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## Energy policy in Ireland

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# The Economic and Social Research Institute

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## Energy Policy in Ireland

by

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Working Paper No. 160

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## **1. Introduction**

The ultimate objective of energy policy in Ireland, or in any other country, must be to ensure delivery of a secure supply of energy at minimum cost to consumers. Even within this seemingly simple objective the interaction of security of supply with cost means that energy policy will not be simple or obvious. To make matters even more complex, the important environmental problems associated with energy production and use also affect policy choices. At the very least there are choices to be made between cost and security of supply. In the case of the environmental issues, the separate identification of standards to be met or the cost of environmental damage done can allow the environmental objectives to be quantified and to some extent integrated into the calculus. However, the complexity of the engineering and economic issues makes energy a particularly difficult area for policy-makers. The purpose of this note is to identify the range of different issues that confront policy makers in the energy field and to try and simplify some, but not all, of these complex issues.

In addition to the economic and engineering considerations, there may be other considerations that do not fit within the economic calculus of “least cost” solutions. Two important considerations that make the policy choices more difficult politically are the interests of providing jobs and the related concern about the industrial relations impact of what may be the “obvious” economic answers. In this note we do not consider these more political issues directly in the main analysis, but we do indicate in the conclusions how they may impact on the policy choices made.

This note concentrates on energy policy related to electricity and gas. It only considers policy on other fuels where the other fuels may be used in electricity generation. This simplification does not mean that there are no important issues in the field of oil supply and marketing, but rather that the answers can be determined independently. In the case of electricity and gas, the markets for the two fuels are highly interrelated and can not be considered separately.

The electricity and gas markets share two related characteristics. The supply of both forms of energy involves very large capital investment within Ireland. In addition, the capital investment is likely to last a long time: typically at least 20 years for electricity generation stations; up to forty years or more for electricity and gas transmission infrastructure. These capital assets can not be moved once constructed so that mistakes in planning capacity can be very costly.

By international standards the Irish market is very small. The Moneypoint power station on its own supplies about half of the night-time electricity load, with just three other stations supplying the bulk of the remainder. This means that even if the ESB were broken up, there would be very few players in the market. In addition, because of the capital intensity of the sector and the irreversibility of investment decisions it is an uncertain market for potential new investors. This makes it a very different market from the market for many other products, such as the market for clothes. Without extensive regulation competition is not possible, and even with extensive regulation competition will be difficult to achieve.

The combination of the capital intensity of the sector, the need for new investment, and the small size of the market makes the Irish electricity market different from the electricity market elsewhere in the EU. It means that ready-made solutions to Ireland's problems are not available and it is necessary to develop a new "model" of the market to deliver electricity and gas to Irish consumers at minimum long-term cost.

## **2. What is the Market?**

In purely engineering terms, transmitting electricity over long distances is costly due to losses in waste heat from the wires. The losses of energy are much less when gas is transmitted than when electricity is transmitted. Thus, faced with a simple choice between transmitting gas to generate electricity or transmitting the electricity, the losses in transmission will be minimised where the gas is transmitted and the electricity is generated locally. However, many other issues may intervene requiring interconnection of both electricity and of gas systems to develop satisfactory markets.

For electricity the market is currently largely confined to the Republic of Ireland. This is due to the very limited nature of the interconnection between the two systems on this island. While transmission losses are minimised by having separate systems, this lack of interconnection has a number of disadvantages, which substantially offset the potential transmission losses. The separation of the two systems reduces the possibility for competition. It also means that each isolated system has to carry higher reserves to ensure that unforeseen events do not result in loss of power. It means that even slight differences in peaks between different systems can also allow significant savings in costly capacity if the systems are interconnected.

The development of a single electricity system for the island of Ireland seems very desirable from an economic point of view, with the potential gains likely to offset the potential losses. It is likely that it would allow significant savings in capital investment. It would provide enhanced system security. It would provide some limited scope for increased competition. However, it may not be in the interests of some of the incumbents to promote such integration and the development of an integrated system will require political commitment North and South of the border. At present there appears to be stronger political commitment to such a project North of the border.

To bring about a single island electricity system will require substantial investment in transmission to integrate the systems from an engineering point of view. It will require a move to a single system operator taking on board the functions of Eirgrid and SONI (System Operator Northern Ireland). It will also involve the development of an integrated approach to regulation. This latter will involve significant difficulties. There will have to be both agreement on a common market structure (easier to achieve) and a clear delineation of reporting relationships between the regulator and the political systems in both jurisdictions. This latter will be important to ensure the accountability of the regulator to the tax-payers North and South.

There is also the strong possibility that the existing interconnector between Northern Ireland and Scotland will be supplemented by the end of the decade with one from the Republic to Wales. This would change the island electricity system into part of a

common electricity market on these islands. (The interconnection between the British and the Continental markets is also being slowly enhanced). This could confer further benefits. A full cost-benefit study of this possible connection may be undertaken over the coming eighteen months by the CER.

While interconnection may well bring substantial economic benefits to offset the costs of interconnection (and losses in transmission), it also leaves the individual systems vulnerable to the possibility of regulatory failure in the wider market. For example, if the market structure in the Republic does not produce adequate investment, or produces very expensive investment, resulting in exceptionally high consumer prices, this could be worse for consumers in the North than if the two markets remained separate with separate prices. The same applies in the other direction if mistakes were made in the North (or in Britain). The potential for such regulatory failure must be taken into account. It argues for agreement on a workable single market structure for any all-island market prior to integration taking place. In the case of Britain, it seems likely that the very small Irish market would be absorbed into whatever market structure already exists there. However, the prospect of such an integration into the British market could further discourage investment in Ireland, posing problems in guaranteeing supply in the period before such integration actually took place.

In the case of gas, the markets are simpler. The transmission infrastructure has been put in place, including considerable capacity to Britain. The infrastructure between the Republic and Britain should be capable of handling all the demand for gas in the foreseeable future. In addition, as the capacity is shared over two pipelines there is security against physical breakage.<sup>1</sup>

With the opening of the first pipeline between Ireland and Britain in 1994 Ireland effectively became part of the British gas market. With the decline in the domestic supply of gas, the price in Ireland became the price on the UK market plus the cost of transmission through the pipeline. With the connection of the British market to the Continental market through a pipeline to Belgium in 1998 the British price rose to close to the Continental price. This highlights the importance of interconnection in integrating previously separate markets for electricity and gas.

The Northern Ireland gas market is separately connected to the British market. Because both the Northern Ireland and the Republic gas markets are connected to the British market, the price of gas throughout the island is linked to the British and Continental price. There are much weaker reasons to connect the island markets to form a single transmission system in Ireland. It would provide limited additional security for the Republic. However, for Northern Ireland, with only one connection to Britain and no domestic supplies, a connection to the Republic could be important in providing enhanced physical security of supply.

## **Conclusions:**

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<sup>1</sup> This is true for the under-sea pipeline. However, the onshore infrastructure in Scotland is not fully duplicated and may need upgrading in the future to provide adequate security.

- Work towards an integrated island of Ireland market, to be completed within five years.
- Put in place a market structure agreed between the regulatory authorities in both jurisdictions.
- Invest immediately in the necessary upgrading of transmission. This may involve fast tracking the physical planning process.
- Consider how this island market would be affected by further interconnection to Britain.

### **3. Energy Needs**

As a result of forecasting errors at the end of the 1970s a large amount of new electricity generating capacity was built, in particular the Moneypoint coal-fired power station.<sup>2</sup> This new capacity came on stream at a time when the economy was performing poorly and the result was considerable excess capacity lasting throughout the 1980s and the 1990s. The need to finance this excess resulted in very high prices in the 1980s, followed by declining real prices in the 1990s, as the existing capacity was gradually paid for and as new capacity was not required.

By 2000, the previous excess of electricity generating capacity had been eroded and it was clear that new capacity was required. Today Ireland faces a growing need for electricity generating capacity over the coming two decades. This need arises from the recent period of rapid growth and the continuing capacity for the economy to outperform its neighbours, at least up to the end of the current decade. Over the rest of the decade the island of Ireland is likely to need around 2000MW of new generating capacity, with a similar amount in the following decade. (Each new gas-fired station adds around 400MW, at a capital cost per plant of around €250 million.).

In addition to the new generating capacity considerable investment in electricity transmission is required. For example, without additional capacity linking the Republic to the border it will not be possible to integrate the two electricity systems on the island. Without upgrading of the transmission system in the BMW region no substantial new economic activity will be possible there, with the exception of the immediate Galway region.

This need for major new investment in generating capacity makes Ireland different from most of the rest of our EU partners. In many cases, such as Great Britain, there is excess capacity. This means that there is not a need for a market structure that encourages investment, and consumers can coast along without having to fund such investment through higher prices. In Ireland, by contrast, the biggest problem is to get capacity built and to minimise the future burden on consumers.

### **Conclusions:**

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<sup>2</sup> Coal was the fuel of choice to reduce the dependence of the economy on oil.

- Need for major investment in new generation capacity
- Need for major investment in transmission, especially to help create an integrated island electricity market.

#### **4. Competitiveness**

Even more important than the price of energy is the reliability with which it is provided to the business and the household sectors. Foreign direct investment has been reassured by the reliability of the system over the last decade, but the growing problems in the sector must give some cause for concern. It is very important that they are addressed to ensure that the past record of reliability is maintained over the course of the coming decade.

Ireland does not have a natural advantage in the supply of energy, except in the area of renewable resources where, with the exception of wind, the technologies are not at present competitive. As a result, it would not be expected that very energy intensive businesses would locate here. In all cases business should pay the full economic cost of energy: there should be no explicit or hidden subsidies, even if Irish costs are higher than among some competitor countries. However, every effort needs to be made to ensure that the energy required is delivered at minimum possible cost to both business and household customers.

We have seen in the 1980s how problems in the energy markets can make a significant negative contribution to Ireland's competitiveness. At the time the very high cost of electricity in Ireland adversely affected the competitiveness of the economy, especially of the manufacturing sector. This was addressed in the context of the Culliton report. Since the early 1990s there has been a steady improvement in Ireland's position on electricity prices. However, as discussed above, this situation has recently been reversed in the face of major new investment needs.

#### **Conclusions:**

- The price of energy should reflect its full economic cost.
- It is essential for the competitiveness of the economy that a long-term reliable energy supply is available to business and households alike at the minimum possible cost.

#### **5. The Environment – Kyoto**

The negative impact of energy production and use on the environment is a significant policy issue. In particular, the need to reduce greenhouse gas emissions has major implications for all players in the energy sector. However, there remains considerable uncertainty about how and when action will be taken to deal with this problem. This uncertainty is already having a significant impact on the energy sector, raising the cost of capital for all new projects.

Until Russia signs the Kyoto protocol it will not become legally binding for all the other signatories. Russia has already delayed signing and as long as they delay there



must be serious doubts about whether the EU will go through with costly measures to tackle the problem.

However, once the Kyoto protocol becomes legally binding the approach adopted by the EU to implementing it will become clear. At the Council meeting of 9<sup>th</sup> December a directive was agreed that will involve an emissions trading regime applying, *inter alia*, to the electricity sector. The directive has many problems, in particular the very undesirable provision that permits will be given away to existing players. This latter provision could act to seriously deter new entrants. The other serious problems with this approach have been dealt with elsewhere and are not covered here. What is important is that the uncertainty about when (and if) action on Kyoto will be taken by the EU is a major problem for the energy sector.

Action to reduce emissions will greatly change the relative price of different fuels and will, as a result, substantially change the relative attractiveness of different generating technologies. Until decisions are taken on Kyoto, it makes it difficult to predict future returns from different types of investment and this is acting to raise capital costs and to discourage new investment.

In the case of Kyoto and all other environmental issues the appropriate strategy for policy makers is either first to specify the environmental objectives or constraints or else to quantify the environmental damage and to reflect this damage in an appropriate price for energy consumers and producers. This should be done through policy measures that allow the energy (and other) sector to choose the least cost method of meeting the specified objective or standard. For example, the decision on the possible closure of the Moneypoint coal station, which was presaged in the Government's *National Climate Change Strategy*, should be determined by market forces, subject to the changes in economics brought about by a trading regime that reflects the objectives associated with the environment and security of supply.

In the environmental field there has been a tendency to adopt a range of different measures all broadly targeted at the same objective. For example in the UK, they have a climate change levy, a requirement to buy renewable energy and an emissions trading regime. This is an undesirable method of proceeding making it difficult for investors to identify least cost solutions and raising serious dangers that policy makers may produce an unduly expensive solution to the environmental problems.

If the EU emissions trading regime goes ahead and works as intended, it will raise the attractiveness of renewable energy, in particular the attractiveness of wind. Once this mechanism is in place it should not be necessary to have other mechanisms to encourage renewable energy. However, until it is working the AER process is still required. The one exception to this need for simplification of instruments is where funding is required for research into new technologies.

## **Conclusions:**

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<sup>3</sup> Bergin, A., J. Fitz Gerald and I. Kearney, 2002, "The Macro-economic Effects of Using Fiscal Instruments to Reduce Greenhouse Gas Emissions", ESRI Conference paper.

- Uncertainty about Kyoto is damaging to the energy sector.
- The EU emissions trading scheme, if it is eventually agreed, should provide an appropriate instrument for implementing Kyoto. However, as proposed by the EU it has some serious defects.
- Once emissions trading is agreed this should be the sole instrument used to ensure compliance with Kyoto in the energy sector.

## **6. Competitive Markets**

Monopolies have certain advantages in producing goods and services. They can use their market power to obtain a better price for their inputs (e.g. fuel). Where economies of scale are important, because they are the biggest possible player (the only player) in the market, they are in the best position to reap the benefits of the scale economies. However, monopolies also have significant disadvantages for society, charging higher prices than in a competitive market and producing and selling a lower volume. It is possible that the scale economies are so large that the advantages of having a single producer may outweigh the welfare lost through having a monopoly supplier. This is the case for electricity transmission where economies of scale are obvious – it does not pay to have competing sets of wires running side-by-side. However, there is a stronger case for bringing competitive pressures to the case of electricity generation. The objective should be to put in place a market structure that reaps the benefits of scale economies, while putting significant downward pressure on costs.

Who benefits from the “excess” price in the case of a monopoly? In the case of private sector monopolies the benefits from higher prices go substantially to the shareholder in the form of higher profits.<sup>4</sup> In the case of publicly owned monopolies, if the price charged were the same as for a privately owned monopolist and efficiency of production were the same, the dividends paid to the government (shareholder) could be used to reduce distortionary taxes. However, even if used in this way there would still be likely to be a welfare loss.

While it is theoretically possible that some of the monopoly benefits will accrue to the tax-payer, typically in the case of public sector monopolies, much of the monopoly power is exploited by the work force or suppliers, resulting in lower efficiency through higher operating costs. Pay rates may be higher or staffing levels higher than would be the case in a privately owned firm operating in a competitive market. It is also possible for suppliers of the monopolist to obtain terms that would not be possible in a competitive market (e.g. for peat).

If a competitive market could be created, ignoring the problem of scale economies and transactions costs, then the efficiency losses would be eliminated through competition, and profit levels would be reduced to “normal” levels. In the case of the

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<sup>4</sup> This need not always be the case. In the case of Dublin Gas in its latter years the bulk of the benefits of its monopoly position appear to have gone to its employees at the expense of its customers.

break-up of a state owned monopolist the result would be likely to be a substantial reduction in operating costs, including the cost of labour.

In the case of electricity in Ireland it is clear that the monopoly position of the ESB had led to significantly higher than necessary labour costs over decades of operation up to the end of the 1980s. However, the prospect of competition and a changing operating environment has seen a significant improvement in efficiency over the last decade, though still leaving substantial room for further improvement.

In looking at the possible gains from the creation of a competitive market the major savings could be expected in lower operating costs<sup>5</sup>. However, the creation of a competitive market through fragmenting the industry, if it could be achieved, would also have costs, in particular in raising the cost of capital. In a mature industry where new investment is not required this would not be a problem. This has been the case for much of the mature European electricity market over the past decade. There the potential gains from increasing operating efficiency dominate gains from lower cost of capital. For Ireland the situation is very different, with many billions of Euro of investment required over the coming two decades.

One aspect of the scale economies of a monopolist is that there is greater certainty that the capital costs of a new investment will be recovered. For example, there is no possibility of a number of competing suppliers expanding capacity simultaneously, resulting in excess capacity. This greater certainty of cost recovery makes it easier to finance such investments, with the result being substantial reductions in the cost of capital.

However, in the current situation in Ireland, where new investment is going to be required on a continuing basis over the coming decade, any policy that increases the cost of capital will have very serious implications for consumers. For example, using the CER's assumptions on the cost of capital, in particular assuming a pay-back period for new investment of 15 years, the capital cost per kWh of a new gas generation station would amount to around €0.0091 while the non-fuel operating cost (labour cost) would amount to around €0.0700. However, if increased uncertainty were to lead firms to seek payback over 7 rather than 15 years the cost of capital would rise to €0.0152. This increase in capital costs would almost equal the total operating non-fuel cost of the plant.

Thus in an environment where large-scale investment is a continuing requirement, the factors affecting the cost of capital are likely to dominate any issues concerning operating efficiency. Under these circumstances, if forced to choose between either monopoly provision or a fragmented "competitive" market, consumers could find themselves better off under the monopoly regime. However, the policy makers do not have to choose between these two polar cases but can seek to provide a market structure that would combine incentives for efficiency of operation with low cost of capital.

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<sup>5</sup> Albeit, operating costs today are much lower than a decade ago, leaving smaller potential efficiency gains.

The current proposals from the CER involve the creation of a competitive market for electricity where the price would vary continuously to bring supply into balance with demand. In such a market it is likely that for much of the time the price would be related to the short-run marginal cost. However, in times of capacity shortage investors would recover their capital costs through temporary very high prices. Even if this market were to operate in an otherwise certain environment<sup>6</sup> it would still provide no certainty of full cost recovery for new investors. Under these circumstances the cost of capital would be very high for investors and investment might not take place. The result could be much higher prices for consumers and / or the possibility of capacity shortages and power cuts.

The aim of policy should be to try and combine the lower capital cost with the operating efficiency of a competitive regime. This will involve some mechanism that will provide more certain repayment of the capital costs of new investment. The ad hoc approach to seeking new capacity through a tender process, currently under way to ensure adequate capacity for 2005, is one way of reducing the cost of capital. However, current CER proposals see this as only a temporary solution on the way to implementing their proposed market clearing mechanism.

The key to reducing the cost of capital is to reduce uncertainty for investors. Reduced uncertainty makes investment projects much more attractive to financiers, producing lower cost of capital and ultimately lower prices for consumers.

The first method of reducing uncertainty is to provide long-term contracts for sale of the output from new investment. However, if all risks are covered by the contract then there will be no incentive to keep costs low. It will also be difficult for the regulatory authorities to predict what will be the appropriate price over the full time horizon of an investment project. Probably the best approach for the regulatory authorities is to minimise avoidable uncertainty about the future by providing a stable regulatory environment. Then it seems desirable to provide guaranteed payments to cover the capacity element of any new investment (the capital cost), leaving the payment for operating costs to be determined in a competitive market.

To ensure that competition delivers the least cost production of electricity from any given configuration of generation it will be important to put in place an appropriate market structure. This market structure should ensure that generating plant is dispatched on a least-cost basis.

To guard against the ESB using its dominant position it will be necessary, at the very least, to regulate its pricing behaviour in such a market. However, it would probably be preferable if the generation stations were either sold off, or possibly better, operated under management contracts that are put out to tender. In the latter case the tender process would ensure that operating costs are kept to a minimum. The ESB already manages a generating station in Britain under such a contract, and it has obtained a contract to manage a new station in Spain.

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<sup>6</sup> The market would continue in this form indefinitely, there would be no opposition to temporary very high prices, and no shocks or uncertainty would arise from factors such as the implementation of policies to reduce greenhouse gas emissions.

The ownership of the sites and plant is probably best transferred to a separate company as the sites represent the cheapest and easiest location for new generating plant, given the way that the planning system currently operates. The owner of the sites could then provide access to new entrants on a non-discriminatory basis.

However, there are also possible disadvantages to breaking up the ESB portfolio of generating stations. Experience elsewhere shows that there are economies of scale in managing generating stations. For example, large operators can obtain much better terms for supply of fuel, including gas, than can smaller purchasers. However, some of these diseconomies may be overcome if the contracts go to large operators from outside the Republic who can draw on their international resources. Their superior management expertise would presumably be reflected in their bidding behaviour in any tendering process for management contracts.

There are a number of factors that give rise to considerable uncertainty for any investors and some of these sources of uncertainty can be reduced or eliminated by appropriate policy action. In many cases the problem lies with the impermanence of the regulatory regime itself.

The likely integration of the two island electricity markets before the end of the decade means that the development of an independent market structure in the Republic, as proposed by the CER, will lack credibility. No investor will rely on such a market structure to provide a reliable mechanism to recoup capital costs over a long period because the market structure will inevitably be renegotiated on an all-island basis. This means that it is urgent to put in place a market structure for the island as a whole that can be expected to have some sense of permanence.

A further source of uncertainty is whether an interconnector will be built linking the Republic to Wales. If such an electricity interconnector is built before the end of the decade it could radically change the operating environment for any new investors in the Irish market. For this reason it is important that a decision is taken as soon as possible whether such an interconnector is to go ahead.

For any new investor in the Irish market an additional source of risk is the possibility that the ESB could be privatised at some future date in its current form. The approach taken in Northern Ireland was to maximise receipts from privatisation through maintaining the dominant position of the incumbents. Their potential to exploit this position greatly raised the price paid for the assets. There remains the danger that a future Irish government could be tempted to privatise the ESB in its present form to maximise revenue. A privatised ESB could be expected to behave in a very different way than the currently publicly owned firm, endangering the future of any new investors. What is required is a clear statement that the monopoly elements of the ESB will not be privatised at any future date, removing this potential risk for new investors.

The action by the government in preventing a rise in electricity prices in 2001 for reasons of macro-economic policy was destabilising. This action was taken by the government, acting as shareholder, and only applied to the ESB. The market perception was that the ESB was being required to sell electricity at below its long-run marginal cost. The effect of such action was to make it difficult for other suppliers

to sell against the “uncompetitively” low ESB price. Under other circumstances such action by the dominant player could be considered predatory behaviour. For the future it is desirable that all questions on regulation of electricity prices are left to the CER, whose remit is confined to ensuring the long-term welfare of Irish energy consumers.

The likelihood that major policy changes will be needed if Ireland (and the EU) is to meet its commitments to reduce greenhouse gas emissions under Kyoto is a major source of uncertainty for new investors. It is urgent that a co-ordinated EU policy is put in place. While there are many problems with the EU directive on emissions trading, if it is agreed it should provide some continuity of policy over the coming decade.

### **Conclusions:**

- Decide at an early date on the integration of the electricity systems on the island. Until this issue is settled definitively there can be no certainty about any future market structure.
- Put in place a market system that provides guaranteed payments for capacity, reducing the cost of capital for new investment
- Put in place a market system that simultaneously provides an incentive to minimise operating costs while ensuring efficient dispatch of available generating plant.
- Remove unnecessary market uncertainty: for example, through putting in place a durable policy for reducing greenhouse gas emissions; decide at an early date whether an interconnector to Britain is to be built; guarantee that no new private monopolies will be created through privatising the ESB; leave issues of price control to the CER.

## **7. Security of Supply**

There are two different aspects to security of supply of energy. The first involves physical security and it was highlighted in the war years by the problems in importing oil and in the 1970s by the successive oil crises. However, the oil crises, and more recent changes in the gas market, have highlighted the possible exposure of the economy to dramatic changes in price, even where energy continues to be available.

As electricity is essential to modern life it is vitally important that a reliable supply is always available. As Ireland becomes more and more dependent on gas to generate electricity the issue of the physical security of the gas supply has grown in importance. The provision of the second gas pipeline to the UK has effectively eliminated the previous small risk of a medium-term complete disruption to supply through breakage of the then single under-sea pipeline. This is no longer a significant concern, though the fact that all the island’s supplies go through a single short piece of pipeline in Scotland leaves some residual concerns.

Apart from the possibility of interruption of the single most important fuel, a failure by the market to deliver the necessary increase in electricity generation capacity could

see Ireland facing electricity shortages later in the decade. While not nearly as serious as a loss of supply for a number of months, the disruptive effects of such an outcome mean that a major objective of policy must be to ensure adequate provision for new generation (and necessary transmission). This issue has been dealt with under the heading of competitive markets above.

The second security issue concerns excessive dependence on a single fuel where the risk arises from the possibility of shocks to the price of that fuel. If, as seems likely, Ireland becomes more dependent on gas than most other EU countries, then a shock to gas prices would adversely affect Ireland's competitiveness. For a large price shock the adverse economic effects could be quite significant.<sup>7</sup>

As EU gas supplies (especially UK supplies) run out over the coming decade, gas users will become more and more dependent on three sources of gas – Russia (Gazprom) Norway and Algeria. With so few suppliers this leaves open the possibility that they could use monopoly power to extract high prices from consumers who had committed themselves to gas through major investment.

For this reason it would seem wise to limit the extent of Ireland's dependence on gas for electricity generation to no more than 50 or 60 per cent of total generation. However, it will be important to implement this using a suitable market instrument. It would not be appropriate to allow the new plant to open up to the relevant threshold and then to prevent further new gas plant opening.

#### **Conclusions:**

- Physical security of supply is very important, but substantially assured. The remaining risks pertain to underinvestment in generating capacity
- Fuel diversity should be promoted by market instruments rather than by edict.

### **8. Pricing of Infrastructure**

The pricing of the transmission infrastructure can have important implications for incentives in the domestic market. Currently all the cost of the currently empty second pipeline is charged on all imports from Britain through the 1990s pipeline. This raises the domestic cost of gas through that source. It also raises the price that domestic producers can get on the Irish market. As long as they produce less than the total requirements of the Irish market the Irish price will remain equal to the British price **plus** the transmission cost.

If the second pipeline was required to provide enhanced security of supply, then all consumers in Ireland potentially benefit whether or not their gas comes from Britain or from domestic sources. Under these circumstances the cost of the second pipeline should be charged to all consumers. If such a policy was adopted then the cost of

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<sup>7</sup> See J. Fitz Gerald, 2003, "The Macro-Economic Implications of Gas Dependence", ESRI Working Paper 149.

transmission would be lower and the price obtained by domestic producers would also be lower, with consequential benefits for Irish consumers.

The situation would change if domestic supplies exceeded domestic demand. In that case domestic producers would get the British price less the cost of transmission. The existence of very large export capacity in the gas pipelines enhances the attractiveness of exploration. Previously, gas finds off the Irish shore would have only had the limited domestic market available, without major further investment. Now the capacity to export is guaranteed. However, the physical planning difficulties in Mayo may prove a serious discouragement to further exploration and are a cause for serious concern.

Provision of gas infrastructure should not be used as a policy instrument for promoting balanced regional development. If such investment is not commercially viable the implicit subsidy payable to achieve the deployment of gas infrastructure would almost certainly be better used to finance other forms types of infrastructure more conducive to regional development.

## **9. Conclusions**

The electricity and gas markets need to greatly expand supply in Ireland over the coming two decades. This makes the Irish energy market different from that of much of the rest of the EU. As a result there is:

- Need for major investment in new generation capacity
- Need for major investment in transmission, especially to help create an integrated island electricity market.

The availability of a reliable and competitive supply of electricity and gas is essential for the competitiveness of the economy. Policy should ensure that in all cases the price of energy should reflect its full economic cost. Where the production or use of energy involves environmental costs these should be reflected in the price of energy – ensuring that decisions on investment and consumption produce a reliable energy supply at least cost to society.

A key issue for policy is how to bring about this major investment programme in a way that imposes the minimum possible cost to consumers. To achieve this major task at minimum cost will require the regulatory authorities to reduce risk and uncertainty for potential investors. This requires a number of key steps.

- Decide at an early date on the integration of the electricity systems on the island. Until this issue is settled definitively there can be no certainty about any future market structure.
- Put in place a market structure agreed between the regulatory authorities in both jurisdictions.
- Invest immediately in the necessary upgrading of transmission. This may involve fast tracking the physical planning process.



- Consider how this island market would be affected by further interconnection to Britain.
- Put in place a market system that simultaneously provides guaranteed payments for capacity, reducing the cost of capital for new investment, and provides an incentive to minimise operating costs while ensuring efficient dispatch of available generating plant
- Remove unnecessary market uncertainty: for example, through putting in place a durable policy for reducing greenhouse gas emissions; decide at an early date whether an interconnector to Britain is to be built; guarantee that a no new private monopolies will be created through privatising the ESB; leave issues of price control to the CER.
- Uncertainty about Kyoto is damaging to the energy sector. Once emissions trading is agreed at EU level, this should be the sole instrument used to ensure compliance with Kyoto be the energy sector.
- Physical security of supply is very important, but substantially assured. The remaining risks relate to possible underinvestment in generating capacity. Fuel diversity should be promoted by market instruments rather than by edict.