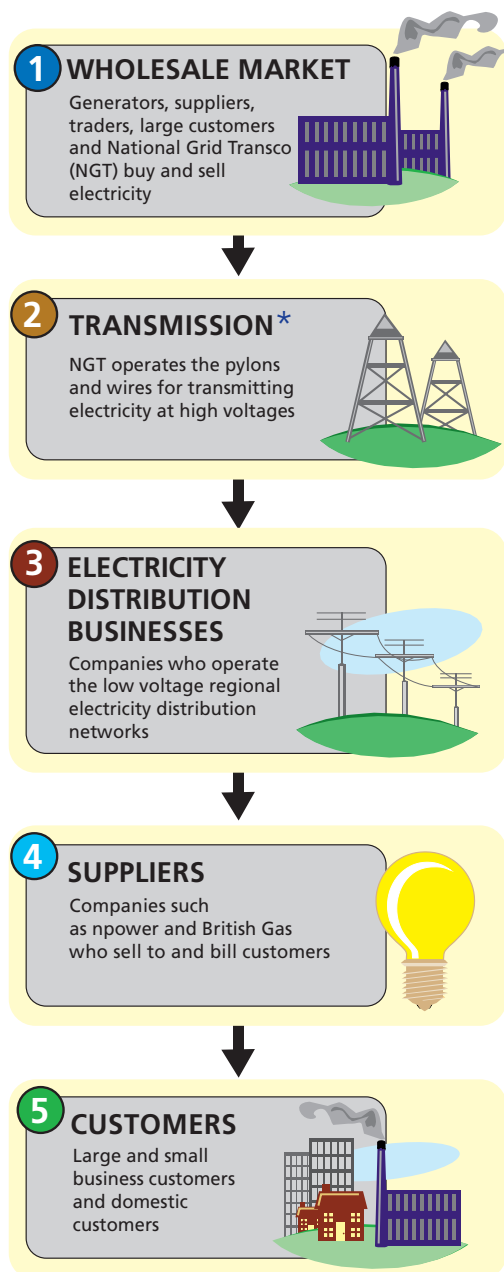


Update Securing Britain's electricity supply

Security of supply in electricity depends on three parts of the electricity supply chain: the wholesale market, transmission and distribution. This factsheet looks at the current issues facing each of these areas.



Wholesale Market

A major factor in ensuring security of supply is the fuel source for generators. Unlike the 1970s, when Britain was largely dependent on coal for generation, there is now much more diversity in fuel supply, with electricity being generated increasingly from gas and renewable sources, as well as coal, nuclear and oil.

How are demand and supply balanced?

Electricity cannot be stored economically so at every second, supply must exactly meet demand. This balance is achieved either by having enough generation or by having large customers, who can cut their demand at short notice.

In the short-term, wholesale markets achieve an approximate balance. Fine-tuning is done by National Grid Transco (NGT) which ensures security of supply on a second-to-second basis. NGT only buys or sells between 2 and 5 per cent of electricity produced to balance the system.

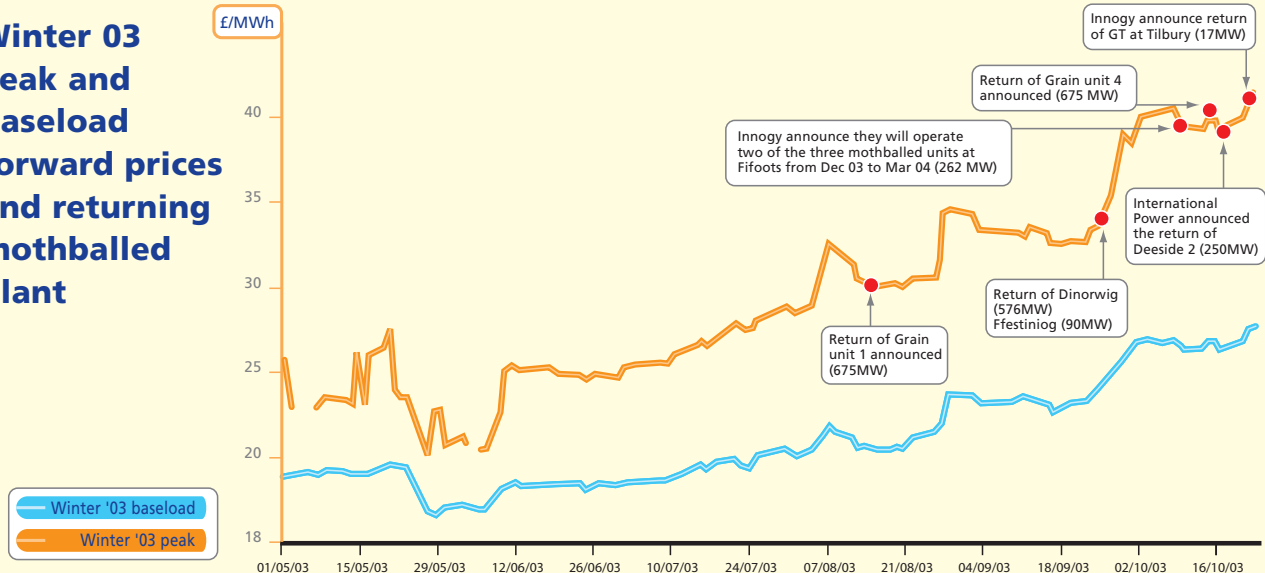
NGT has an important role, which includes:

- **information** - NGT regularly updates the market on how much power it will need to match demand with supply. On days when generation margins are small, NGT issues notices to the market encouraging generators to produce more power and users to offer to cut back on consumption.
- **operating margin** - as well as having enough generation to meet forecast demand, NGT buys an operating margin of available generation to deal with unforeseen changes in demand or a generator breaking down.

In the long-term, if generation capacity declines as older plant is closed, it will cause forward electricity prices to rise, which will send a signal to firms to build more generation plant and/or reduce future demand, for example by taking measures to increase energy efficiency.

* In Scotland the transmissions networks are owned and operated by Scottish Power and Scottish and Southern Energy

Winter 03 Peak and Baseload forward prices and returning mothballed plant



How do generators sell their electricity?

Electricity produced by generators is sold on the wholesale electricity market. This operates like any other market. Electricity suppliers and traders buy their power from generators by signing bilateral contracts or through trading on power exchanges.

The market also provides forward prices for at least the next three years which help to give generators signals about the future demand for generating capacity.

Generators respond to these signals in one of two ways - by building new capacity or returning existing plant that has been mothballed and is not currently used.

How can the market respond to ensure security of supply?

In winter (2003-2004) the market responded to expectations of a tighter plant margin of available generation.

As forward prices rose for electricity, generating firms brought more mothballed plant back.

As a result the plant margin rose from around 16 per cent in the summer to around 21 per cent in December, as more plant became available. This is how the market is expected to work, with forward price signals giving generating firms advance notice that they can earn more revenues by bringing back mothballed plant.

The plant margin is the long-term 'safety cushion' of available plant above peak winter demand. Whereas operating margin is the spare plant which is available for NGT to use to balance the system on any given day.

Is there a risk of power cuts this winter?

NGT's winter outlook report says a 'safety cushion' of available plant of around 20 per cent above peak winter demand will be in place for winter 2005-2006. It believes that under all credible scenarios, this will ensure that there is enough electricity to meet demand for domestic customers.

How can a market help ensure security of supply this winter?

Britain's market-based system is equipped to respond quickly and efficiently to changing circumstances like the weather.

It has much greater flexibility to adapt than the previous Electricity Pool. The market gives clear price signals for generators to bring more power on to the system in times of cold weather and for large customers to reduce demand.

The market encourages efficiency by placing incentives on generators whose plant breaks down, to bring it back to production as quickly as possible. Any generator which cannot provide the electricity it has contracted for, has to pay the costs for meeting this shortfall. In times of peak demand, this can mean paying a very high price for electricity, so it acts as a strong incentive to generators to ensure their plant is reliable, or contract themselves for backup.

How can the market ensure future security of supply?

Power firms will decide to build new plant once forward prices are at a level to justify this investment, or to meet long-term contracts to provide suppliers with electricity.

Proposals have been made by:

- RWE npower for a 2000MW combined-cycle gas turbine power station (CCGT) in Milford Haven.
- Milford Power, a wholly-owned subsidiary of Petroplus for a 1600MW CCGT plant, also in Milford Haven.

- Centrica for a 1000MW gas-fired plant at Langage near Plymouth.
- E-on UK, which has applied to convert a oil-fired plant at the Isle of Grain in Kent into a 2400MW gas-fired power station.
- Utility company ESB International to build an 800MW CCGT plant in Hampshire.

Transmission and distribution

Hasn't regulation cut levels of investment to keep prices low?

Ofgem controls the prices NGT and the distribution companies charge supply companies for using their networks because transmission and distribution are natural monopolies.

In setting these price controls, Ofgem has a duty to ensure the companies can finance investment and operate their networks in an efficient manner which helps ensure long-term security of supply. The cost of transmission and distribution make up around 25-30 per cent of the average domestic bill.

Since privatisation, over £16 billion has been invested in the electricity transmission and distribution networks. Ofgem has also modified the way price controls are set, incentivising the companies to invest efficiently in their networks. This will help ensure that the investment needed to meet the challenge of a low carbon economy is carried out efficiently.

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How reliable are our electricity networks?

Ofgem is concerned about any loss of supply to customers. However, no power system anywhere in the world can give a 100 per cent guarantee that there will never be any power cuts.

Ofgem monitors closely the performance of electricity networks. NGT's figures show that the national grid is around 99.9997-99.9999 per cent reliable and that distribution networks have seen improvements in service, with power cuts down by 11 per cent since privatisation.

However, following Ofgem's investigation into the power failures on the national grid in London and Birmingham in 2003, a new incentive scheme will be brought in for NGT which would penalise NGT automatically in the event of similar power failures. This brings the grid in line with the low-voltage distribution networks which are already subjected to incentive schemes that penalise poor reliability.

How does Ofgem help ensure security of supply?

Ofgem has important statutory duties relating to security of supply, which informs everything it does. Every major policy is assessed to see what impact it will have on security of supply.

Ofgem also works to ensure security of supply by:

- ensuring sufficient investment in the networks through price controls
- monitoring the electricity market for signs of anti-competitive behaviour, and
- ensuring companies meet their licence conditions. For example, companies like NGT have conditions which require them to operate the electricity system in an economic, efficient and co-ordinated manner.

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