



Towards a Sustainable Energy Future for
Ireland

EirGrid's Response to the Government's
Green Paper on Energy

November 2006

Table of Contents

EXECUTIVE SUMMARY – EIRGRID’S KEY MESSAGES	3
CORE MESSAGES	9
Transmission Network Development	10
Generation Adequacy	12
Renewables	15
Energy Efficiency	17
Competition	18
SPECIFIC RESPONSES	20
ENSURING THE SECURITY OF ENERGY SUPPLY	20
SUSTAINABILITY OF ENERGY SUPPLY	26
ECONOMIC COMPETITIVENESS	35

EXECUTIVE SUMMARY – EIRGRID’S KEY MESSAGES

Transmission Network Development

1. EirGrid is preparing a Grid Development Strategy with a 15 to 20 year horizon supporting local regional and national policy objectives.
2. EirGrid will assist in the development of a new sub-sea interconnector with GB to be operational by 2012 which it will take ownership of upon completion.
3. EirGrid to explore opportunities for further interconnection in advance of 2010 in the interests of enhancing competition, promoting security of supply and facilitating connection of renewables
4. EirGrid welcomes recognition of vital role of transmission infrastructure in the Planning and Development (Strategic Infrastructure) Act, 2006
5. Network development will require co-ordination of policies at local, regional and national level and will need to balance the rights of local residents, landowners and interest groups with the requirement to deliver core infrastructure in a timely fashion in the national interest.
6. EirGrid seeks measures to reduce uncertainty in plant location with a view to greater efficiency in network development

Generation Adequacy

7. Availability forecasts provided to EirGrid for generation plant have proved to be inaccurate. Accurate information is essential for meaningful analysis and so that EirGrid can plan the operation of the system and provide appropriate advice to CER and others.
8. The availability performance of the existing plant portfolio is well below international norms and in EirGrid’s view is unacceptable. Improvement in the performance of the existing fleet is essential to ensure security of supply in the short to medium term. There is a need for suitable incentives and other instruments to be in force to improve availability and performance of the existing plant portfolio.

9. EirGrid is happy to report on plant availability quarterly in arrears as outlined in the Green Paper
10. It has been signalled that some of the older generation fleet is expected to close. In order to maintain security of supply over such a transition, it is critical that an orderly programme is developed and adhered to, including achievement of acceptable availability performance of generation in the run-up to closure.
11. Sufficient notice of any plant closures to be provided to EirGrid, the CER, policy makers and the market.
12. Greater fuel diversity should be encouraged and further back up supplies be provided. In the medium term EirGrid believes that alternative technologies such as 'clean coal' should be kept under consideration.
13. EirGrid believes consideration should be given to the development of selective sites which could accommodate additional generation which could be procured/ developed on a short term and accelerated basis should this be required for the purposes of security of supply.

Renewables

14. EirGrid welcomes the introduction of a medium term target for renewables penetration and will work to facilitate its delivery. While EirGrid believes that with other supporting measures the 30% is achievable a final target can, and should, be informed by the output of the All Island Grid study currently being conducted. This study will consider the overall economic costs and benefits of such a target
15. In devising targets and strategies for the delivery of overall policy objectives – e.g. CO₂ reduction – the costs and benefits of different technologies – and the potential contribution from different sectors – including improvements in energy efficiency and development of new technologies (such as 'clean coal') should be transparent and taken into account
16. The connection of further renewable generation will need to be supported by further network development, the development of further flexible conventional plant, electricity storage and greater interconnection

17. EirGrid recommends a policy that ensures the targets are delivered from a balanced portfolio of renewable sources
18. EirGrid supports Research and Development into alternative renewable sources and is prepared to participate in such projects within its areas of competency, including demonstration projects where appropriate.
19. EirGrid believes storage projects (such as pumped storage or battery projects) have a potentially significant role in supporting the integration of renewables as well as providing other benefits to the market and the system. EirGrid believes that such projects should be facilitated and where appropriate given priority access to the system.

Energy Efficiency

20. EirGrid is involved in promoting and operating demand side initiatives. EirGrid agrees that demand side participation in the Single Electricity Market is desirable. However EirGrid strongly believes that it is critical that mechanisms such as Winter Peak Demand Reduction Scheme (WPDRS) are continued at least until market participation mechanisms are designed, functioning and most importantly proven.
21. EirGrid supports systems which aid customers in basing decisions on the 'true' costs of their consumption including the promotion/ further roll out of real time metering whereby customers can see the actual cost of their consumption of electricity at any point in time
22. EirGrid sees increased energy efficiency, both of new generation plant as well as in terms of consumer response, as a key contributor to overall sustainability

Competition

23. EirGrid supports competition through transparent non-discriminatory access to the transmission grid and operation of the electricity market
24. EirGrid supports the efforts being made by the government, CER and others to reduce the market share and dominance in price setting of the incumbent in a desire to promote competition under AIP.
25. EirGrid supports the concept of the development of a landbank of suitable sites for the development of competitive generation. EirGrid is in a unique

position to be able to assist in identifying relevant locations and administering any such landbank.

26. While EirGrid is committed to making Ireland's transmission arrangements work it believes that combining transmission operation and ownership is a more effective and efficient model, eliminates duplication of resources/skills, provides for clearer accountabilities and supports the application of incentives.

INTRODUCTION

EirGrid welcomes the Government's recently published green paper on energy – 'Towards A Sustainable Energy Future for Ireland' – the first such wide ranging Green Paper in this area since 1978.

As the Minister will be aware EirGrid recently took on responsibility for the operation, maintenance and development of Ireland's electricity transmission system in accordance with the functions set down for it in SI 445 (2000) as amended by SI 60 (2005). Given the current geopolitical climate with it's increasing understanding and focus on environmental stability and climate change it is extremely important that Ireland maps out a strategic development for the future of energy policy. With this in mind EirGrid strongly supports the three pillars identified in the Government's paper – Security of Supply, Environmental Sustainability and Economic Competitiveness. EirGrid believes you will find in the accompanying paper that it has an important role to play in relation to all three and can contribute to meeting Government's and Ireland's overall objectives in this area.

In relation to security of supply EirGrid plays a vital role in operating, maintaining and developing the electricity transmission system with a view to ensuring that all reasonable demands for electricity at any point in time are met. On a real time basis system security is provided through the scheduling and dispatch of Ireland's generation plant portfolio and through the procurement of adequate operating reserves. As regards the medium and longer term, given its role as system operator, EirGrid is in a unique position to be able to provide the most up to date and accurate information to policy makers on longer term developments.

In the area of environmental sustainability EirGrid has, in conjunction with ESB Networks, Ireland's Distribution System Operator, connected, or facilitated the connection of over 600 MW of renewable generation to the transmission and distribution systems – the vast majority of it in recent years – and has in conjunction with ESB Networks made offers and is processing a further 620 MW. EirGrid is currently engaged with ESB Networks in processing offers for a further tranche of approximately 1,340 MW under the group processing approach known as "Gate 2".

EirGrid continues to engage at the leading edge of international research in short and medium term wind forecasting and in developing innovative solutions to deal with the challenges inherent in operating a transmission system in the presence of an increasing amount of variable, or intermittent, generation.

In supporting our economic competitiveness EirGrid has embraced openly the Government's programme for market liberalisation, has acted as facilitator and operator of the competitive market for electricity since 2000, and has worked with the Commission for Energy Regulation to open up access to the network and to develop it in a manner which will facilitate the entry of new competitive generation. In addition, as the Government is aware, EirGrid has been engaged with its Northern counterparts to develop and implement an all island market in electricity which will deliver further choice for consumers. EirGrid has also begun to engage in the development of interconnection between the Irish and GB transmission systems on foot of the Government's recent announcement in this area.

However, as we identify in our paper below this is not a time for complacency for the Irish electricity industry, and there are significant challenges ahead. The challenges include the attraction of significant additional new generation into the Irish market to deliver the full benefits the competitive market has to offer, a strong desire to reduce our dependence on traditional fossil fuels, the challenges to be overcome if a relatively small and isolated electricity system is to accommodate a significant quantity of renewable generation and a requirement given our geographic location to be a leader rather than follower in the development of new technology. In this response EirGrid outlines some of the concerns it has in these areas and makes proposals as to where Government backing can assist in overcoming them.

The next section outlines the core messages EirGrid wishes to convey to Government in formulating policies and targets in its forthcoming white paper and beyond. In doing so it draws upon the analysis presented in subsequent sections which address the specific questions posed by the Government in its green paper. EirGrid has limited its response to the areas where it can add substantive and authoritative analysis, and in doing so, enhance overall debate on the future direction of energy policy in Ireland.

CORE MESSAGES

EirGrid wishes to highlight its key messages in response to the Green Paper. These are divided under the following categories:

- ✓ Transmission Network Development;
- ✓ Generation and Security of Supply;
- ✓ Renewables;
- ✓ Energy Efficiency; and
- ✓ Competition.

Under each heading EirGrid presents only the core tenor of the direction in which it believes the area should evolve. This is supported by analysis presented in subsequent sections of this response and elsewhere.

Transmission Network Development

Summary Position: Transmission Network Development

1. EirGrid is preparing a Grid Development Strategy with a 15 to 20 year horizon supporting local regional and national policy objectives.
2. EirGrid will assist in the development of a new sub-sea interconnector with GB to be operational by 2012 which it will take ownership of upon completion.
3. EirGrid to explore opportunities for further interconnection in advance of 2010 in the interests of enhancing competition, promoting security of supply and facilitating connection of renewables
4. EirGrid welcomes recognition of vital role of transmission infrastructure in the Planning and Development (Strategic Infrastructure) Act, 2006
5. Network development will require co-ordination of policies at local, regional and national level and will need to balance the rights of local residents, landowners and interest groups with the requirement to deliver core infrastructure in a timely fashion in the national interest.
6. EirGrid seeks measures to reduce uncertainty in plant location with a view to greater efficiency in network development

EirGrid is charged with maintaining and developing a safe, secure and reliable electricity transmission system and is committed to doing so in the most overall efficient manner in the interests of both present and future generations of customers. Transmission network adequacy is a critical contributor to security of supply, to facilitating the connection of new generation plant, including renewables, and to supporting the government's national and regional policy objectives. EirGrid will in 2007 prepare a Grid Development Strategy for the development of the transmission system over a 15 to 20 year horizon. This Strategy will take into account the changing demands placed upon transmission as a result of changing technology and the inherent unpredictability which results for the siting of new generation plant and the closure of existing plant portfolio. These uncertainties are the realities of seeking to develop the transmission network in a market environment where generators can choose their

point of connection¹. The Strategy will address demand growth, security of supply, changing use of the network, the development of a network to assist in meeting government targets for renewables and the possibilities for further interconnection with the UK and/ or Europe. In this it will provide a framework which can examine with analytical rigour the best means by which the network should evolve to support the government's aspirations and objectives as set out in the Green Paper. Clearly the delivery of a strategic network development plan to meet Ireland's future development needs requires alignment of local, regional and national planning processes and EirGrid cautiously welcomes the measures taken by the government in the passing of the Planning and Development (Strategic Infrastructure) Act, 2006 in this regard. Network development will require co-ordination of policies at local, regional and national level and will need to balance the rights of local residents, landowners and interest groups with the requirement to deliver core infrastructure in a timely fashion in the national interest.

EirGrid also welcomes the Government's recent decision seeking EirGrid, in conjunction with ESB Networks to expedite the works for the construction of a new interconnector with Great Britain and has already commenced work to advance this project in line with the projected timeframe for completion of 2012. EirGrid also welcomes the government's decision to charge EirGrid with the ownership of this interconnector once completed thus ensuring such a strategic asset remains in public ownership and is made available for the benefit of all market participants and consumers alike. As already indicated EirGrid will explore the desirability and feasibility of developing further interconnection in advance of 2010.

¹ EirGrid does have in place locational tariff signals to incentivise plant to locate in areas which minimise network investment.

Generation Adequacy

Summary Position: Generation Adequacy

1. Availability forecasts provided to EirGrid for generation plant have proved to be inaccurate. Accurate information is essential for meaningful analysis and so that EirGrid can plan the operation of the system and provide appropriate advice to CER and others.
2. The availability performance of the existing plant portfolio is well below international norms and in EirGrid's view is unacceptable. Improvement in the performance of the existing fleet is essential to ensure security of supply in the short to medium term. There is a need for suitable incentives and other instruments to be in force to improve availability and performance of the existing plant portfolio.
3. EirGrid is happy to report on plant availability quarterly in arrears as outlined in the Green Paper
4. It has been signalled that some of the older generation fleet is expected to close. In order to maintain security of supply over such a transition, it is critical that an orderly programme is developed and adhered to, including achievement of acceptable availability performance of generation in the run-up to closure.
5. Sufficient notice of any plant closures to be provided to EirGrid, the CER, policy makers and the market.
6. Greater fuel diversity should be encouraged and further back up supplies be provided. In the medium term EirGrid believes that alternative technologies such as 'clean coal' should be kept under consideration.
7. EirGrid believes consideration should be given to the development of selective sites which could accommodate additional generation which could be procured/ developed on a short term and accelerated basis should this be required for the purposes of security of supply.

EirGrid is charged under statute with operating, maintaining and developing the transmission system with a view to ensuring that all reasonable demands for electricity are met. In addition specific reporting requirements for EirGrid in respect of security of supply are set out in SI 60 (2005). While EirGrid is in some position to

be able to affect this through its real time operation of the power system in an overall economic manner, further investment in new generation plant in the medium and longer term will be required to meet growth and replace plant which is closing. The realities of the competitive market environment implies that no single entity any longer has control over the performance or operation of the generation plant portfolio. For that reason it is important that there is sufficient notice given of closure of existing plant to both the system operator and the market to enable replacement plant to be developed in a timely fashion. In addition EirGrid believes consideration could be given to the development of selective sites which could accommodate additional generation which could be procured/ developed by the system operator on an accelerated and temporary basis were the situation to arise where there were projected generation shortfalls should this be required for the purposes of security of supply.

EirGrid believes that accurate information about the expected performance of the existing plant portfolio must be made available to EirGrid, the market and policy makers. Availability forecasts provided to EirGrid by generators in the past have proved to be inaccurate which makes operational planning of the system extremely difficult with consequential security of supply implications. The provision of insufficient or incorrect information has the potential to lead to decisions not being made in the best interests of the consumer and has implied that EirGrid has not necessarily been in a position to provide appropriate advice to CER and others.

In addition in the context of tight overall installed capacity margins the low availability performance of the existing plant portfolio is unacceptable and improvements must be delivered in the short to medium term to ensure security of supply. This calls for the introduction of suitable incentives, penalties and other measures to be put in place to improve availability and EirGrid is happy to work with the CER and others to deliver this. EirGrid is also happy to report on and provide information on plant availability quarterly in arrears as suggested as part of the government's Green Paper.

In developing new plant EirGrid believes consideration must be given to means through which the fuel diversity of the existing plant portfolio can be improved. One area which can contribute to this is renewables and this is discussed in greater detail

below. However, if current trends were to continue Ireland's electricity generation portfolio would shortly be dominated by natural gas, supplemented by renewables. With rising prices, and potential future reduction in supply of natural gas and oil, EirGrid believes that in the medium term further consideration should be given to the development of clean coal technologies. Clean coal development would provide a further pillar to our generation portfolio and help improve our fuel diversity/ reduce our dependence upon natural gas. Current predictions are that coal, unlike other fossil fuels will be a plentiful and available fuel resource for the foreseeable future. In the future 'carbon capture' technologies employed in clean coal will make further contributions towards environmental sustainability and pilot projects which seek to achieve this in an efficient manner are also being developed.

EirGrid believes that Ireland should continue to monitor developments in clean coal technology such that, given its island situation, it can therefore be an early adopter of any such technology should it be identified as being commercially viable.

In addition to protect short term security of supply at system peak EirGrid believes consideration should be given to the development of selective sites which could accommodate additional generation which could be procured/ developed on a short term and accelerated basis should this be required for the purposes of security of supply.

Renewables

Summary Position: Renewables

1. EirGrid welcomes the introduction of a medium term target for renewables penetration and will work to facilitate its delivery. While EirGrid believes that with other supporting measures the 30% is achievable a final target can, and should, be informed by the output of the All Island Grid study currently being conducted. This study will consider the overall economic costs and benefits of such a target
2. In devising targets and strategies for the delivery of overall policy objectives – e.g. CO₂ reduction – the costs and benefits of different technologies – and the potential contribution from different sectors – including improvements in energy efficiency and development of new technologies (such as ‘clean coal’) should be transparent and taken into account
3. The connection of further renewable generation will need to be supported by further network development, the development of further flexible conventional plant, electricity storage and greater interconnection
4. EirGrid recommends a policy that ensures the targets are delivered from a balanced portfolio of renewable sources
5. EirGrid supports Research and Development into alternative renewable sources and is prepared to participate in such projects within its areas of competency, including demonstration projects where appropriate.
6. EirGrid believes storage projects (such as pumped storage or battery projects) have a potentially significant role in supporting the integration of renewables as well as providing other benefits to the market and the system. EirGrid believes that such projects should be facilitated and where appropriate given priority access to the system.

EirGrid welcomes the introduction of medium and long term targets for the development of renewables which will enable it to plan and develop the network in such a manner as to be able to accommodate and support their development. EirGrid is already undertaking initiatives in light of this and previous targets in the preparation of its Grid Development Strategy, in employing innovative operational strategies, in participating in international groups on the development of wind forecasting etc..

EirGrid believes that the target of 30% energy penetration by renewables, (including contribution from Ireland's existing large scale hydro plant), is achievable provided additional network and other supports are put in place and that the target is delivered from a balanced portfolio of sources. As the government will be aware the development of renewables in recent years has been dominated by the development of wind power – with which Ireland is blessed with abundance. However, in terms of overall system development, and the development of renewables, the variable nature of wind power poses additional challenges for secure system operation, the maintenance of power quality, and delivers a lower capacity credit than many other fuel sources. EirGrid believes that in order to assist in the meeting of the government's renewables targets, Research and Development should be carried out on alternative technologies to complement wind. These would include biomass, tidal and wave power as well as further investment in energy storage and government supports be provided where it is shown to be prudent to do so in the interests of longer term development. In addition in the area of energy storage EirGrid believes there may be merit in providing subsidies, or direct investment until such times as the technology is tried, tested and economic, as energy storage, if successfully and economically developed, has the potential to deliver considerable benefits to consumers not only in terms of security of supply but also through the lowering cost to consumers through the smoothing of the peaks and troughs in electricity demand. Real time and SMART metering, whereby customers face the true costs of their transactions, which EirGrid discusses under energy efficiency can also contribute to this smoothing of demand

EirGrid is of the view that for secure overall development of the industry, the full costs and other implications (technical, security of supply etc.) of any technology should be overt, openly discussed and addressed, and where possible internalised. Discussion will aid resolution and has the potential to reduce the likelihood of encountering subsequent problems or possible unintended consequences.

Energy Efficiency

Summary Position: Energy Efficiency

1. EirGrid is involved in promoting and operating demand side initiatives. EirGrid agrees that demand side participation in the Single Electricity Market is desirable. However EirGrid strongly believes that it is critical that mechanisms such as Winter Peak Demand Reduction Scheme (WPDRS) are continued at least until market participation mechanisms are designed, functioning and most importantly proven.
2. EirGrid supports systems which aid customers in basing decisions on the 'true' costs of their consumption including the promotion/ further roll out of real time metering whereby customers can see the actual cost of their consumption of electricity at any point in time
3. EirGrid sees increased energy efficiency, both of new generation plant as well as in terms of consumer response, as a key contributor to overall sustainability

A considerable proportion of the cost of electricity is associated with the meeting of system peak demand where generation must be constructed which will have to recover the capital cost of its investment over a relatively limited number of hours operation per year and where networks must be scaled to be able to accommodate peak demands. EirGrid has been, and will continue to be involved in a number of initiatives which contribute to reductions in system peak and strongly supports continued contractual mechanisms in addition to demand side participation as envisaged in the Single Electricity Market. In addition EirGrid supports overall energy efficiency as a significant contributor to sustainability and would support real time pricing to end-use consumers including the introduction of real time metering at a domestic level, subject to economic feasibility. It is EirGrid's belief that this will become ever more important to influence usage patterns and also to support integration of renewables onto the system, including variable energy sources such as wind.

Competition

Summary Position: Competition

1. EirGrid supports competition through transparent non-discriminatory access to the transmission grid and operation of the electricity market
2. EirGrid supports the efforts being made by the government, CER and others to reduce the market share and dominance in price setting of the incumbent in a desire to promote competition under AIP.
3. EirGrid supports the concept of the development of a landbank of suitable sites for the development of competitive generation. EirGrid is in a unique position to be able to assist in identifying relevant locations and administering any such landbank.
4. While EirGrid is committed to making Ireland's transmission arrangements work it believes that combining transmission operation and ownership is a more effective and efficient model, eliminates duplication of resources/skills, provides for clearer accountabilities and supports the application of incentives.

Since 2000 EirGrid, and its predecessor ESB National Grid, has supported the introduction of the competitive market to Ireland through open transparent and non discriminatory regulated access to the transmission system and through operating the electricity market in a fair, efficient and non-discriminatory manner. EirGrid has also been involved in managing major network development programme which has, among other things, facilitated competition through the connection of new Independent Power Producers.

EirGrid believes a state-owned land bank, such as suggested in the government's green paper, should be developed to facilitate new independent generation and provide access to sites suitable for the location of new plant. Independent generators currently face barriers to entry in terms of finding suitable sites for conventional generation in addition to costs for connection and infrastructure.

The creation of a state-owned land bank would have the potential to create a more level playing field and negate ESB's comparative advantage in terms of its ownership and access to key generation sites. EirGrid believes both existing ESB and other

suitable sites should be considered to incentivise the development of new independent generation. EirGrid is in a position to be able to undertake analysis in this regard to support the development of such a landbank and to identify suitable sites for the connection of large scale generation at minimum cost and in a timely fashion. Given the purpose for which such a landbank is being assembled – solely to facilitate new generation connections - EirGrid is in a unique position to be able to manage this in the interests of the industry.

It has long been EirGrid's opinion that while it was committed to make the model of transmission unbundling chosen in Ireland – whereby transmission system operation was separated from transmission asset ownership - work as effectively as possible that the particular model adopted would inevitably give rise to transactional and other inefficiencies and therefore additional cost to consumers. The model for adopted in Ireland is unusual, particularly in an EU context, with Ireland and Greece being the sole adopters out of twenty-five countries and earlier endeavours to adopt such a model in Italy were subsequently amended to adopt an owner/ operator model. EirGrid continues to be committed to do its part to make the model adopted work. However it remains EirGrid's belief that an "owner/operator" model is more efficient, gives more clarity of responsibility, is perceived by the market as being more truly independent, enhances ability to deliver and is more accepted in Europe as demonstrated by it being adopted in vast majority of countries. The analysis presented in the Deloitte Report commissioned by the government in 2005 would tend to support this position.

SPECIFIC RESPONSES

In reply to the specific questions posed by the Green Paper, EirGrid offers the following responses.

ENSURING THE SECURITY OF ENERGY SUPPLY

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?

The possibility that the supply of electricity might be interrupted by a shortage of a fossil fuel (for example, coal, oil, gas or peat) is a key issue for overall security of supply. While a shortage or simultaneous supply interruption of one or more of these fuels may be considered as just a moderate risk, the impact of such a shortage on security of supply could be significant.

The current position and potential evolution of mitigating measures and strategies to guard against fuel shortages are here discussed under the headings:

- ✓ Fuel diversity
- ✓ Fuel storage
- ✓ Dual-fuel capability

Fuel diversity

Using a wide range of fuel types helps to improve security of supply. In 2004 just over 40% of Ireland's electricity needs were generated from gas. The addition of large new gas burning generation plants and the likely move away from more polluting fuels as a result of environmental legislation will tend to increase this gas dependency. Such a high level of gas dependency may be a cause for concern in light of the fact that all gas imported to Ireland comes from a single point on the UK's gas transmission system. In the longer term, it is generally accepted that worldwide stocks of gas (and oil) are limited, and small by comparison with coal reserves.

The continued development of renewable energy sources will help to provide both fuel diversity and sustainability. In a similar manner to the thermal generation portfolio, where primary fuel diversity brings security of supply benefits, development of a range of renewable sources (such as wind, hydro, wave, tidal and biomass) would be beneficial. In addition EirGrid believes clean coal technologies should continue to be monitored so that Ireland is in a position to become an early adopter should such technologies become commercially viable.

Fuel storage

Storage of primary fuels is clearly a way to reduce the risk of fuel supply interruptions and/or price volatility. EirGrid wishes to see adequate storage facilities both at individual plant and at a national level.

Dual-fuel capability

By enabling plant to burn more than one type of primary fuel the vulnerability of the electricity system to a shortage of a single fuel type can be reduced. While a high proportion of Ireland's plant has dual fuel capability, the duration of running on the alternative fuel is significantly limited by the difficulties and costs associated with the storage of large quantities of the alternative fuel on site. However, for security of supply reasons it is important that generation companies maintain adequate stocks of alternative fuel.

The ability to carry out sustained operation (over a number of weeks) on either fuel is generally limited to the gas/heavy fuel oil plant. However this is the plant which is most likely to close over the coming years due to its age and condition. Security of supply will be adversely affected if all such plant ceases to operate without replacement gas/heavy fuel oil capacity being commissioned. EirGrid believes this should be taken into account before deciding to close such plant.

National energy policy which provides guidelines (and/or limits) on the acceptable level of single fuel dependency or primary energy source would be very beneficial in ensuring adequate fuel diversity.. From such a policy, actions can be taken to encourage diverse energy sources (e.g. connection priority be given to clean coal over gas fired power stations).

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

Generation Adequacy

As TSO EirGrid has a statutory responsibility to report on Generation Adequacy. This duty is partly discharged through the annual publication of the Generation Adequacy Report. This report assesses if the risk of supply shortage is tolerable. The tolerable level of risk is referred to as the generation adequacy standard, which for Ireland is 8 hours loss of load expectation per year. As part of the Single Electricity Market an All Island generation adequacy standard will be required. As part of this process the opportunity for, and associated costs of, tightening the security standard are to be examined. EirGrid has just published its latest Generation Adequacy Report

A major factor impacting on generation adequacy in Ireland has been the poor availability performance of the existing generation portfolio. Improved plant availability performance has the potential to reduce the amount of capacity which must be installed to maintain security of supply. For every one percentage point improvement in the forced outage rate of plant approximately 100 MW less capacity is required. Based on the avoided cost of building CCGT plant this would save approximately €13m/year for every percentage point improvement. It is important that any improvement in availability be sustained. In the new All Island electricity market the incentive to capture high pool energy prices and receive capacity payments should offer incentives for higher availability performance. It is therefore important that the capacity payments in such a market are tailored to provide the appropriate incentives to maintain high levels of plant availability.

Another significant factor in managing Ireland's generation adequacy position is the provision of accurate and timely data to the market. For this to occur the owners of generation plant should inform the industry of planned plant closures or de-ratings. At the moment a 24 month notification period is required under the Grid Code. This 24 month period provides insufficient notice to construct, connect and commission additional generation capacity. EirGrid is exploring with the CER the possibility of extending the notice period for plant closure, or at least requiring operators to provide medium term operating intentions which would provide sufficient notice for the

construction of new plant whether through the Grid Code or some other mechanism. This was suggested as part of the CER's recent report on Security of Supply.

In addition to protect short term security of supply at system peak EirGrid believes consideration should be given to the development of selective sites which could accommodate additional generation which could be procured/ developed on a short term and accelerated basis should this be required for the purposes of security of supply.

Enhancing Transmission Network Adequacy

Ireland's electricity network will need to adapt to radically changing requirements over the next decade. The deployment of large amounts of renewable generation, closure of existing generation stations and increased levels of interconnection will change the role that the network is required to perform.

EirGrid will continue to initiate the development of the transmission, for example through the production of its forthcoming Grid Development Strategy. However, a coordinated industry, national and local government approach will be required during the project implementation stage, if the network is to be adapted to meet the challenges in the coming years. Network development is a key element in delivering a secure and economic electricity supply, as well as other Government policies such as the National Spatial Strategy. EirGrid welcomes Government policy which supports the development of this critical national infrastructure. The inclusion of the transmission network within the Planning and Development (Strategic Infrastructure) Act, 2006 is to be welcomed.

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?

Some of the main barriers to entry in the Irish energy market that need to be overcome relate to:

- market size and concentration;
- significant issues of market power in price-setting plant and in the provision of ancillary services;
- concentrated ownership of key sites for conventional generation – particularly by the ESB - with the requisite grid connections and infrastructure; and
- political and regulatory uncertainty

These real or perceived barriers to entry need to be eliminated or at least minimised to enable a competitive electricity market to develop and to provide fair and transparent energy prices to end-users.

Uncertainty in relation to the location of new generation capacity makes the provision of adequate and timely transmission capacity particularly difficult and potentially costly. Any measures which serve to reduce this uncertainty would be welcome. Such measures might include the designation of certain geographical areas as suitable for the development of new large scale generation capacity, and is in line with the proposed policy on land-banks. This would also require the public planning system to recognize that the need for electricity infrastructure (transmission and generation) may arise some time in the future.

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

In relation to further interconnection (to the GB or mainland Europe), EirGrid is supportive of measures which improve security of supply and provide economic benefit. Any direct interconnection with mainland Europe would however involve the construction of one of the longest undersea links in the world. A full cost benefit analysis on such a significant project would be appropriate. The impact of further interconnection is likely to be assessed by EirGrid prior to 2010 with initial explorations as part of EirGrid's medium term Grid Development Strategy.

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

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

One means by which the transmission system operator is able to influence the development of alternative technologies is to grant these priority access to the transmission grid, subject, of course, to regulatory approval. EirGrid promotes such a strategy in relation to pumped storage below.

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

EirGrid believes security of energy supply must be ensured in a multi-faceted manner.

- ✓ Improving currently inadequate plant availability in the short term;
- ✓ Enhancing network adequacy in the medium term
- ✓ Providing the appropriate conditions for investment by market players
- ✓ Facilitating back up to cover short term security of supply needs should this be necessary
- ✓ Enhancing fuel diversity in the longer term including the promotion of new and developing technologies such as clean coal.

SUSTAINABILITY OF ENERGY SUPPLY

EirGrid will have a central role in the implementation of national policies with regard to the development of sustainable electricity supplies: it will ensure the continued safe, secure and economical operation of the power system with the rapidly increasing levels of renewable generation and it will develop the transmission system to facilitate the connection of renewable generators and complementary non-renewable generators, either directly or through the distribution system.

The integration of high levels of renewable generation based on wind, ocean, solar or other variable energy resources presents Ireland with challenges unparalleled elsewhere, in view of the relatively small size of the Irish power system and the limited existing and potential interconnection with other systems. EirGrid will have a leading role in developing and managing the system to meet these challenges.

EirGrid and ESB Networks, in its role as DSO, have already integrated over 600 MW of wind generation, and has arranged either directly or through the Distribution System Operator (DSO) for the connection of a further 620 MW. EirGrid is finalising, with the Commission for Energy Regulation (CER) and the DSO, arrangements to process applications to connect a further 1,340 MW approx. of wind generation (Gate 2). These installations are more than sufficient to achieve the government's target of 15% of electricity consumption produced from renewables by 2010.

In relation to energy efficiency, EirGrid has designed and operated a number of demand side management measures including the Winter Peak Demand Reduction Scheme, which financially incentivises large industrial customers to reduce their demand over the evening peak demand period in winter.

EirGrid welcomes the proposals to introduce an energy policy to deliver sustainable electricity supplies structured around a combination of conservation at point of use, improved efficiency of conversion of primary energy and intensive development of renewable energy sources. The ambitious target of 30% of electricity from renewable sources, subject to technical considerations, makes clear the Government's desire to

maximise the contribution of renewable generation to sustainability. In setting a final target it will be important to understand the contribution of renewable generation to the achievement of the policy objectives of sustainability, security of supply and competitiveness. The on-going All Island Grid Studies for renewables will play an important role in developing this understanding. EirGrid is participating actively in these studies through its membership of the Grid Studies Working Group. EirGrid looks forward to the conclusion of the studies and to working with the other agencies in the subsequent development of renewables policies for all of Ireland and in developing plans to support the implementation of the policy. In addition to our participation in the All Island Grid Studies, EirGrid will continue to provide independent authoritative analysis on this subject.

In achieving the renewables target for 2010, the hydro-electric generation largely developed in the first half of the 20th century will be complemented mainly by wind generation. Beyond 2010, with significantly higher levels of renewables it will be important to have a balanced portfolio of renewables to ensure that renewable generation contributes both to energy and capacity needs. Resources such as wind, tidal and solar can deliver energy whenever the primary source is available, but cannot deliver significant contributions to capacity as the delivery cannot be controlled to ensure that energy is delivered at times when capacity is required such as at the time of peak electricity demand. Controllable renewable sources such as biomass, or efficient non-renewable generation such as combined heat and power (CHP) can contribute effectively to both energy and capacity. EirGrid therefore recommends a policy that ensures the delivery of a balanced portfolio. The All-Island Grid Study will help to inform with regard to the main elements of such a balanced portfolio and EirGrid will provide independent authoritative analysis in this area

There is already significant penetration of wind power in Ireland by international standards, once account is taken of the relatively small size of the system and its limited interconnection to other systems. Even with additional interconnection, the impact of generation which is variable and with limited predictability such as wind and ocean energy will be greater in Ireland than in other countries once the ambitious levels proposed in the Green Paper are reached. The extent of this challenge must be recognised and accepted by the Government, the Regulator and all other stakeholders.

EirGrid looks forward to working with these stakeholders to meet the challenges.

This will involve:

- Adapting best practice from other jurisdictions, although at the levels envisaged in the Green Paper Ireland will be at the forefront of developments in this field.
- Supporting relevant research and development. It will be necessary to ensure that the capacity for research in these fields is developed and to ensure that EirGrid will continue to have the financial capability to support R&D activities.

Progressive development towards the ultimate targets will enable the entire electricity supply sector to adapt to the changing circumstances and to “learn by doing”.

It will be necessary to ensure the development of complementary measures to support the envisaged high levels of renewable generation. These will include ensuring a balanced renewable portfolio, as mentioned above, the inclusion of appropriate levels of responsive and flexible plant in the non-renewable portfolio, the possible development of energy storage facilities and the development of further interconnection.

With the installation of large amounts of renewable generation and of complementary non-renewable plant, the development of north-south and east-west interconnection, the introduction of the All Island Market for Electricity and the possible closure of existing generation plant, the requirements for the transmission of electricity are changing significantly. EirGrid is undertaking a review of its Grid Development Strategy so as to ensure that it can satisfy the transmission needs in the future in an economic and sustainable manner. It will be important that there are measures in place to ensure that the resulting strategy can be implemented. The Planning and Development (Strategic Infrastructure) Act is a significant development in this regard.

Vital steps in progressing towards the achievement of the new renewables target

1. Further East-West and North-South interconnection of electricity systems.
2. Development of trading rules which compliment renewable generation.
3. The broadening of the renewable base to include significant biomass generation as well as wind and other variable sources.
4. Improvements in the forecasting of wind output.
5. Developments in energy storage.
6. Demand side actions/ behaviour which can help shape demand and integrate further renewable generation. This includes the roll out of further real time metering.
7. Further R&D work in the operation of power systems with substantial quantities of wind generation, and also on wave and tidal power.

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?

EirGrid believes consideration should be given to the use of national development funding for the construction of networks in areas where there is potential for the development of renewable generation. This could be an extension of, or similar to the earlier development under the Grid Upgrade Development Programme (GUDP). In addition, and equally importantly, sustainability will also be improved through increasing the thermal efficiency of thermal generation overall.

EirGrid believes the managed approach to connection of wind generation (as shown by Gate 1 and Gate 2) should be continued and intensified. It must be recognised that following the connection of applicants under Gate 2 Ireland will have a very high level of overall wind penetration, given the size of its system, by international standards. For this reason EirGrid is keen that in seeking to meet the government's renewables targets that a balanced portfolio of renewable sources – wind, hydro, biomass and developing alternatives are employed.

Consideration of the development of further East-West interconnection with GB or direct interconnection to continental Europe would be likely to assist Ireland in

meeting its renewables targets and EirGrid will be considering the possibilities for further interconnection prior to 2010. In addition EirGrid supports the development of energy storage, including pumped storage and commercial developments could be facilitated through priority access to the transmission system – recognising the wide range of benefits additional pumped storage would deliver. EirGrid believes that it is possible that some such development could be undertaken by connecting parties on a commercial basis and trusts it is not the government’s intention to discourage any such developments when it is suggested in the Green Paper that such developments should be within state control. In addition other economical and efficient energy storage systems should be developed, where appropriate. EirGrid believes this is an area where R&D and government supports should be intensified given the wide variety of benefits any such solution would deliver.

Flexibility of Generation Plant

While the primary function of the generation plant portfolio is to provide electricity to meet the varying customer demand over the year, within the overall plant portfolio individual units will be required to fulfil very different roles. For example some units will run all day at, or close to, full output to provide what is termed ‘base load’ requirements. At the other extreme, units may generate electricity for just a few hours to meet the rise in demand at peak periods. In between this ‘peaking’ and ‘base load’ there is a third category of plant operation, frequently referred to as ‘cycling’. In this mode of operation plant typically generates for ten to twenty hours per day to meet the increased demand experienced in day-time hours. These modes of operation are illustrated in Figure -1 with reference to a typical daily demand curve.

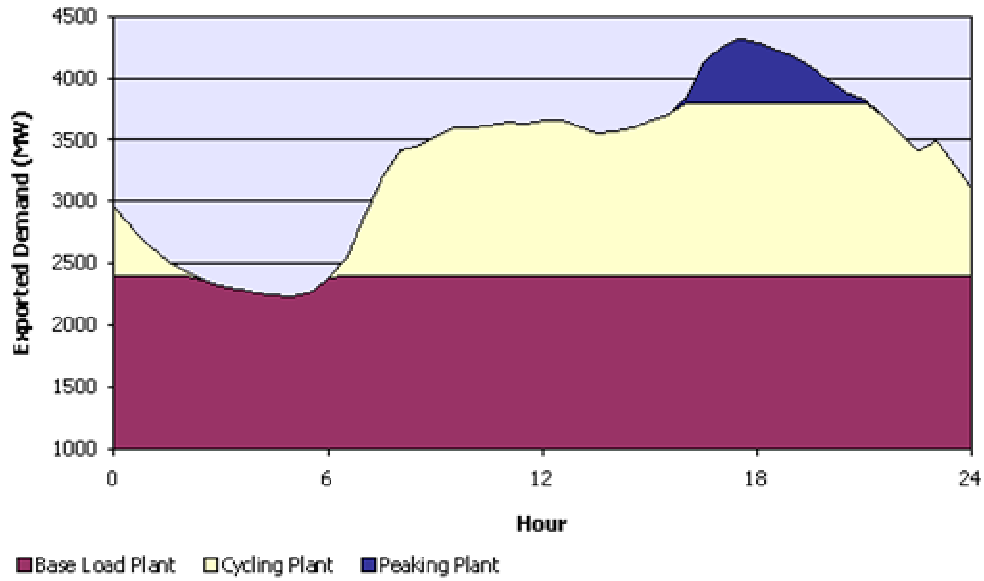


Figure -1 Typical operation of base-load, cycling and peaking plant

The appropriate blend of base-load and flexible plant is dictated by a number of factors. In addition to the basic economic parameters of various plant types, a number of system factors also come into consideration. These include:

- ✓ The variability in electricity demand. If the demand shape is very peaky, and subject to rapid change, then a larger amount of flexible plant is required.
- ✓ Looking forward, the need for flexible plant will also be driven by the need to counter-balance the natural short-term variability which is a feature of wind-powered generation. This wind following capability will have to be provided by the non-wind generation within the overall plant portfolio. As wind penetration increases the requirement for greater levels of wind following may provide opportunities for new types of flexible plant or electricity storage.

There is therefore a need to encourage the building of additional flexible plant or greater flexibility within the current portfolio. EirGrid's role in this area is to provide independent analysis and advice to the industry in this regard and to facilitate such work subject to its role and responsibilities as TSO. Energy Policy should encourage the optimal plant portfolio, which will result in the lowest sustainable price, delivering a secure electricity supply with due care for the environment.

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

3.2.11 - What significant 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?

A considerable proportion of the cost of electricity is associated with the meeting of system peak demand where generation must be constructed which will have to recover the capital cost of its investment over a relatively limited number of hours operation per year and where networks must be scaled to be able to accommodate peak demands. EirGrid has been, and will continue to be involved in a number of initiatives which contribute to reductions in system peak and strongly supports continued contractual mechanisms in addition to demand side participation as envisaged in the Single Electricity Market. In addition EirGrid supports overall energy efficiency as a significant contributor to sustainability and would support real time pricing to end-use consumers including the introduction of real time metering at a domestic level, subject to economic feasibility. It is EirGrid's belief that this will become ever more important to influence usage patterns and also to support integration of renewables onto the system, including variable energy sources such as wind.

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?

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?

EirGrid believes research and pilot project/demonstration projects could be considered in the following areas:

- Biomass

- Ocean (wave and tidal energy)
- Clean coal.
- Hydrogen cells
- Large scale battery storage.
- Research into economical ways of communicating with and controlling widely dispersed generation sources.
- Active distribution networks.
- Research into methods of incentivising energy efficiency among customers.
- Demand Side Management/ SMART Metering

Of these EirGrid believe those which have the potential to make the greatest contribution in the medium term are biomass, battery storage, DSM/ real time metering and clean coal.

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

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?

EirGrid believes that while targets have a role to play and are a useful guide to policy makers that they should be determined by reference to a thorough and transparent assessment of all of the costs and benefits of the basis on which the targets are set. Moreover, as incentives and price signals have the potential to deliver the most cost effective and economically efficient solution these should be employed in order to help meet the targets. In devising targets, or in setting incentives cognisance should be given to the establishment of the overall objective function and any target should be set with reference to seeking to meet this at lowest overall cost – to today's and future generations of consumers.

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

The Green Paper sets out a number of parameters for the improvement of energy sustainability – promotion of renewables, energy efficiency, bio-energy. Clearly there are additional measures, particularly in the area of transport – public transport, car dependence and aviation which can help deliver energy sustainability in the medium term which are not advanced in any great detail in the paper. In deriving a strategy for energy sustainability – or for the reduction of CO₂ emissions, for example, under the National Climate Change Strategy a co-ordinated approach with appropriate contribution from all sectors should be employed with each contributing such that the overall goal is delivered in the most efficient and effective manner possible.

EirGrid believes sustainability in relation to electricity should be focused on a combined approach employing:

- ✓ More efficient generating plant, including new technologies
- ✓ Increased penetration of renewables
- ✓ Greater energy efficiency
- ✓ Further demand side management measures.

ECONOMIC COMPETITIVENESS

EirGrid has an important role to play in facilitating market efficiency and transparency and helping existing participants in the electricity market and those looking to join. EirGrid provides non-discriminatory access to the transmission network, treating all market participants on an equal footing in an open, transparent and equitable manner. In addition, in its role as market operator EirGrid provides timely and accurate information to the market to enable market participants to make informed decisions.

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?

Some of the main barriers to entry in the Irish energy market that need to be overcome relate to:

- market size and concentration;
- significant issues of market power in price-setting plant and in the provision of ancillary services;
- concentrated ownership of key sites for conventional generation – particularly by the ESB - with the requisite grid connections and infrastructure; and
- political and regulatory uncertainty

These real or perceived barriers to entry need to be eliminated or at least minimised to enable a competitive electricity market to develop and to provide fair and transparent energy prices to end-users.

The significant market share held by the ESB has led to market distortions, intensive regulatory oversight of ESB's businesses in the absence of effective competition, and insufficient new entry and investment from the independent sector required to improve security of supply and lower prices. These issues need to be fully addressed in the context of the Single Electricity Market and EirGrid supports and will facilitate,

where appropriate, the initiatives being undertaken, and measures proposed, by DCMNR and CER in this regard.

Market size and Concentration

The size of the Irish electricity market limits the scope for economies of scale and new market entry. This situation is exacerbated by the high degree of market concentration with ESB having a dominant position in the Irish electricity market. The Government has indicated in the Green Paper that it does not intend to privatise or atomise ESB and considers it important to retain a strong, commercially viable ESB. In light of this proposed policy approach, it is crucial that alternatives are found to mitigate against ESB's dominant position.

The introduction of the SEM will bring benefits to all electricity customers on the island and will result in a larger market with increased liquidity, more choice for consumers, increased competition and enhanced security of supply.

Although, the introduction of the SEM will improve the situation by creating a larger market and reducing market concentration, it will not overcome the underlying barriers to new entry in generation and supply and will not necessarily on its own provide for effective competition.

Although Ireland now has 100% retail market opening since February 2005, this must be translated into meaningful competition in supply with much higher levels of customer switching between the different supply companies, facilitated by clear and transparent differentiation of product and price.

Competition in supply is also important not just in terms of improving economic efficiencies but also in promoting innovation in the development of new products and services.

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?

Ireland needs to create an environment where competitive forces can work rather than relying on intensive regulation. Consideration should be given to setting medium term policy targets to reduce market concentration within the Single Electricity Market based on quantifiable and accepted measures (e.g. market share/HHI/RSI). The development of interconnection has an important role to play in this regard opening the Irish market up to competitive pressures from other markets. If specific targets were set – building upon the earlier commitments to reduce the ESB market share to 60% this would provide a focus for policy-makers on measures (structural and/or market-based) required to achieve effective competition and would provide a positive signal to potential new entrants.

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?

EirGrid believes it is necessary to not only to encourage new entrants to develop base load plant but also to develop a competitive market in mid-merit and peaking capacity which, as the marginal units, is responsible for much of overall market price setting. Increased competition in price-setting plant would put greater downward pressure on prices and incentivise innovation and efficiency to ensure a unit is called on to generate.

There has been a lack of interest from the independent sector in providing new generation which has resulted in ESB building new facilities, or others building new plant backed by long term contracts. This does little to improve the overall competitive position. So long as capacity margins remain tight there is little incentive given the current industry structure for any significant improvements in plant availability.

As generation accounts for a significant part of the electricity value chain it is important to consider options for minimising the costs of generation through increased plant availability and fuel diversity. An assessment of the economic benefits of alternative generation needs to be undertaken, so that the true costs of any

alternative technology is well understood and can be internalised. Any such analysis is likely to include a treatment of issues such as:

- carbon credits;
- improved technological advances reducing renewable costs relative to conventional fuels over time;
- impact of fuel diversity on availability and price;
- reduced dependence on overseas energy markets;
- Ireland's comparative advantage in developing renewables;
- marketable expertise in renewable technologies.

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 out energy needs in the future?

Creation of a single state-owned Transmission Grid Company

While it is committed to making Ireland's model of transmission unbundling – whereby transmission system operation was separated from transmission asset ownership – work as effectively as possible it has long been EirGrid's opinion that that this particular model would inevitably give rise to excessive transaction costs and other inefficiencies and therefore additional cost to consumers. The model adopted in Ireland is unusual, particularly in an EU context, with Ireland and Greece being the sole adopters out of twenty-five countries². Indeed, earlier endeavours to adopt such a model in Italy were subsequently abandoned to adopt an owner/ operator model. In other countries where ownership and operation are separated including in a number of the accession states of the EU 25 ownership is more normally a passive function.

EirGrid continues to be committed to do its part to make the model work. However it remains EirGrid's belief that an "owner/operator" model is more efficient, gives more clarity of responsibility, is perceived by the market as being more truly independent, enhances ability to deliver and is more accepted in Europe as demonstrated by it being adopted in the vast majority of countries.

² The Greek model is slightly different in that HTSO is both Transmission System Operator and Distribution System Operator designate.

The creation of a single state-owned Transmission Grid Company would lead to efficiencies in operation and provide savings in regulatory price controls through resulting synergies and streamlining of business roles and responsibilities. In addition it would improve the perception of independence and be more likely to comply with the unbundling requirements being suggested as part of any further European legislation which may be advanced by the European Group of Regulators or the European Commission. A transmission operation/ ownership model and a combined transmission and distribution operation and ownership model were among the scenarios considered as part of the analysis by Deloitte and were found likely to give rise to improvements over the current model. EirGrid considers that it is unfortunate that the Deloitte report did not contemplate and assess the benefits of a model which combined transmission operation and ownership in the absence of considering other amendments to the generation portfolio which led them to believe the scenarios they had considered were less favourable.

Creation of a state-owned land bank

A state-owned land bank, such as suggested in the government's green paper, should be developed to facilitate new independent generation and provide access to key state-owned sites. Independent generators face barriers to entry in terms of finding suitable sites for conventional generation in addition to costs for connection and infrastructure.

The creation of a state-owned land bank would have the potential to create a more level playing field and negate ESB's comparative advantage in terms of its ownership and access to key generation sites. EirGrid believes both existing ESB and other suitable state-owned sites should be considered to incentivise the development of new independent generation. EirGrid is in a position to be able to undertake analysis for the Government in this regard to support the development of such a landbank and to identify suitable sites for the connection of large scale generation at minimum cost and in a timely fashion. Given the purpose for which such a landbank is being assembled – solely to facilitate new generation connections - EirGrid is in a unique position to be able to manage this on the government's behalf.

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

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

EirGrid welcomes the Government's policy objectives of full market liberalisation and effective competition. However, EirGrid believes that in addition to the policy actions proposed in the Green Paper to enhance competition, consideration should be given to:

- (a) setting clear medium to long term policy targets to reduce dominance and market concentration;
- (b) creating a single state-owned Transmission Grid Company with full legal, functional and ownership independence;
- (c) evaluating options for minimising generation costs with a cost/benefit analysis of alternative generation resources required for improved fuel diversity, flexibility and availability; and
- (d) further developing the government's proposal for a state owned landbank to facilitate timely connection to the transmission system by new entrants. Given the purpose of such a landbank EirGrid is in a unique position to be able to manage this on the Government's behalf.