

## TOWARDS A SUSTAINABLE Energy Future for Ireland

### Energy Green Paper

#### Executive Summary of Bord Gáis Response

- Bord Gáis welcomes the wide ranging approach taken in the Green Paper, and the strong emphasis placed on the urgency of the climate change agenda.
- We support a balanced energy policy, recognizing a crucial and growing role for renewables, but also recognising that fossil fuels are likely to be the main source of Irish primary energy for some decades yet.
- Natural gas has a key contribution to make worldwide as a clean, efficient, secure and economic bridge to a sustainable future.
- CO<sub>2</sub> emissions from natural gas are up to 30% less than oil and 50% less than coal - for the same energy input. In addition natural gas can achieve conversion efficiencies of well over 50% in Irish power generation, compared to less than 40% for other fossil fuel sources.
- Given the environmental benefits of natural gas, one of our policy tenets should be increased utilisation of natural gas within the fossil fuel mix.
- Growing utilisation of natural gas must be matched by appropriate policy measures regarding gas supply security.
- Therefore, we support the setting of an explicit Security of Supply Standard for natural gas, that also addresses its key role in power generation.
- Such a standard should be accompanied by required additional infrastructure to ensure that the standard is met e.g. twinning the section of single pipeline in Scotland.
- A further component of security of supply policy should be mandatory stocking of back up distillate fuels by gas fired generation stations – an approach already applied elsewhere.
- Ireland is in a beneficial location in Europe from point of view of supply sources with pipeline gas from Norway together with LNG from a number of politically stable countries providing the bulk of non UK indigenous supplies. This puts Ireland in a much better security situation in the short to medium term than many European countries.
- Ireland should encourage development of Regional Energy Markets and should actively support the current initiatives, which we believe will benefit Ireland.
- In the longer term, it is very important that Europe builds strong mutually advantageous relationships with the energy producing regions.
- European utilities are consolidating and Irish policy must equally emphasise strong commercially viable players in the Irish market, not only ESB as stated. Larger EU suppliers are focusing on relationships with the producers and continue to source supplies through long term contracts. Participation in world energy markets requires strong utilities.
- We strongly support the all island energy market initiative as it will help mitigate the challenges of operating in the small scale Irish market. We recommend that target dates are set for the implementation of streamlined tariff and market arrangements for the all island gas market.

## **TOWARDS A SUSTAINABLE Energy Future for Ireland**

### **Green Paper**

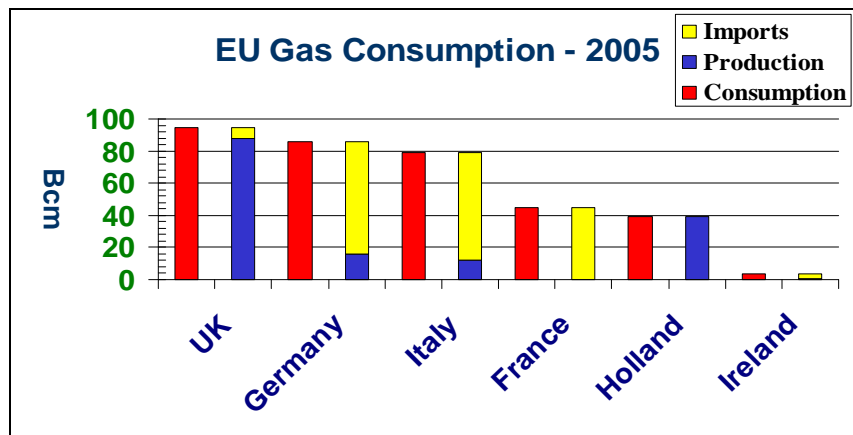
### **Bord Gáis Response**

The following is the Bord Gáis response to the Green Paper, “Towards a Sustainable Energy Future for Ireland. We have focused our response particularly on the role of natural gas as a key component of the Irish energy mix for the foreseeable future. We also comment on those aspects of the electricity sector, where we have a business interest i.e. electricity supply and generation. In order to aid compilation of responses, we have chosen to work within the question and answer framework as implied in the Green Paper, combined with some summaries for the main elements of the policy.

#### **Energy Green Paper – Summary Response**

- **Bord Gáis welcomes the paper and the wide ranging approach taken to the setting of energy policy. The focus of energy policy has continued to evolve over the years. Competitive issues - which had historically been the key focus - continue to be very important. However, new concerns of perhaps even greater concern are emerging. The developing international urgency of the climate change agenda undoubtedly requires a comprehensive and wide ranging national energy policy response.**
- **The priorities outlined within the Green Paper illustrate that an overall cohesive approach is envisaged in addressing the unique characteristics of the Irish energy market. These particular characteristics especially include the small scale of the markets and of the indigenous energy companies, the rapid pace of economic development and the open nature of the economy generally. We welcome the integrated nature of the approach and we support its pursuit of policy objectives through emphasising competitive market mechanisms.**
- **However, we also believe that there will be occasions of market failure and suggest carefully considered government intervention in those areas. Some of the existing PSO’s in the electricity sector are example of such intervention.**
- **As clearly set out in the Green Paper, energy policy rests on the three pillars of competitiveness, sustainability and security. The challenge in the setting of policy is about making choices and understanding the trade-offs involved. While the overall goal is a thrust towards long term sustainability, this will entail cost impacts in terms of the prices of energy supplies and in the measures necessary to maintain adequate energy security.**
- **We support a balanced energy policy, recognizing a growing role for renewables, while considering the merits of the various energy sources, based on rational analysis and recognizing the need to develop long term sustainable solutions:**
  - **However, the choices available in an Irish context are limited and known, with fossil fuels likely to be the main sources of energy in Ireland for some decades yet.**

- In that context, natural gas has a key contribution to make worldwide as a clean, efficient, secure and economic bridge to a sustainable future.
- At an Irish level, economies of scale are a continual challenge with regard to all facets of the energy markets, whether procurement, production, delivery or supply.
- Consolidation of energy utilities across the EU serves to emphasise this point. In that context, we believe that the All Island market will help mitigate the scale challenge, though the scale of the combined markets remains small by international standards.



- Natural Gas

- We believe that wide usage of natural gas has a key contribution to make to the energy mix in meeting both environmental and economic needs, while also recognizing that balancing supply security measures must be taken as the role of gas grows.
- In that regard, we support the setting of an explicit Security of Supply Standard for natural gas, and particularly recognizing its key role in power generation. Such a standard should be set considering current market circumstances and should be revisited on a regular basis as market circumstances evolve.
- A gas industry based on internationally sourced supplies is the norm within the European and Asiatic gas market. This is illustrated in the chart above, showing the mix of indigenous versus market sourced supplies across key European gas markets. E.g. Germany, Italy and France source almost all of their gas needs internationally.
- The UK, as the source of most Irish gas supplies, will have wider and more diverse supply sources as it moves from self sufficiency to international sources than does the EU in general. This wider diversity of supply sources should, from an Irish perspective, serve to reduce Irish gas security concerns relative to those being voiced at the EU level.
- The tools required to ensure security of gas and power supplies include not only gas industry measures, but should also consider such approaches as the availability of back up fuels at power generation sites. This would lead to the most efficient solution to electricity supply security issues also. As such supply security is a public good, we believe the incidence of the cost of implementing solutions should be considered separately to determining the optimal approach .i.e. the costs such not necessarily be borne at the individual power generation

sites, but by the system in general.

- At the gas security level, we believe that strategic storage would be best addressed within the wider context of overall gas and power supply security. The Irish market, through the Marathon Storage development, has already contributed in this regard. It is possible that other commercial responses that are currently under consideration will also help in this regard. On the regulated network side, the duplication of certain network elements, such as the onland pipeline in Scotland would also contribute incrementally to supply security.
- We recognize that the development of an efficient scale LNG facility will be challenging during life of Corrib field, if viewed in an Ireland only context. Due to the capital intensive nature of LNG, its potential role as a new “Irish market only” supply source would be in the longer term.
- In terms of markets, we support efficient entry in gas supply, where it is clearly demonstrated that the consumer will be the beneficiary from any market constraints that are placed on Bord Gáis. Consumers will benefit most from strong viable gas and electricity suppliers
- Finally, we believe that Government has a crucial role in two areas. The first is in the promotion of the new EU promoted regional market initiatives and in the promotion of regional regulatory structures that facilitate trade in natural gas between Ireland, Great Britain and Northern Europe. The second role is in ensuring that enduring business relationships are developed with the important energy suppliers into Europe, including both the Arab world and Russia. Current European political attitudes are not conducive to building these mutually advantageous relationships that are necessary in the longer term.

- **Electricity**

- Bord Gáis supports the view that the bundling of gas and electricity products by suppliers is efficient and will prove beneficial to customers. In that regard, Bord Gáis wishes to operate as a dual fuel supplier and generator within the electricity market. Our comments here are motivated within the context of these ambitions for the business.
- In terms of policy proposals, while we can understand that there are perceived merits in the promotion of a commercially strong ESB, we believe that the effectiveness of competition will depend much more on the promotion of strong commercially viable competitors. Therefore, a wider policy action of encouraging a number of commercially viable players in the Irish electricity market might offer greater benefits to consumers over the longer term. The growing consolidation of European utilities accelerates the requirement for Irish players to have the minimum scale necessary to compete for resources in the international energy markets.
- The proposed targets for the role of renewables, and especially wind in the Irish generation mix, will require flexible generation to address the intermittent nature of wind generated power. Generation in the form of single cycle gas turbines and more flexible CCGT plant has the capability of contributing to meet this need. The extent and robustness of the gas transmission grid makes this a feasible and sensible option. Developing flexible back-up to wind will greatly enhance the chances of meeting the renewable targets.
- We are concerned that incentives being contemplated for power generation capacity will not sufficiently reward capacity on the system and could lead to a shortage of these flexible generation options.

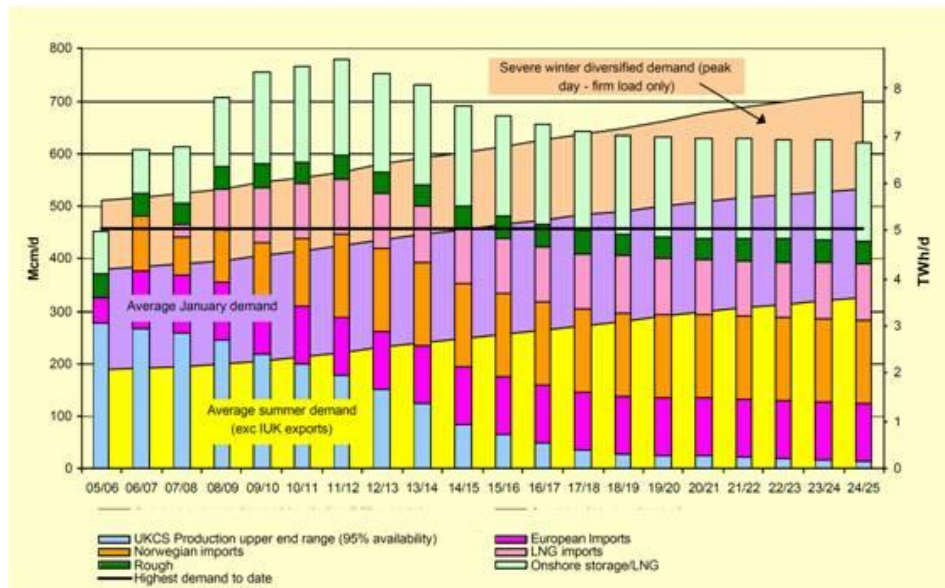
- We believe that the economic contribution of East-West interconnection will be constrained if, as expected, gas will be the marginal generation fuel in both markets. Focusing on Irish generation market structures and incentives has the capability of delivering the same benefits as potentially expensive electrical interconnection might.
- **General**
  - In relation to State ownership, we believe that Irish state owned enterprise, should be free to compete in the market on an equal footing with all other participants, whether state or privately owned and should be subject to the same appropriate regulatory oversight.
  - We believe that the current model of State ownership of strategic network assets is appropriate and that the current approach to financing such assets based on an appropriate mix of equity and debt is prudent. It provides incentives for the network utilities while protecting the customers from risk more appropriately borne by the utilities.
  - We recognize that while fuel poverty is primarily a welfare issue, that it can be best addressed jointly by the welfare arms of the State (and other relevant State and the non governmental agencies) working with all the energy suppliers. The current initiatives, addressing housing stock short comings, are also a very important component of an enduring solution.

## ENSURING THE SECURITY OF ENERGY SUPPLY

- As clearly set out in the Green Paper, energy policy rests on the three pillars of competitiveness, sustainability and security. The setting of policy is about choice and efficient trade-offs, the gaining of the competitiveness and environmental benefits, while ensuring secure supplies at least cost. In many instances, market responses will provide the required security, though some recent UK research suggests that there may also be instances of market failure. The identification and quantification of such market failure in Ireland should be under pinned by significant empirical work before Government intervention is contemplated.
- In the Irish energy policy context, there are compelling reasons for the increasing and significant role of natural gas in the Irish primary mix and particularly in the power generation mix. Natural gas is the cleanest fossil fuel, with carbon emissions well below those of alternative fossil fuels. This arises from both the inherent low carbon content of the fuel and also the greater efficiency at which it is utilized in its conversion and end use applications. Natural gas in power generation has other advantages in the terms of the scale of efficient plant relative to the size of the Irish electricity market, augmented by the speed of construction of such plant relative to economic alternatives.
- Also Ireland is in a beneficial location in Europe from point of view of supply sources with Norwegian natural gas and LNG from a range of politically stable countries providing the bulk of our gas supplies. This puts Ireland in a much better security situation in the short to medium term than many other EU Member States.

- Threats to gas supply security come primarily from two very different sources;
  - Actions related to geopolitical factors and
  - more locally based physical system outages.
- The vast majority of the physical system related outages tend to be of short duration (i.e. mostly repairable within 48 hours) and thus are amenable to some inexpensive security measures, such as the use of Interconnector linepack storage.
- The geo-political issues, which are being highlighted of late, need to be considered within a much wider context. It is the Bord Gáis view that these concerns are being given too great a weight in current policy discussions at all levels within the EU. The risk is that efficient and sensible gas based energy solutions are foregone due to over estimation of the supply risks.
- The prevailing European political thinking, linking of imports with “insecure” and indigenous with “secure”, has not been borne out by the evidence at a European level over the past two decades<sup>1</sup>. The evidence to date has been to the contrary when measured in terms of incidents that led to gas supplies being cut off to end consumers for considerable periods of time.
- There are very significant natural gas reserves economically available to the European market and consequently to the Irish market. These are primarily transported through a highly interconnected gas transmission system throughout the continent of Europe. Ireland is an integral part of this system.
- The European pipeline based system is being continually augmented. Furthermore, the overall gas delivery system to Europe (and especially to the UK) is being further diversified through the accelerated development of worldwide LNG, providing supplies from entirely new sources.
- The main longer term gas reserves, as in the case of all fossil fuels, are held in the Arab world and in Russia, though Africa is also continuing to grow as an important external supplier to Europe. The international interdependency will require Europe as a whole to develop mutually respectful and mutually advantageous relationships with its neighbours, especially with the Arab world and with Russia. This is a challenge to be addressed at EU level, though the Irish government could also wisely take a lead in building the necessary bridges in that regard. Such initiatives will serve the nation well in the decades to come. Adversarial relations between Europe and the Russia and the wider Arab world by the West is not in the longer term interest of either Europe or of Ireland.
- Notwithstanding the EU level context, at a wholesale market level, Irish geopolitical gas supply security will continue to be more influenced by the UK situation than by the wider EU context. At a wholesale level, excluding the near term Corrib contribution, the majority of Irish gas supplies will continue to come from the UK market. While there has been some concern voiced across Europe as to the role of Russia as a gas supplier, the make-up of UK supplies is at variance with that of the mainland European mix, with diversity set to grow greatly over the next few years.
- While import dependence has been raised as a cause of concern in Ireland, it is the norm across Europe. Large and successful gas markets such as the French market, import 100% of supplies and the Germany market imports a large share of its gas needs from its eastern neighbour Russia.

<sup>1</sup> See Page 18 on “THE NEW SECURITY ENVIRONMENT FOR EUROPEAN GAS: WORSENING GEOPOLITICS AND INCREASING GLOBAL COMPETITION FOR LNG by Jonathan Stern of the Oxford Institute for Energy Studies - NG 15 - October 2006



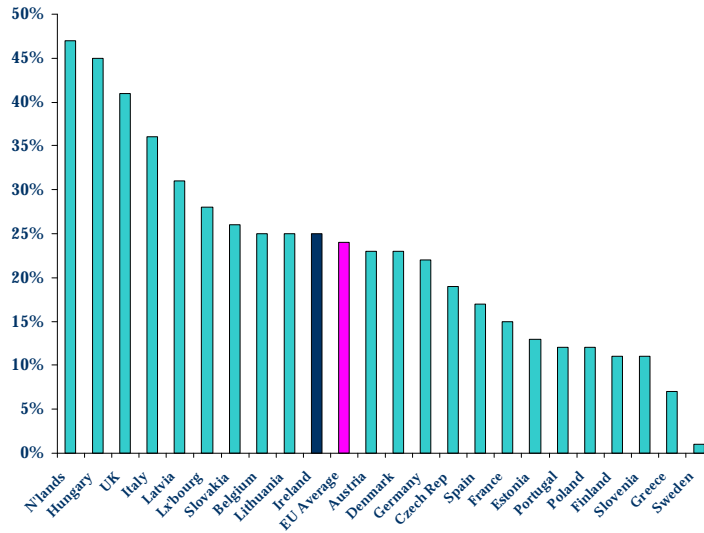
- Therefore, the quality of Irish gas security will depend on a number of factors:
  - **The degree of diversity of UK gas supplies.** Current indications are that UK gas supplies will be more diverse with European neighbour Norway providing a significant portion of UK supplies for the foreseeable future<sup>2</sup>. The chart above produced by National Grid in its Ten Year Statement, illustrates the expected sources of peak day UK gas for the next two decades. Norway will play a growing role, while continental sourced supplies (including that potentially sourced from Russia or the Netherlands) will continue to be a relatively small component of the mix.
  - **The quality of interconnection between the Irish and UK markets.** Currently, there are three subsea links between the island of Ireland and the UK market. Elements of this system, especially the onland system in Scotland is under review as to its further reinforcement.
  - **The availability of producing indigenous resources.** The arrival of the Corrib gas will positively impact on Irish supply security for the duration of the life of the field.
  - **The availability of storage.** The Marathon storage facility has come into operation in 2006 and adds to national supply security, Bord Gáis and others are also looking at options for on-land salt cavern based storage in Northern Ireland as a further source of commercial storage.

<sup>2</sup> UK Gas Industry Expert Jonathan Stern has commented as follows regarding the sources of UK supplies for the next decade or so

- Pipeline gas from Africa and Middle East/Caspian countries is unlikely to play any large part in UK gas supplies before 2020
- Pipeline gas from Russia is playing a minor role in UK supply; not significant for at least a decade; Gazprom target of >10 bcm looks ambitious prior to 2015
- LNG import capacity from Qatar and North Africa will increase BUT the UK will compete for supplies with elsewhere in Europe, US and Pacific
- NORWEGIAN GAS will provide the majority of imports for at least the next decade

<sup>3</sup> Source: IEA World Energy Outlook 2004, EC Energy Trends 2003, SEI

- **Finally, LNG has the potential to increase gas supply security.** However, the rapid development of LNG in the UK combined with the level of interconnection between the markets, will ensure that Ireland benefits from any strategic or geopolitical advantages emerging from the growth in LNG from the present moment. At a local level, it would appear that efficient scale LNG plant would be very large relative to the scale of the Irish market, particularly during the Corrib production period. However, it could be easily accommodated within the wider UK/Irish interconnected gas markets



- The chart above<sup>3</sup> shows the share of natural gas in primary energy demand across the EU member states. As can be seen, natural gas accounts for about 25% of primary energy demand in Ireland, which is in line with the EU average of 24%. (EU member states that use significant nuclear power tend to use relatively less natural gas in the primary fuel mix.)
- By 2020, the share of gas in Irish primary energy demand is projected to be at c. 35% compared with an expected EU average of 32%.
- The role of strategic storage is discussed with below. There is some concern that security (as a public good) may be under provided by the market due to market failure. The UK is currently studying the potential role for government intervention in this regard. Significant empirical work would need to be undertaken before a similar conclusion could be drawn for Ireland and especially before any market intervention by the State should be contemplated. Indeed, to complicate matters, there is also concern among commercial project promoters that storage constructed for “strategic” purposes might be utilized in times of high prices rather than to deal with genuine supply emergencies. It is felt that such an overhang on the market might deter the construction of commercial storage, i.e. in that some of the incentives and potential returns would be capped.

## Questions & Responses

### 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?

- Technically and economically, the options for alternative fuels to natural gas in power generation are materially limited for the next decade or so.
- We believe that clean coal technologies will develop to a level to provide wider options in the longer term. Ireland will eventually have exhausted gas fields available that could form part of such a solution.
- Developing the role of renewables, particularly wind, creates some electricity supply security issues and creates a need for back up requirements also.
- Natural gas has a significant role to play in complementing wind generation in providing economical back-up to wind power generation.
- Consequently, the question should be more of how do we optimally secure power supplies rather than how do we diversify away from oil and gas.
- There are other measures that could be taken in power generation, such as ensuring the availability of back-up fuels and “hot switching” capability that would greatly enhance overall power generation security. Such solutions are used elsewhere.
- It is important to recognize that individual fuels can be made more secure through various measures, such as oil and gas storage. Therefore fuel diversification, even if feasible, is only one of a number of possible measures that are available. Indeed, it may be the least desirable of the alternatives in the near term.
- Also from a physical supply perspective, there is little correlation between the physical availability of gas and oil on any particular day. Consequently, Bord Gáis would encourage the use of back up fuel stocks in new CCGT plant as a key source of supply security against any short term scarcity of natural gas supplies.
- Power generation security is potentially a public good and thus there is an argument that the cost of any security measures should be borne by the market rather than at the individual power plant level.

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

- Generation adequacy is strongly linked to the commercial and regulatory regime prevailing in the market and to the signals that are provided to investors to invest in various forms of generation.
- There is a requirement for reliable long-term signals and for a stable regulatory and market regime to encourage investment in new generation. Examples include certainty and predictability as to transmission loss adjustment factors, grid connection costs, market regime and recognition of potential contributions to ancillary and reserve market by new entrants.
- Also, the addition of significant wind generation to the system creates requirements as to back up generation on the system to cope with days where wind speeds are low or non-existent. While the growing share of wind will provide some portfolio benefits as to supply availability, the close correlation of wind behaviour across the island will limit this over that which would prevail in a larger wind based system.
- Natural gas powered single cycle gas turbines could provide one such source of back up generation. The robustness of the gas transmission system makes this a feasible option for Ireland, allowing for small scale back up to be optimally located throughout the electricity transmission system.

## Questions & Responses

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

- The issue of “strategic storage” as opposed to commercial storage is, as set out above, a complex issue. At the gas security level, we believe that the role of strategic storage, if any, can be best addressed within this wider context of gas and power supply security. The market, through the Marathon Storage development, has already contributed in this regard. Other commercial storage opportunities that are currently under consideration would also help in this regard. We welcome the upcoming study on the LNG and gas storage in that regard.

### **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?**

- In addition to the comments to 3.2.2, above:
- As generally recognized, the market power of the incumbent, resulting from the scale and scope of its operations, including the ownership of a large and diverse generation plant portfolio and particularly the ownership of the likely price-setting plant, is acknowledged in the paper.
- There is also an inherent competitive advantage to ESB as a result of ownership of key sites with valuable grid connections and infrastructure, including access to cooling water. Therefore, Bord Gáis welcomes the proposal to create a State-owned land bank of current and potential generation sites as announced by the CER on November 29 2006.
- Aside from the scale and scope advantages, there are also some legacy cost advantages to ESB as a result of ownership of freely allocated carbon credits. Consequently, there is a need for an appropriate carbon allocation methodology to create a more level-playing field going forward.
- The potential lack of co-optimisation between energy and reserve/ancillary services markets may also result in a likely monopoly for the incumbent in the ancillary services market, unless directly addressed.
- A final challenge relates to the uncertainty around system factors, such as future transmission loss adjustment factors, grid connection costs, and the operation of the overall market regime.

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

- Other than interconnection with the UK, there would appear to be little case for considering wider electrical interconnection. Indeed, the suggestion of wider interconnection, over and above that already flagged, can only lead to regulatory and commercial uncertainty for those investing in new generation plant in Ireland.

## Questions & Responses

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

- In terms of natural gas, there are many positive elements of an incentive structure already in place, including
  - a developed transmission infrastructure
  - interconnection with the UK and thus continental Europe also
  - a significant indigenous market
  - market prices in Ireland based on internationally traded gas prices as set in the UK wholesale market
- However, there are two potential impediments to developments at present:
  - The (negative) impact on international views of the Irish planning regime given the delays faced by the Corrib partners as developers of the Corrib gas reserves and
  - the fact that, despite the pro-exploration nature of the current Irish licensing terms, that there are more benign regimes, even within Europe. This would especially include the Norwegian regime, which tends to be more benign in the case of unsuccessful exploration drilling.
  - Both of the above might be considered by government in developing the approach to encouraging future exploration and development in Irish waters.

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

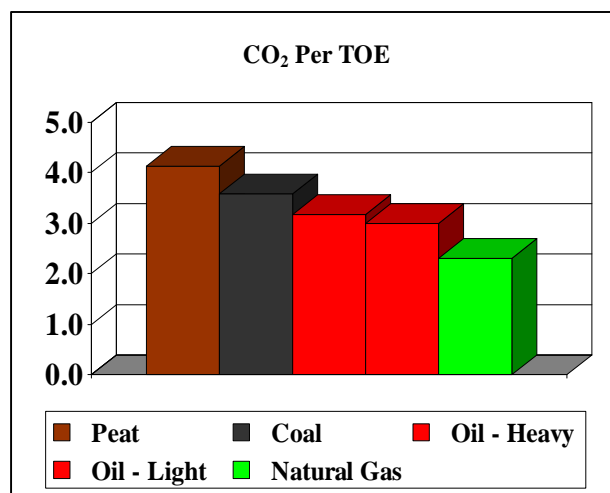
- The potential natural gas and power generation related security measures have already been outlined above and are briefly summarised below again:
  - That a security of supply standard for natural gas is formally defined for ROI, which would address which market sectors should be protected in an emergency and the eventualities that they would be protected against;
  - That gas-fired power stations be required to hold adequate stocks of back-up fuel, have “hot-switching” capability and that this capability is tested on a regular basis.
  - That further consideration is given to enhancing the gas interconnection (including the twinning of the pipeline in Scotland) with GB for physical security reasons, and in particular to protect the ROI residential and I/C sectors in the event of a failure (however unlikely) of key transmission infrastructure in Scotland;

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

- It does to a certain extent. However, we believe that it over estimates and over emphasizes the risks in relation to natural gas security especially geo-political based concerns. General media comment as to the level of dependence on Russian supplies exaggerates the risks, especially in the western part of Europe. The scope and importance of relationship building is underemphasized within the document.
- There are more options to improving power generation security than the suggestion of diversifying fuel sources. These include the joint consideration of natural gas and power generation security to identify least cost approaches as suggested above.

## PROMOTING THE SUSTAINABILITY OF ENERGY SUPPLY

- On a global basis, there is now a compelling case being made for action to address the threats inherent in climate change. This represents a fundamental shift in the concerns of energy policy and in the factors that underpin current regulatory structures within the EU. In the early 1990's the key concerns were competitive, driven by large industrial energy users that felt disadvantaged relative to the US and also other developing competitor nations. The lack of apparent emphasis on the environmental aspects of energy systems in competitor nations added to the European sense of burden. These concerns underpinned much of the initial drive towards market liberalization and the drive for a single energy market within the EU. While competitive issues remain as a concern at EU level, the need to meet the climate change challenge, within the context of different paced approaches by competitor blocks is now the key challenge facing Europe and Ireland.
- On the environmental front, there is a compelling case being made for diversification away from fossil fuels towards renewables over a relatively rapid timeframe. It might be felt that the European Commission level concerns remain more with the original agenda, while the Green Paper reflects a far greater environmental focus. The challenge is moving to sustainability is to meet the needs of today, without jeopardizing the needs of the future.
- In the nearer term, it will be challenging for Ireland to meet its Kyoto commitments, given that greenhouse gas emissions for Ireland were 23% above 1990 levels in 2004.
- Natural gas, with its positive environmental attributes has a key role to play as the bridge to a sustainable future. All other things being equal, greater utilization of natural gas within Ireland will maximize the chance of meeting our global commitments.



- Chart 1 above illustrates the CO<sub>2</sub> emissions of various fossil fuel sources. Natural gas is the cleanest fossil fuel and is a major contributing to reducing atmospheric emissions of pollutants such as:
  - sulphur dioxide
  - nitrogen oxides and
  - smoke

- More importantly, CO<sub>2</sub> emissions from natural gas are up to 30% less than oil and 50% less than coal - for the same energy input and in addition natural gas can achieve a conversion efficiency of well over 50% in Irish power generation compared to less than 40% for other fossil fuel sources.
- The emphasis on wind generation as the key near term source of renewable energy should be coupled with a greater role for small scale natural gas single cycle turbines distributed throughout the electricity transmission network.

**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?**

- In terms of wind development the requirements, aside from the obvious commercial issues are:
  - The challenges of dealing with intermittent generation sources and the requirement for Back up generation
  - Quality and robustness of the electricity transmission grid, including the availability of suitable connections
  - Availability of economical back up generation. There are incentives that need to be provided to invest in the flexibility required to accommodate an increasing amount of non-dispatch able generation. This could, for example, be rewarded through ancillary services market)

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

- No comment

**Questions & Responses**

**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?**

- There are significant initiatives already in place with much being done to promote energy efficiency. The global increase in energy prices will provide a significant impetus to all consumers to seek out technical approaches that minimize energy usage.
- We believe that energy providers might also enhance their ability to provide a greater level of energy utilisation advice as part of a wider product offering. The increasing cost of energy, together with competitive forces, will drive this requirement.

**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?**

- It used to be argued by some economists that one of the benefits of monopolies, in general, was that they tended to invest more heavily in market focused research than more competitive industries. The logic was that they did so as they were more likely to secure any of the benefits from such research for themselves. Locally, the large UK utilities of British Gas, CEBG and British Coal had a long and successful track

record in this regard. The liberalization of markets and the introduction of the current regulatory models has virtually eliminated this type of research and certainly the current level of wider energy research activity is much lower than previously. However, the need for research in the energy field has probably never been greater. As it is no longer feasible for the regulated monopoly enterprises to engage in any material research activity, it must now be for the State to fill the gap, if significant research is to be undertaken.

- Fundamentally, Irish energy research should be tailored to Irish requirements. It is important that the research focus on local market needs. We would encourage linkages between the various Irish research institutes and market participants in that regard.
- There is no doubt that the larger economies are addressing similar issues to those faced in Ireland and are in a position to achieve far greater scale in their research programmes. For a small economy such as Ireland, there is a strong case for cooperating in the development of and then adopting technologies developed elsewhere.
- However, there is also a need for concentrated Irish based research in some areas:
  - Given the strong contribution that wind generation will make to Irish electricity needs, there is a compelling case for significant investment in local Irish research in this area.
  - Wave and tidal power possibilities are technically less developed but do still represent an opportunity for Irish research to carve out a niche in international markets.
  - On the gas side, we foresee a wider role for both micro CHP and also potentially for natural gas based fuel cells. These options are also worthy of research funding.

#### Questions & Responses

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

- As set out above, radical expansion requires significant increase in the budgets based on market focused research conducted in partnerships between the Irish research institutes and the market participants.

**3.2.14 What are the key supply and demand questions to be addressed to underpin a fully cohesive National Bio Energy Strategy?**

- No Comment

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

- We need to concentrate on the cost and efficiency elements. Therefore, energy efficiency could be a target (though mandatory targets for either are difficult to implement). Increasing global fuel prices will lead to significant energy efficiency initiatives, without the need for further intervention in any case.

- Incentives should only be provided where there is a demonstrable long term benefit for consumers. Increased wind generation is likely to increase the spread between Irish and continental electricity prices in the near to medium term, when the wider costs are taken into account. In any case, the price of electricity within the SEM, will be set by the fuel cost of the marginal plant, not by wind.
- In general, we believe that targets for renewable energy, beyond what is required under the internationally binding agreements, should be economically justified. Therefore, we would support a study to carry out some empirically evaluation of the optimal (most economical) fuel mix (including the role of renewables) given the trade off between CO2 emissions, cost and security of supply/reliability.
- Equitable carbon allocation methodologies and electricity prices reflective of full carbon costs, if any, would benefit cleaner generation technologies.

### **3.2.16 Does the Green Paper generally set the Right policy directions for energy sustainability?**

- Generally it does. However, there is an emphasis on wind as a renewable energy source, without giving adequate emphasis to the parallel need for efficient back up alternatives to deal with its inherent intermittency. In that regard, we believe that there is strong case to be made for the role of single cycle gas turbines, appropriately distributed throughout the transmission to provide adequate backup.

## **ENHANCING THE COMPETITIVENESS OF ENERGY SUPPLY**

- **Bord Gáis recognizes that energy cost competitiveness is important in a national context for a small open economy. However, there are many challenges that make it difficult to achieve the scale economies of the larger EU member states, particularly in network based industries such as gas and electricity.**
- **However, notwithstanding scale issues, efforts must continue to be made to ensure that energy is sourced and delivered in the most economic way possible to Irish consumers.**
- **As set out earlier, the challenge will be to economically deliver the benefits of natural gas, while addressing supply security in an efficient manner.**
- **The bulk of Irish gas supplies come from the UK market, which is the price setter in terms of the Irish wholesale price. Indeed, we expect arbitrage between the UK and Continent and indeed on a wider global basis to limit completely the likelihood of any wholesale competition at the Irish level. Therefore, the benefits of competition will emerge in the choice of product offered to consumers, the quality of customer service and efficiency of the retail businesses.**
- **We fully support the Government's commitment to ensuring that real competition is delivered in Irish electricity and gas markets. We believe that the emphasis must be on consumers rather than competitors and that competitors must thus be efficient in scale. Irish consumers will benefit from the provision of services by competitors in the market which improve on existing efficiency levels. Increased efficiency levels naturally lead to more competitive prices. However, the creation of a competitive market by simply emphasising the number of market participants may achieve little consumer benefit overall.**

- The growing consolidation of European utilities accelerates the requirement for Irish players to have the minimum scale necessary to compete for resources in the international energy markets. There is a risk that Irish competition policy can be too inward looking, and not taking enough account of developments in world energy markets and particularly in the growing consolidation of European utilities. Irish energy suppliers will have to compete for resources in these markets, and their success in that regard may be as important to the determination of the final prices paid by Irish consumers as will be the market efficiencies achieved within Ireland.
- The bulk of continental gas supplies continue to be sourced based on long-term contracts and based on close commercial relationships between buyers and sellers.
- In terms of policy proposals, while we can understand that there are perceived merits in the promotion of a commercially strong ESB, we believe that the effectiveness of competition in the electricity market will depend much more on the promotion of strong commercially viable competitors. Therefore, a wider policy action, based on encouraging a number of commercially viable players in the Irish electricity market might offer greater benefits to consumers over the longer term.
- In relation to State ownership, we believe that Irish state owned enterprise, should be free to compete in the market on an equal footing with all other participants, whether state or privately owned and should be subject to the same appropriate regulatory oversight.
- We believe that the current model of State ownership of strategic network assets is appropriate and that the current approach to financing such assets based on an appropriate mix of equity and debt is prudent. It provides incentives for the network utilities while protecting the customers from risk more appropriately borne by the utilities.
- We recognize that while fuel poverty is primarily a welfare issue, that it can be best addressed jointly by the welfare arms of the State (and other relevant State and the non-governmental agencies) working with all the energy suppliers. The current initiatives, addressing housing stock short-comings, are also a very important component of an enduring solution.

#### Questions & Responses

##### **3.2.17 In the context of liberalization 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 context of the gas and electricity markets is wholly different. The Irish electricity market is essentially local, especially at the production level, whereas the natural gas is sourced in international markets via fully interconnected systems, through the UK. Bord Gáis Energy Supply now supplies less than 40% of overall natural gas deliveries in Ireland. Consequently, the approaches required to develop greater competition are greatly different.
- In electricity, there are still significant issues to be dealt with at the production and at the wholesale level. Some of these are being addressed in the development of the Single Electricity Market. As a start up electricity retailer, the concentration of generation in a few hands in the market is the key challenge. Once these are addressed, the development of retail competition will become both practical and real.
- Given the relatively small scale of the electricity market in Ireland (even on an all-

island basis) where liquidity and risk management possibilities are limited, successful competition in supply may be limited without access to generation. Notwithstanding the fact that the Single Electricity Market should address the issue to an extent, vertical integration of supply and generation chains is the model that can be adopted by independent companies to compete successfully by better managing their risk in a potentially volatile market.

- In energy, in both networks and international procurement, scale is important. We strongly support the development of a single market across the island as this will help mitigate some of the scale disadvantage albeit in a small manner, (given the combined scale of both markets).
- On the regulatory front, the development of a North West European gas market looks very promising, with a need for regulatory structures that operate on a trans-national basis rather than within and between Member States as at present. This regulatory barrier is one that could be effectively addressed in the near term.

### Questions & Responses

#### **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?**

- We believe that it is too early to address institutional arrangement in the near term. The existing institutions have much more work to do before any critical assessment could be made. We agree with the view that such a review of regulatory structures should be postponed, at least until after the single gas and electricity markets are operational on the island.
- As stated earlier, the institutional arrangements at an EU Member regional level do need to be addressed as soon as possible. There is a clear requirement for some supra-national structures with powers independent of the national level regulatory agencies, and with an objective of developing the single EU energy market.
- As a general rule, the constant adjustment of regulatory structures, however well meaning or well motivated, introduces a level of uncertainty and risk to energy markets. While proposed changes may appear benign near term, the fact of constantly over turning the structures creates unease among participants, especially those contemplating investment in long life assets such as power generation plant.

#### **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?**

- Ireland's energy costs must be evaluated in context with general global energy prices. The appropriate market price, for both electricity and gas, should reflect the real costs of delivering a quality and secure energy supply service to consumers within the constraints of the unique characteristics of the Irish market, the policy adopted by government and the market structure arrangements in place on the island of Ireland. A consumer value approach is assumed to form the basis for these various contributors. The only real area where action can be taken is to ensure that the creation of a market which encourages market entry only when there is a requirement for additional services or where efficiencies – which will be passed onto consumers - can be made.

- With regard to the natural gas sector we would suggest the following:
  - We believe that security of supply must be addressed on a rational basis, with optimal acceptable approaches developed so as not to add unnecessarily to energy costs.
  - The current approach to price and revenue control of networks should continue, offering appropriate incentives to utilities to continually reduce costs
- The trend towards greater regulation (whether within the energy industry or more widely) often works towards increasing costs. E.g. at a very simple level, the complexity in getting “road opening licenses” increases industry infrastructure costs. While such regulatory requirements are well motivated and attempt to balance many factors, they inevitably raise network industry costs.
- Therefore, we would strongly recommend that regulatory impact statements become a mandatory requirement to underpin all significant policy changes, so that decision makers have all relevant data and analysis available when taking such decisions.
- Finally, there are options to be considered in the design of gas network tariff structures that primarily address the needs of end users.

**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 relation to State ownership, we believe that Irish state owned enterprise, should be free to compete in the market on an equal footing with all other participants, whether state or privately owned and should be subject to the same appropriate regulatory oversight. As with all other market participants, state owned enterprise should provide high quality customer service, innovative product design and delivery and should continue the drive to greater efficiency as incentivised by the current regulatory model.
- We believe that the current model of State ownership of strategic network assets is appropriate and that the current approach to financing such assets based on an appropriate mix of equity and debt is prudent. It provides incentives for the network utilities while protecting the customers from risks more appropriately borne by the utilities.
- The mixed, debt and equity approach is capable of funding the needed infrastructure while still retaining a performance incentive for the utility given its capital structure
- Financing structures, based totally on debt, may appear to give short-term gains, but this is often eventually outweighed as a) all risk is passed back to consumers and b) key performance incentives are eliminated for the service providers when equity returns are not put at risk.

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

- In a time of high energy prices, fuel poverty is a continuing concern. The current Government backed initiatives aimed at improving the quality of homes and the quality of their energy efficiency offer the best enduring solution in many instances. They create the prospect of more comfort to householders and of reducing energy costs in the longer term,
- We recognize that while fuel poverty is primarily a welfare issue, that it can be best addressed jointly by the welfare arms of the State (and other relevant State and the non-governmental agencies) working with all the energy suppliers. The current initiatives, addressing housing stock short-comings, are also a very important component of an enduring solution.

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

- Generally, yes.
- There is a risk that competition policy can be too inward looking, and not taking enough account of developments in world energy markets and particularly the developing consolidation of European utilities. Irish energy suppliers will have to compete for resources in these markets, and their success in that regard may be as important to determining the level of prices paid by Irish consumers as the do efficiencies achieved within Ireland.
- Consequently, in terms of policy proposals, while we can understand that there are perceived merits in the promotion of a commercially strong ESB, we believe that the effectiveness of competition will depend much more on the promotion of strong commercially viable competitors. Therefore, a wider policy action of encouraging a number of commercially viable players in the Irish energy market might offer greater benefits to consumers over the longer term.