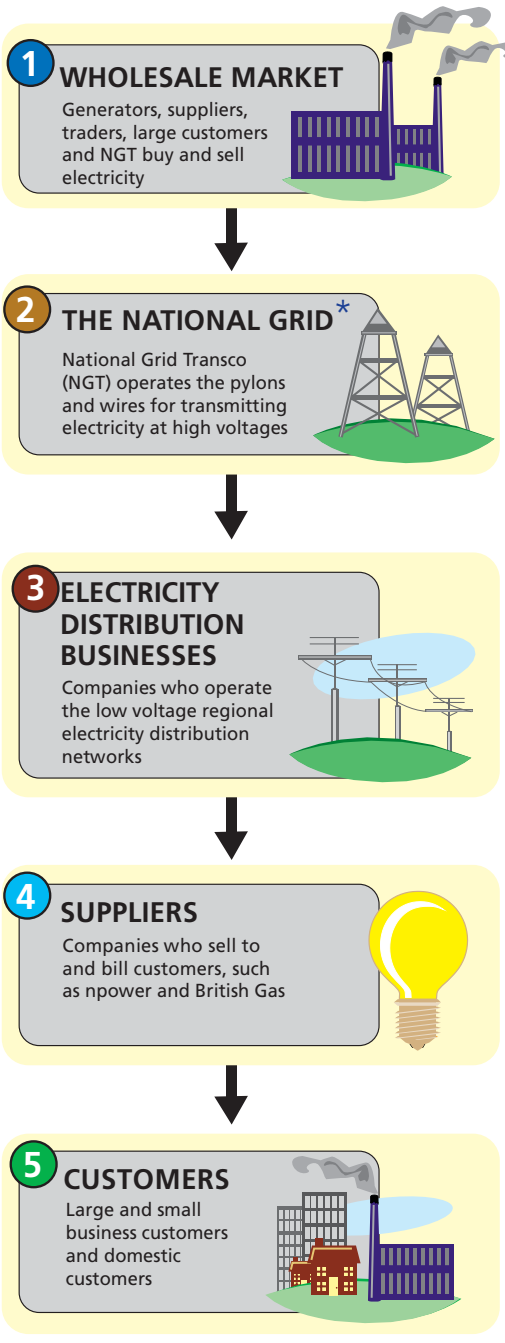
ofgem

Promoting choice and value for all gas and electricity customers

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 so supply must exactly meet demand. This balance is achieved by having enough generation or demand side participation. Demand side is when large energy users sell back the electricity they would have used during periods of high demand.

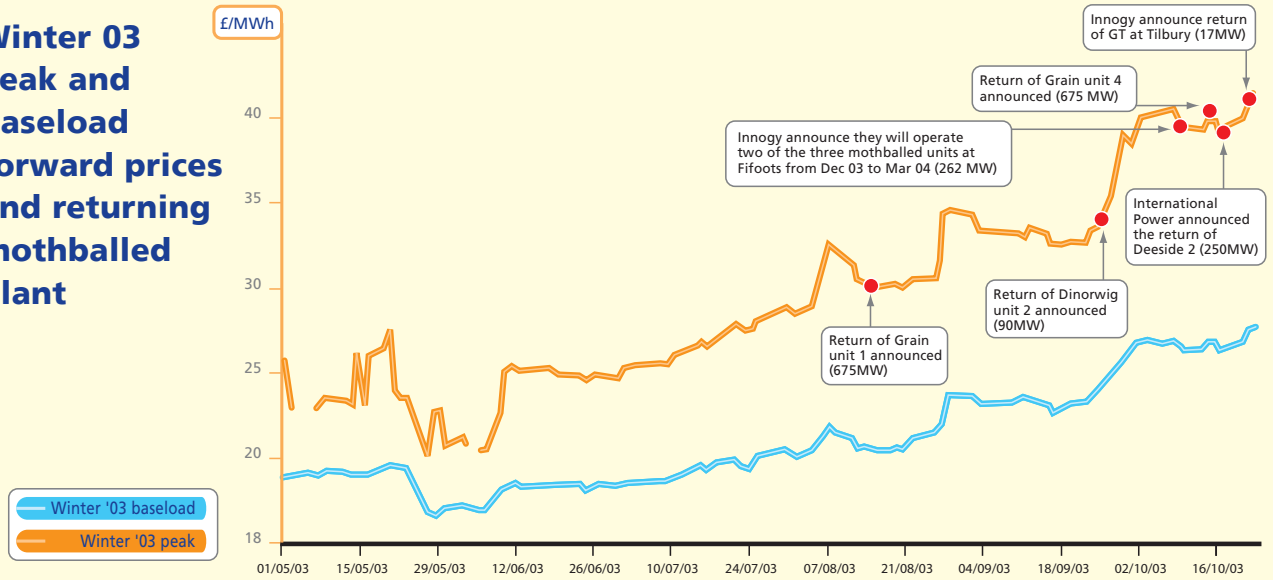
In the short-term wholesale markets achieve an approximate balance. Fine tuning is done by National Grid Transco (NGT) which ensures security of supply on a second to second basis. NGT only buys or sells between 2 and 5 per cent of electricity produced to balance the system.

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 it lacks generation it issues notices to the market encouraging generators to produce more power, or users to cut back on consumption.
- **Operating margin** - As well as having enough generation to meet forecast demand NGT has an operating margin in case of unforeseen changes in demand or a generator breaking down.

In the long-term if capacity declines as plant becomes redundant 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.

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.

How has the market worked?

Over the last four years prices for wholesale electricity have fallen partly as a result of the replacement of the Electricity Pool with a fully competitive market. Under the pool generators were able to keep **prices artificially high**. The effects of generation overcapacity and increased competition have also put pressure on generation prices in recent years.

Around **3.5 gigawatts** of capacity was mothballed in the last three years in response to the more competitive market conditions.

How has the market worked this winter?

Since the summer the market has responded to expectations of a tighter margin of reserve generation this winter.

As forward prices have risen for electricity this winter, generating firms have brought more mothballed plant back.

As a result the plant margin has risen from around **16 per cent** in the summer to around **20 per cent** in December, as more plant has become 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 bring back mothballed plant.

NGT has contracted another **850 MW** as additional operating margin. This is made up of extra generation capacity and demand-side participation, whereby large energy users have agreed to sell back to NGT the electricity they would normally use.

Is there a risk of power cuts this winter?

NGT have reported to Ofgem that it does **not foresee a danger of power cuts this winter** except in the most exceptional circumstances. It also recognises that the market has responded to price signals through returning mothballed plant to the system.

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 onto the system in times of cold weather and for large customers to reduce demand.

It also encourages efficiency by placing incentives on generators whose plant breaks down to bring it back to production as quickly as possible. Any generator who cannot provide the electricity it has contracted, 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.

How can the market ensure future security of supply?

The current electricity market gives forward electricity prices until 2007. 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.

There is already over **9 gigawatts** of power plant with planning permission, according to the Joint Energy Security of Supply Working Group third report which was published in November. This is equivalent to **14 per cent** of Britain's current installed capacity. Another **1.5 gigawatts** is currently being built.

In addition to this there is an estimated **1.3 gigawatts** of mothballed plant which could be returned in 12 months if it was economic to do so.

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.

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 closely monitors 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, the winter storms in October 2002 showed that some distribution companies could further improve performance in restoring supplies to customers cut off by the bad weather. As a result Ofgem is seeking to increase incentives to reconnect customers more quickly, and improve arrangements for companies to pay compensation to customers.

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
- 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 coordinated manner.

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

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