

**ROYAL SOCIETY OF EDINBURGH INQUIRY INTO
SCOTLAND'S ENERGY SUPPLIES FROM NOW UNTIL 2050**

A SUBMISSION FROM OFGEM

The role of Ofgem

1. Ofgem's principal statutory objective is to protect the interests of consumers, including future consumers, wherever appropriate by promoting effective competition. We meet this objective by creating and sustaining a framework for competition where appropriate and by regulating network monopolies effectively.
2. In addition to the principal objective Ofgem has to have regard to a range of other duties reflecting the fact that energy is not 'just another product' but that there are broader considerations for society associated with its use. In particular, Ofgem must:
 - have regard to the interests of vulnerable customers, which particularly at a time of rising prices means helping where we can with the Government's efforts to eliminate fuel poverty;
 - take account of the effects of our decisions on the environment and contribute to the achievement of sustainable development by, for example, helping the Government deliver its carbon saving target in the most cost-effective way;
 - secure a diverse and viable long-term energy supply which, in Ofgem's view, is best achieved through promotion of competitive wholesale markets and setting price controls to make networks more efficient allowing them to fund investment where necessary, reduce network costs wherever possible and maintain and improve quality of service; and
 - take suitable account of the work of safety regulators (notably the HSE and DTI's Engineering Inspectorate) in our activities.
3. Ofgem's view is that Scotland's future energy needs should be considered as part of the overall picture of supply and demand in Britain. In both electricity and gas, parties connecting to systems in Scotland are able to buy and sell their energy in the British market where they compete with all other British market participants. Being part of this market means that customers in Scotland and England and Wales have access to a larger, more competitive market and more diverse supplies.
4. Ofgem considers that a combination of market processes such as the introduction of British Electricity Trading and Transmission Arrangements (BETTA) in April 2005, and appropriate regulatory arrangements - for example, our decision in December 2004 to allow funding for transmission investment which will be required to connect renewable generators - will provide the necessary incentives on the companies to ensure that sufficient investment in generation and network capacity is delivered.
5. Ofgem's role will be to continue to facilitate efficient infrastructure investment, to monitor wholesale and retail markets, with Government, to provide timely information about future developments and trends so that market participants are better informed in making their own investment decisions.

Security of supply

6. Historically Britain has had a very secure supply in terms of network reliability and in the availability of gas supplies and electricity generating capacity. However, no energy supply system can deliver absolute security at all times, and the challenge is to maintain a high level of security at a reasonable cost to consumers.
7. Investment in necessary supplies is determined by market processes, responding to price signals for increased generation or gas supplies and storage. Over the shorter investment timeframes, the Joint Energy Security of Supply Group (which comprises Ofgem, DTI, the Foreign and Commonwealth Office and NGC) and the Secretary of State's recent report to Parliament both highlight that the market is responding to Britain's changing energy supply needs as our own energy reserves decline and environmental challenges call for the replacement of some of our generating stations. For this to continue, it will be important that market participants remain confident that the Government will maintain its Energy White Paper commitment not to intervene in the market except in extreme circumstances, such as to avert, as a last resort, a potentially serious risk to safety.
8. Security of supply is not just about markets; monopoly network businesses must invest to ensure that necessary pipeline and grid capacity is available to transport energy supplies to where it is needed. Existing regulatory arrangements provide the necessary obligations and incentives to ensure that sufficient network capacity is delivered. For example, our November 2004 decisions in the electricity distribution companies' price review opened the way for a 48 per cent increase in capital expenditure in local networks over the next five years¹ together with additional allowance for expenditure (estimated at £500m) relating to connection of renewable generation to the distribution networks. Facilitating network investment, for example to enable the connection of renewables, will be a constant theme in future price controls.
9. In gas, the decline in UK Continental Shelf gas supplies has been more rapid than expected. This has led to a tightening of the supply position. However, the market response has been impressive, with investment totalling £6 billion in new liquefied natural gas (LNG) facilities, new storage facilities and new interconnectors and additional capacity on existing ones. If all these projects come to fruition, more than 70 billion cubic metres of gas a year of new gas supplies would be delivered to the market during the next two to four years. This would be equivalent to more than 60 per cent of current British demand. Long term entry capacity auctions in gas have provided signals to Transco about the volume and location of future supplies so that it may plan its network investment and operation to meet our future energy needs.²
10. In electricity, in a period when some of the existing nuclear generating capacity is approaching the end of its economic life, there are important public policy issues for the Government to tackle if it considers that new nuclear generation has a role to play in terms of the relative value for money of differing low carbon energy sources. As more wind generation comes on stream, the market may need to provide significant back up generation to cope with the intermittency of wind. As in gas, the

¹ The respective increases for Scottish Power's and Scottish and Southern's distribution businesses in Scotland are 43 and 23 per cent.

² For more details see Ofgem's latest factsheet on security of gas supplies http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/11728_sosupdatejune05.pdf.

market is responding to the dual challenge of securing supplies and cutting carbon emissions. There are a number of planned gas and combined cycle gas turbine and power station investments, for example those at Milford Haven in south Wales, the Isle of Grain in Kent, and Langage (near Plymouth).³

11. The challenge will be how best to achieve low carbon emissions as efficiently as possible, balancing future reductions in abatement costs against current costs. Achieving carbon emissions reductions in the most economically efficient way is of course particularly important given the effect of environmental costs on energy bills, and the subsequent impact on fuel poverty.

The European context

12. As Britain becomes a net importer of gas the continental European energy market becomes increasingly important. UK participation in the European and international energy arena will be vital, given the need to secure a diverse range of supplies in order to maintain security and quality of supply.
13. European gas markets are, however, already having an impact on energy markets and consumers in Britain. This is because European energy markets are physically linked to Britain by the interconnectors and because European energy prices have a major influence on British energy prices. British wholesale gas prices are directly influenced by European wholesale gas prices and, given that nearly 40 per cent of British electricity generation is gas-fired, there is also a significant impact on British wholesale electricity prices. Clearly, to the extent that European gas markets are not properly liberalised, they might be expected to have an adverse impact on British energy markets. That is why it is a major priority for the Government and Ofgem to ensure that the liberalisation of European energy markets is carried out fully and effectively, and to ensure - more broadly - that EU policy develops in ways that are consistent with Britain's existing market-based regulatory arrangements.
14. The Government and Ofgem will work with the Commission, Member States, national regulators and National Competition Authorities to promote full and effective liberalisation of the European energy markets and to shape the regulatory agenda going forward. Earlier this year the European Commission decided to undertake a review of the European gas and electricity markets. Ofgem fully supports the review and has seconded staff to assist the Commission with it.
15. Ofgem will continue to monitor developments carefully in both the national and international energy markets with a view to identifying potential barriers preventing the market from functioning effectively and to developing appropriate and timely policy responses, working with other regulatory bodies where appropriate. Ofgem will work to ensure that the regulatory context creates the appropriate incentives to attract the required investment for the continued security of energy supplies.
16. Implementation of existing EU measures, and likely future developments, in the areas of liberalisation, the internal market and climate change could all have a major impact on Scottish (and British) energy needs in the short to medium term. Increasing cross-border trade and the development of more interconnections linking

³ For more details see Ofgem's latest factsheet on security of electricity supplies http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/11702_soselecupdatemay05.pdf.

the GB market with continental Europe may mean that the overall picture of supply and demand needs to be considered on a regional European and ultimately a pan-European basis.

Creating and sustaining competition

17. Central to Ofgem's approach has been the introduction of competitive energy markets throughout Britain. The electricity trading arrangements introduced in March 2001 created more competition in the wholesale electricity market in England and Wales. The Energy Act 2004 provided the legal powers for extending that framework across the whole of Great Britain by introducing a single British wholesale electricity market (BETTA). This market was introduced in April 2005.
18. The main features of the new market are a common set of trading rules so that electricity can be freely traded across Britain; a common set of rules for access to, and charging for the use of, the transmission network; and a British system operator, independent of generation and demand interests, so that those seeking to use the system and access the market can be confident that there will be no undue limitation to access. Ofgem continues to work with participants in both the electricity and gas markets through industry led code modification procedures to ensure that the market arrangements promote effective competition.
19. These changes extend to Scotland the same framework that exists in England and Wales, and we expect that this will bring real benefits to Scottish consumers. Ofgem is closely monitoring the British market so that we can be sure that the arrangements are working properly and the benefits are being passed to customers. Ofgem may also use its powers as a National Competition Authority (held concurrently with the OFT) under UK and European Law to enforce prohibitions relating to anti-competitive behaviour in relation to markets where Ofgem has responsibilities under sectoral law.

Regulating networks effectively

Price controls and incentive-based regulation

20. The current regulatory framework has facilitated very substantial investment in the transmission and distribution of electricity and gas. Since privatisation, over £16 billion has been invested in Britain's transmission and distribution networks.
21. Ofgem's principal duty to protect consumers, both present and future, means that we have to ensure that the monopoly networks undertake the investment that is needed to ensure long-term security of supply. However, we also look for companies to provide value for money for their customers by investing in an efficient and timely way - neither too soon nor too late. There are important trade-offs between the costs and benefits of spending more to improve security of supply. Given that no electricity system can deliver absolute security at all times, we work to avoid the risk that customers are forced to pay excessive costs to 'gold-plate' infrastructure.
22. Ofgem has also, over time, improved the way price controls on these networks are set, incentivising companies to invest efficiently in their networks. Wherever practicable, we focus on regulating outputs rather than inputs. This means concentrating on what companies deliver in terms of service to their customers, rather than on how they deliver that service. We have also taken initiatives to rely

more on market signals as to where investment is needed rather than solely on traditional planning and forecasting processes. With the changes in supply and demand patterns that are anticipated, it is important that the companies use the best information available in deciding when and how to invest and that the regulatory framework is flexible enough to encourage this.

23. Looking forward, a major challenge will be to ensure that the regulatory regime allows for and incentivises increased investment where this is needed for asset replacement, for network resilience and to respond to changing supply and demand patterns such as increased levels of renewable generation and new gas import sources. We expect network operators to develop efficient and innovative solutions to these challenges, including application of new technological approaches. In addition, we expect the commercial and charging arrangements associated with electricity distribution to respond to the needs of new and existing network users.

Transmission investment for renewable generation

24. Although it has been known for some time that the Scottish transmission networks will need reinforcement to accommodate significant additional generation capacity the Government's policy and objectives had not been finalised at the time of the last electricity transmission price control review and no allowance was made at that stage for such investment. Ofgem has therefore undertaken a separate process to consider the need for investment in new transmission infrastructure within Scotland to cater for increased wind generation.

25. In anticipation of a GB-wide electricity market, the second half of 2004 saw unprecedented volumes of applications from generators (mainly wind farm developers) to Scottish Hydro Electric Transmission Ltd and SP Transmission Ltd to connect to or use their respective transmission systems.

26. Ofgem assessed all the investment projects put forward by the transmission licensees to establish whether they could be justified in terms of reducing the cost of network constraints and transmission losses. Independent engineering consultants assisted with this analysis. Having carried out the analysis, Ofgem published a report in December 2004 which endorsed four key transmission upgrades in Scotland (ie. Beaully to Denny; Sloy; South-West Scotland; and the Scotland to England interconnector). In the report we classified the investment projects put forward by licensees as follows:

- baseline investment - projects which appear clearly justified in terms of savings in constraint and other costs. The Beaully to Denny, Sloy, Kendoon and interconnector reinforcements meet this criteria;
- incremental investment - projects where some uncertainty exists as to whether they would be justified in terms of savings in constraints and other costs. The reinforcement of the North East of England transmission ring is in this category; and
- additional investment - projects where there is significant uncertainty and a relatively high probability of stranded investment. The Beaully to Keith reinforcement, the links to the Scottish Islands and the Heysham area reinforcement fall into this category.

27. Ofgem's report categorised approximately £560 million of investment as baseline and subject to funding arrangements. The report also made clear that incremental and additional investment projects would be considered at the next transmission price control review in 2006. The report further clarified that if power station developers, or other bodies, were prepared to make a suitable long term financial commitment then additional investment projects could be considered.
28. This approach should help ensure that investment is carried out in a timely and efficient manner, thus protecting consumers from the costs of stranded assets and leading to charges for generators that are no higher than is necessary. Such arrangements are best calculated to protect the interests of consumers and to allow efficient and timely transmission investment such that renewable generators can access the market in a cost-effective fashion, avoiding any undue delays.
29. One major barrier at present is the planning process, which can cause delays in the period between the need for investments being signalled by the market and the realisation of those investments. A faster, or at least less uncertain, decision making process in the planning system would enable network operators to react more effectively to market signals; it is important that participants in the planning process are aware of the potential costs of delay and uncertainty.
30. Depending on future electricity demand and the closure of existing generation, further investment in transmission infrastructure may be required in the longer term. This investment may range from upgrading the conductors or operating voltage on existing lines through to building long distance high voltage direct current transmission links, similar to other countries, such as New Zealand, that have large renewable energy sources remote from demand centres. However, since transmission assets typically have a life greater than 40 years, there will need to be reasonable certainty about future levels and locations of generation in Scotland to support the case for such investment.

Transmission charging

31. Ofgem believes that cost reflective transmission charging provides the correct incentives for developers in choosing sites for generation development. Earlier this year, Ofgem conditionally approved NGC's new charging methodology for use of the GB transmission system. The conditions require NGC to review some areas of the charging regime over its first two years of operation and propose refinements where necessary. The new transmission charges reflect the costs imposed by generators on the transmission network.
32. Generators located far away from the main centres of demand for electricity will pay higher transmission charges as their output has to be transported long distances to reach their customers. This gives a clear signal to generators to site in the most cost-effective location, which reduces costs to customers by minimising the need for capital investment in the long term. It will also reduce the amount of electricity lost as heat as it is transported across wires, which costs around £174 million a year.
33. Although transmission charges in Scotland will in many cases be higher this is only part of the overall picture. The new arrangements also mean that Scottish generators will have easier access to a larger market in England and Wales, which is vital given

existing surplus Scottish generation capacity and plans to more than double it. They will also avoid some costs they would have incurred under the previous regime, such as charges for the use of the interconnector to export power to England. The comparison between the old and new regimes is therefore quite complex. Ofgem estimates that the overall effect of the new charging regime will be broadly neutral for Scottish generation as a whole and some generators could be significantly better off.

34. Ofgem notes that, while charges will be highest in remote parts of northern Scotland, wind farms should still be viable given the support they currently enjoy from the Renewables Obligation Scotland. For example, the highest charge under the new regime will be around £9 per megawatt hour of electricity generated from a wind farm. At current prices, renewable generators would receive about £70-80 per MWh for the electricity and 'green' benefits that accrue from it.⁴

35. Ofgem also notes with interest the DTI's consultation document on adjusting transmission charges for renewable generators, which states that

"On the basis of the available evidence, the Government does not believe that the scheme [to adjust transmission charges for renewable generators on the Scottish islands of Shetland, Orkney and the Western Isles] should be extended to cover the mainland of Northern Scotland. The available evidence suggests that it would enable relatively little additional renewable generation (0.17 percentage points towards the Government's 10 per cent target in 2010). The costs of a scheme would be likely to be around £11m a year from 2007, rising to £39m a year from 2010 to 2014 assuming that the scheme also covered the Scottish islands. More than 70 per cent of the benefits conferred by such a scheme would be likely to be 'deadweight costs', increasing the profitability of projects that would have gone ahead anyway rather than encouraging additional renewable generation."⁵

Environmental policy

36. The UK Government's target for renewables electricity supply in Great Britain is 10 per cent by 2010. The Scottish Executive (SE), which has devolved responsibility for renewable energy, has an objective that 18 per cent of electricity generated in Scotland by 2010 should be accounted for by renewable energy. The SE has also set an aspiration that Scotland will achieve 40 per cent renewable generation by 2020.

37. Ofgem considers that the Government should pursue policies and programmes that move the UK towards its environmental objectives at the least cost to present and future consumers and which are compatible with competitive energy markets. This is consistent with the 2003 Energy White Paper goals. Ofgem considers that this approach is all the more important given the impact of measures such as the Renewables Obligations, the Energy Efficiency Commitment and the EU Emissions Trading Scheme ("EU-ETS") on prices and, by extension, fuel poverty.⁶

⁴ These figures are taken from a factsheet on "British electricity transmission networks - future charging", Ofgem, 25 February 2005.

⁵ "Adjusting transmission charges for renewable generators in the North of Scotland - a public consultation", DTI, July 2005, p.5.

⁶ For example, the ROs have since 2002 cost domestic customers about £15 each.

38. Ofgem considers that broad market-based measures such as a carbon tax or emissions trading are likely to be the best way for the UK to achieve its climate change goals at least cost. The design of such measures will be crucial to their success in achieving carbon reductions in the most cost-effective way. Flexible market-based instruments that are well-designed and that are seen to be sufficiently long-term to assure investor confidence are the best means of meeting the Government's environmental objectives whilst protecting customers' interests.
39. Such schemes promote innovation and efficiency in meeting environmental goals and should, therefore, ensure that emission reductions are met at minimum cost to customers. The EU-ETS could be a significant step in this direction and future expansion in scope, both in terms of the range of emissions covered and industry sectors, and tighter caps would allow greater savings to be made more efficiently. Energy efficiency measures can also play a part in helping consumers cope with price rises, as well as reducing emissions.
40. It is likely that more generation will be sited in Scotland over the next few years, such as onshore wind farms, to help meet the Government's renewables targets. This new generation plant will bring with it new environmental concerns. For example, as most of the demand for electricity is likely to remain in the south of Britain, losses from the network are likely to increase as a result of the increased flow of electricity from north to south with a resulting impact on emissions.
41. Visual amenity issues might also arise given the likelihood that the electricity transmission system will have to be reinforced to accommodate increases in generation, necessitating decisions in each case about whether transmission lines should be overhead or placed underground. In the recent electricity distribution price control review Ofgem made specific allowance for undergrounding parts of the distribution network in areas of outstanding natural beauty. However, the cost of putting transmission lines underground is a substantial multiple of the cost of overhead lines and the cost of undergrounding any significant part of the Scottish transmission system is likely to be prohibitive.
42. The new distribution price controls that came into effect on 1 April 2005 include substantial environmental components in relation to the treatment of distributed generation, much of which is likely to be renewable, and revision of the incentives on distribution companies to reduce losses. Ofgem is progressing work on the review of the price controls for the three electricity transmission businesses and the gas transmission business and this will include significant work on the environmental aspects of their operation.
43. Ofgem wishes to encourage the use of innovative techniques, where appropriate, in the connection of renewable generation to the networks and, in the new distribution price controls, introduced incentives for the use of such techniques. Central Networks is the first distribution network operator (DNO) to have part of its network designated as a Registered Power Zone (RPZ) by Ofgem. RPZ status is given to areas of a network where DNOs employ innovative approaches to connect new generators to their systems.
44. The scheme covers the Bicker Fen, Boston and Skegness areas in the Central Networks East Midlands distribution area, where the amount of renewable generators requesting connections in the local area currently outstrips the capacity of the

network. Therefore the proposal will involve developing a control system to ensure that generation output can be maximised, without exceeding the network's circuit ratings. This will in turn minimise the connection costs for the generators and environmental impacts by avoiding the need to build a new overhead line. While the project is the first of its kind, Ofgem is confident that other 'power zones' around the country will follow.

Energy affordability

45. Energy affordability is a major concern for Ofgem, given our principal duty to protect the interests of consumers. Indeed, helping to tackle fuel poverty is one of the major themes of Ofgem's Corporate Strategy. The Social Action Plan, established in 2000, is the main vehicle for this work. Consistent with the Plan, in December 2004 Ofgem took the lead in further encouraging companies to do more to help those customers who struggle to keep their homes warm.
46. Ofgem asked energy companies to place additional focus on the targeting of energy efficiency programmes and the development of special tariffs, as well as on debt prevention and the provision of special services. There are good signs that the industry is responding to Ofgem's call for more to be done to tackle fuel poverty. All suppliers have either introduced social tariffs aimed at vulnerable customers or brought in price freezes to protect the fuel poor. All suppliers offer packages of energy efficiency measures. Ofgem has now published a new Social Action Strategy building on this work and covering the next five years.
47. The Government's fuel poverty targets should be seen in the context of energy prices that are rising significantly for all customers because of increased fuel costs and environmental legislation. Competition and regulation have in the past reduced suppliers' costs and contributed significantly to a decline in fuel poverty numbers. Looking forward, Ofgem's strategy of promoting competition and regulating monopolies remains important to help keep price rises to a minimum. But these measures alone will not deliver the Government target to eliminate fuel poverty.

ANNEX 1 SOURCES OF IMPORTED GAS

48. Natural gas from the North Sea started to be produced in substantial quantities from the early 1970s, accounting for 9.5 per cent of total energy production in 1970. Production grew steadily to peak at 108.4 million tonnes in 2000. Since 2000 natural gas production has decreased and by 2004 had fallen by 11 per cent from this peak. Total gas production in the UK was around 100 billion cubic metres (bcm) in 2004⁷ but it is estimated that by 2020 total annual gas production in the UK will have fallen to around 20bcm⁸.
49. Set against declining indigenous supplies of natural gas National Grid Transco (NGT) forecasts⁹ that there will be an increase of 24 per cent in annual gas demand by 2014 with peak demand growing at a marginally lower rate of 23 per cent. To meet both the existing demand and the forecast increase in demand for natural gas it is expected that the UK will become increasingly dependent on imported gas. Imports of gas are forecast to grow to around 40 per cent¹⁰ on an annual basis by 2010/11 as UKCS gas production continues to decline.
50. As at the end of 2004 it was estimated that over 80 per cent of the world's proven reserves of gas are located in the Middle East, Africa, Europe and Russia. Many of these locations are potentially within pipeline distance. Increasing dependency on imports creates potential exposure to the risk of political and economic instability in exporting countries as well as potential supply and price threats although in practice these are considered to be extremely low probability events¹¹.
51. Within Europe, the Netherlands and Norway have around 4 trillion cubic metres of gas reserves (2004 estimates). For the foreseeable future Norway will be the major supplier of piped gas to the UK. A New Framework Treaty between the UK and Norway was signed on 5 April 2005 and has the potential to secure up to 20 per cent of the UK's future gas demand¹².
52. The treaty covers a wide range of potential cross-boundary oil and gas developments. In addition to the Langeled South pipeline project, the new Treaty will cover the development of future oil and gas fields that straddle the maritime boundary between the two States and the use of offshore infrastructure on one continental shelf to explore for and develop an oil and gas reservoir on the neighbouring shelf.
53. Increasing imports of gas will require substantial additions to gas import capacity and infrastructure, including network investment. The market is responding to these signals and there are already a number of major projects currently under development which will substantially increase the UK's capacity to import and store gas both in the short and medium-term. By 2010 additional import infrastructure could increase the UK's capacity to import gas by around 100bcm per annum (this is close to GB's current annual demand).

⁷"From surplus to shortage? The Outlook for Britain's Gas and Power Market", Wood Mackenzie, April 2004, page 26.

⁸ Ibid.

⁹ "Secretary of State's first Report to Parliament on Security of Gas and Electricity Supply in Great Britain", DTI, July 2005, page 14.

¹⁰ Op. cit., page 15.

¹¹ Op. cit., page 16.

¹² Op. cit., page 2.

54. In the short to medium term the market is responding to the increasing need for investment in new supply sources and import infrastructure. As these supply sources are developed further it is expected that there will be an increase in gas supplies into the UK. For the longer-term there are a number of potential market options to meet increasing demand in the context of declining indigenous supplies which include:

- additional import connections from Norway, direct to shore or via existing UKCS infrastructure;
- LNG terminals to import gas from worldwide sources;
- more interconnection with Europe to import gas from the Netherlands, Norway and beyond;
- pipeline upgrades to existing interconnectors to increase import capacity;
- additional investment in UKCS exploration and production;
- gas storage, both onshore and offshore, to provide additional seasonal and daily swing capacity and to replace capacity which will be lost with the decline in UKCS swing capacity.¹³

55. It is expected that some imported gas may not comply with the UK's gas quality specifications increasing the quantity and diversity of imports will mean that the gas quality issue will become increasingly important. Work is currently underway to identify the scale of the issues involved. The gas quality issue is already a major work area for Ofgem and DTI and will become increasingly important for both Ofgem and Government.

56. NGT, the operator of the National Transmission System (NTS), is incentivised through its price control to undertake efficient investment in its network to respond to new sources of supply, including through imports. The price control provisions cover NGT's longer term responsibility to invest to expand NTS entry and exit capacity in response to its customers' changing demands (the so-called entry and exit capacity investment incentives). In addition to its role as NTS asset owner, NGT is responsible for the day-to-day operation of the NTS, and is incentivised to minimise the costs of its role as System Operator. Specifically, it has a suite of day-to-day incentives to ensure the efficient use of its pipeline capacity (entry capacity buy-back incentive), security and quality of supplies (system balancing incentive), and ensuring an overall balance between inputs and offtakes, to the extent that shippers inputs and offtakes do not match (residual gas balancing incentive).

57. It is expected that future energy prices will reflect the fundamentals of supply and demand, including the costs of developing new supply infrastructure. A major challenge for Ofgem is to provide a regulatory framework that attracts diverse supplies to the UK in terms of the number of suppliers and the geographical origin of the gas. The challenge is to maintain a high level of security of supply at a reasonable cost to the consumer. Key issues which might affect the availability and price of energy include environmental legislation, decisions about the lifetimes of existing nuclear plant as well as wider commercial considerations.

¹³ "Joint Energy of Security of Supply Working Group (JESS), Fifth Report", DTI, November 2004, page 12.