and national economy highlights the critical importance of diversifying gas supplies.

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

Please refer to ESB's overall comments.

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?

The proposed All-Island Grid Study to be completed in 2007 will determine what constraints may arise due to network aspects and how they might be resolved. Increased interconnection will improve the ability of the grid to accommodate increasing levels of intermittent renewables. The renewable energy feed-in tariff scheme is set to ensure delivery of the next significant tranche of new renewables capacity. In contrast, renewable generation in Northern Ireland is supported via a supplier renewable obligation. In our view an increase in renewable generation can best be promoted in the longer term via the use of consistent harmonised market based mechanisms in an All-island framework.

Development of an all-island renewables market would require that support schemes be compatible. Consideration should be given to adopting a market compatible renewable obligation approach to support renewable generation in the Ireland following completion of the renewable energy feed-in tariff scheme. Such a mechanism would allow equitable allocation of responsibility for achieving national targets amongst all suppliers in the Irish market place and would allow progressive development of renewables, in accordance with the *All-Island Energy Market Development Framework* (2004). It would also be compatible with an all-islands/regional renewable electricity market.

The proposed target for renewable generation of 30% by 2020 is ambitious. The Green Paper suggests that this level is set assuming "no insuperable technical difficulties". The timely progression of electric interconnection will be important in this regard. In addition, the target should be subject to a cost effectiveness test and reviewed in the context of Ireland's environmental commitments as cost/benefit data emerge.

3.2.11 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?

Energy efficiency promotion is a core activity for ESB Customer Supply and has been so since 1991. The lifetime savings to business, industrial and residential customers) amount to c. 6.3 TWh with consequent reduction of CO_2 emissions of 5.3 million tonnes.

This has been achieved through the development of an energy efficiency programme that is aimed at creating awareness regarding the potential for reducing energy usage in homes and businesses, providing technical advice to the business community on best practice energy management and promoting energy efficient products to the domestic sector.

Based on our experience, achieving a 20% improvement in overall energy efficiency across the entire economy is a challenging target. Any change in energy efficiency behaviour needs to consider how consumers can be incentivised to reduce energy consumption. It will require detailed analysis of energy usage throughout the economy including assessment of current and best practice, quantification of potential reductions achievable by applying best practice, identification of available policies and measure appropriate to the various energy use categories and their cost effectiveness. Analysis will identify the

areas with most potential for cost effective reduction efforts. However it is clear that all sectors must be involved in particular the transport and building/heat sectors.

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

In the absence of detailed information, in particular on the production potential of various materials, practical availability and associated robust projected market prices it is not possible to address this question in detail. There is uncertainty over which biomass crops are best suited to Irish conditions. Issues such as harvesting, disease and transport must be considered. This subject could benefit from research and development. Therefore the establishment of a Task Force on Bioenergy is a welcome development to progress the development of biofuel utilisation nationally and in establishing the required data on which to frame decisions.

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?

The current renewable energy target for 2010 is 13.2% and it is proposed to increase to this to 15%. The Irish renewable industry is likely to achieve this target by application of mature wind technology. Delays in advancing wind penetration have arisen due to administrative/technical constraints such as planning permission and grid access. As the proposed target level for renewable generation increases to 30% by 2020, the technical problems associated with security of supply will increase. Consequently, this target will be challenging if there is complete reliance on wind, despite the alleviation of system constraints due to proposed North-South and East-West interconnection.

In setting any mandatory targets for renewable generation it is important that a number of factors are taken into account. Firstly, the level of wind generation that is feasible in the context of the technical considerations and the need for stand-by generation where the wind generation is not available. In determining the feasibility of the target, the level of exposure that energy suppliers can take on in relation to purchasing standby energy when wind generation is not available, needs to be seriously considered. Secondly, it is important that investment is made in other technologies such as wave power and biomass, to get these technologies to a stage where they can be a reliable part of the renewable generation portfolio and contribute to the achievement of a renewable generation target. In the case of biomass, there are a number of issues to be addressed such as, whether plant should be large and centralised or small and geographically dispersed. There will also be issues regarding fuel availability, transportation, ash disposal, smoke emissions, grid access, planning permission and the need for fair and transparent support mechanisms.

Consideration also needs to be given to how responsibility will be allocated across the market for the achievement of the target.

With regard to energy efficiency, efforts to improve the energy efficiency of the housing stock and transportation industry are critical. Recent building regulation has started to impact on the level of energy efficiency in modern housing however, incentives are

required to increase the number of fuel efficient homes, in particular, in older housing stock.

In the transport sector, there has been considerable growth in energy consumption and efforts should be concentrated in this area to achieve greatest effect. Rising fuel prices appear to be having little effect on consumer choice of motor vehicles with regard to fuel efficiency and the rise in air travel would also indicate a disassociation between individual behaviour and the desire to promote energy efficiency. Initiatives are required to influence individual behaviour in the use of transport to curtail the level of increases in emissions from this sector. The 'Power of One' advertising campaign is a good initiative to create awareness among consumers regarding how they use energy in the home.

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

Please refer to ESB's overall comments.

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 obstacles to greater participation by new players in generation include

- the small market size in Ireland and its peripheral location.
- uncertainty regarding market rules and the perceived dominance of ESB
- uncertain provision for new entrants in the 2nd National Allocation Plan.

There are a number of significant challenges to greater participation by new players in the market. Firstly, the size of the market itself (with all-island peak demand of under 7,000MW) is very small relative to the size of a best new entrant CCGT (400MW). Notwithstanding, a significant number of base load CCGT plants have already been commissioned and more are planned resulting in saturation of this segment. ESB supports the introduction of competition into the electricity market and welcomes a fully de-regulated all-island market that will bring about consistent market, trading and regulatory conditions in Northern Ireland and Ireland which will increase the overall size of the market.

There remains uncertainty about the structure, operation and complexity of the new all-island market. Completing this process and gaining experience operating the new rules transparently and fairly for all stakeholders will be an important confidence building measure.

While ESB has been to the fore in promoting competition within the electricity sector, the perception of ESB dominance is an issue. The all-island market will lead to other non-ESB plants setting the pool price contributing to a reduction in ESB's market power. This together with implementation of ESB Power Generation's strategy to close/divest

1,500MW of existing mid-merit and peaking capacity by 2010will, we believe, address this issue.
Access for new entrants to CO_2 allocations, given the uncertain provision contained in the second National Allocation Plan for such plant, may also constitute a barrier to entry. An examination of how this risk might be ameliorated should be undertaken.

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?

Quality sector and economic regulation will be important to complement and underpin the market and the regulatory arrangements should be reviewed after the implementation of single electricity market.

3.2.19. 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?

The key issue is that prices need to be set at a market level, whether that be high or low. If prices are not market based, security of supply will be compromised. Were prices to be artificially reduced below a market level no new entrants will come into the market to build the plants that Ireland requires to meet its growing demand. If prices are not cost reflective it may even impact the incentive for existing generators in the market to produce.

If security of supply is put at risk due to artificially low prices it will require Government intervention to address and this will put back the competition agenda for a long number of years.

The single biggest action that is being taken that will be beneficial from a pricing perspective is the introduction of the single electricity market. The greater economies of scale and greater competitive dynamic that this will introduce into the market will result in greater pressure on prices than otherwise. Therefore it is imperative that all actions that can be taken, both North and South, are be taken to ensure that a properly functioning All Ireland market is in place by November 2007.

3.2.20. State-owned enterprises (e.g. ESB, BGE, BnM) 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?

In order to ESB to continue to be capable of responding to challenges meeting Ireland's energy needs, it needs to be strong and viable and enjoy the same commercial freedom as other market participants. In Ireland ESB has a long history of supporting the national interest e.g.

- Construction and operation of midlands peat-fired power stations from the 1950s through to the current day.
- ESB is the counterparty to almost 900 MW of renewable energy contracts,

- ESB recently ensured Ireland's security of supply by entering into offtake contracts with Tynagh Energy and Aughinish Alumina as well as installing peaking capacity plant in record time,
- the scale of the investment programme ESB Networks has undertaken is without precedent to ensure the continuance of Ireland's economic growth,
- ESB has actively facilitated the introduction of competition and championed the introduction of the all-island market.
- ESB has ameliorated Ireland's dependence on imported natural gas via its large investment programme at Moneypoint.

ESB has reduced its presence in the market to such a level that further reductions will impact ESB's ability to engage in similar activities, if required, in the future. It is important to retain a strong commercially viable ESB of significant scale to continue to play a fundamental role in the development of the Irish electricity sector. ESB should be permitted to participate in the market with the necessary commercial freedom commensurate with that enjoyed by competitors.

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

ESB has appropriate procedures in place including provision of token meters to address the issues arising with vulnerable customer groups. In addition ESB works with a number of organisations in providing advice for elderly and vulnerable customers on energy-saving, temperature monitoring and avoiding hypothermia. These organisations include Combat Poverty, Sustainable Energy Ireland and the Health Services Executive.

ESB Customer Supply continued to work with Energy Action and eleven other fuel poverty agencies to support the Sustainable Energy Ireland funded Warm Homes Scheme. Activities include provision of advice regarding energy conservation and distribution of cylinder lagging jackets and long-life bulbs.

Policy actions to increase the insulation standards of the existing housing stock are likely to form part of the suite of future cost effective measures aimed at achieving a significant increase in energy end use efficiency across the economy.

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

Please refer to ESB's overall comments.

Attachment – Copy of an ESB Letter on Deloitte and Touche Report *A Review of the Electricity Sector in Ireland*

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Ms Brendan Tuohy,
Secretary General

Department of Communications,
Marine and Natural Resources

29-31 Adelaide Road, Dublin 2

01 December 2006

***A Review of the Electricity Sector in Ireland* - Deloitte and Touche Report**

Dear Brendan,

ESB has reviewed the report prepared by Deloitte and Touche and noted the Government's response to some of the recommendations and also notes the Energy Green Paper makes reference in certain cases to information contained in the Deloitte report. ESB will be responding separately on the Energy Green Paper.

There are certain key points, which are referred to in the Green Paper, made in the Executive Summary of the Deloitte report, which we believe are misleading. The purpose of this letter is to highlight these and the reasons we believe they are misleading. ESB has not been asked to undertake a detailed review and analysis of the Deloitte report, but can do so if requested. It is also noteworthy that the Deloitte analysis excluded consideration of the ESB pension deficit which is a material issue for ESB.

The key points we are referring to are

1. ***Irish electricity prices are notably higher than those of other European countries for small domestic customers, prices are the second highest in Europe, and 51% above the European average.***

   This comment is misleading and does not give a true reflection of the general level of domestic prices in Ireland.

   The category of customer (i.e. 600kWh usage per annum) to which this comment refers to only accounts for c. 5% of ESB domestic customers. We estimate that around half of the customers that fall into this category relate to second (i.e. holiday) homes. The average ESB domestic customers' usage is 4,800 kWh per annum - a usage of 600 kWh per annum is equivalent to approximately the annual usage of one fridge and one light bulb. The higher average cost in this category is properly a result of a tariff structure where there is a fixed standing charge and low usage.

   The body of the report states that Irish domestic prices for medium customers (i.e. usage 3,500 kWh per annum) are just under the EU average and for large customers (i.e. 20,000 kWh usage per annum are 15% below the EU average. However the Executive Summary makes no reference to this fact and leaves the readers with the impression that Irish domestic prices in general are significantly above the EU average, which is not the case.

2. ***Apart from the fuel mix issue however, with the generation segment there are two further issues related to market operation that cause Irish prices to rank above European averages……we estimate labour costs to be 20%-30% above European Comparators…… ESB generation availability….***

   Our analysis clearly indicates that Power Generation labour costs are not out of line with other EU utilities. It is also important to point out that the Commission for Energy Regulation does not allow the recovery of all of Power Generations costs in electricity prices e.g. in 2004, the year on which the Deloitte report is based, the CER disallowed 24% of Power Generation's payroll costs. For both of these reasons Power Generation's labour costs are not a factor that causes Irish prices to rank above the European average.

   Regarding the impact of low availability of power plant, Deloitte's assessment of the additional cost of €50 million to €70 million is a notional figure of a projected impact to 2010. This level of costs will only be incurred if additional generation of 1,178 MW were to be built between now and 2010.

It is important to emphasise that these are not actual costs which the system is carrying in the current year but are additional costs if additional plant has to be built between now and 2010. This is supported by CER in their response to a question on this point, at a recent Joint Oireachtas Committee meeting, where they referred to these costs as a "notional calculation for 2010".

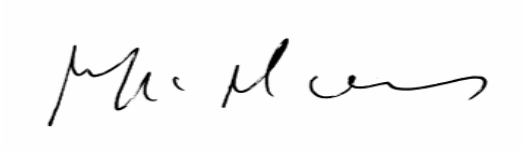
Overall, a misleading impression is given that current electricity prices are inflated by €100 million of additional costs due to Power Generation's payroll costs and plant availability. This is clearly not the case.

3. ***Recent research has indicated that viable retail businesses can exist with between 100,000 and one million customers.***

   In looking at the minimum-efficient-scale of a Supply business, Deloitte quote a report by Prof. Littlechild, a former British regulator, in support the above proposition. We have reviewed this report and the comparison made is invalid. The viable UK scale of 100,000 to 1 million customers was based on much higher UK supply margins - 11%+ compared to current Irish margin of 1.3% allowed by the Commission for Energy Regulation.. On this basis Irish electricity prices would have to rise by at least 10% for a retail business with 100,000 customers to be viable.

ESB does not wish to engage in a public debate on the points referred to above. However, we do intend to address any adverse media comment that may occur regarding these. We note the following caveat from Deloitte in their report: *"At all times the recommendations and conclusions made in this Review are those of Deloitte and we have not sought to seek validation of our views by those consulted as part of the Review"*. In hindsight it would have been better if validation of their views had been sought. Apart from any comments we make in our response to the Green Paper ESB currently does not intend to respond any further on the Deloitte Report.

ELECTRICTY SUPPLY BOARD



Padraig McManus
CHIEF EXECUTIVE