

Power struggle

We want energy to be cheap, reliable and green.
Can we have it all, asks **Michael Brooks**

IF YOU have ever played rock-paper-scissors, you'll know the frustration of having no sure winning strategy. Whip out a perfect pair of sharp scissors, and the rock might blunt them. Then again, paper smothers rock, and scissors cut paper. There's no win-win.

So pity those pitting their wits against our energy demands. As consumers, we want energy to be affordable. As a society, we want our supplies to be secure and reliable. And as responsible global citizens, we want power to be clean, green and low-carbon, too. But these demands trump each other in different ways. "It's called the energy trilemma, because you can't reconcile the three things simultaneously," says economist Michael Pollitt at the University of Cambridge.

Or have we just not hit on the right solution yet? An experiment kicking off in a small island nation in the north-west of Europe later this year could point the way to an answer.

Like many nations, the UK is struggling to handle the three-way battle between competitive pricing, security of supply and carbon-saving commitments. The country's particular problems include the drying up of native oil and gas from the North Sea, an ageing portfolio of nuclear power stations and a renewable-energy sector struggling to become competitive. Add to that the aim of reducing the country's carbon dioxide emissions by 80 per cent from 1990 levels before 2050, and an economy emerging from its longest recession since the second world war, and it is easy to see why political debates about the country's energy costs have been looming large.

This story is by no means unique to the UK. Germany's attempt to kick-start an ambitious

and expensive programme of renewables expansion while simultaneously shutting down its remaining nuclear plants has created a lot of political hot air, while increasing the country's reliance on dirty coal. The US has seemingly hit the jackpot with its shale-gas bonanza delivering cheaper, cleaner energy now – but at an unknown environmental and economic price in the long term.

What makes the UK different, and its experience eagerly watched, is its enthusiastic embrace of free-market solutions to energy problems. Since the 1990s, the UK has privatised every part of its power generation and supply business. There are no caps on pricing: firms generating energy can choose how much they charge, and have more or less

"The first rule of energy policy is ministers lose their jobs if the lights go out"

free rein over how much power they generate and by what means. One result has been a "dash for gas": the amount of electricity-generating capacity covered by cheap-to-run gas-powered plants ballooned from almost nothing to a peak of 40 per cent in 2010.

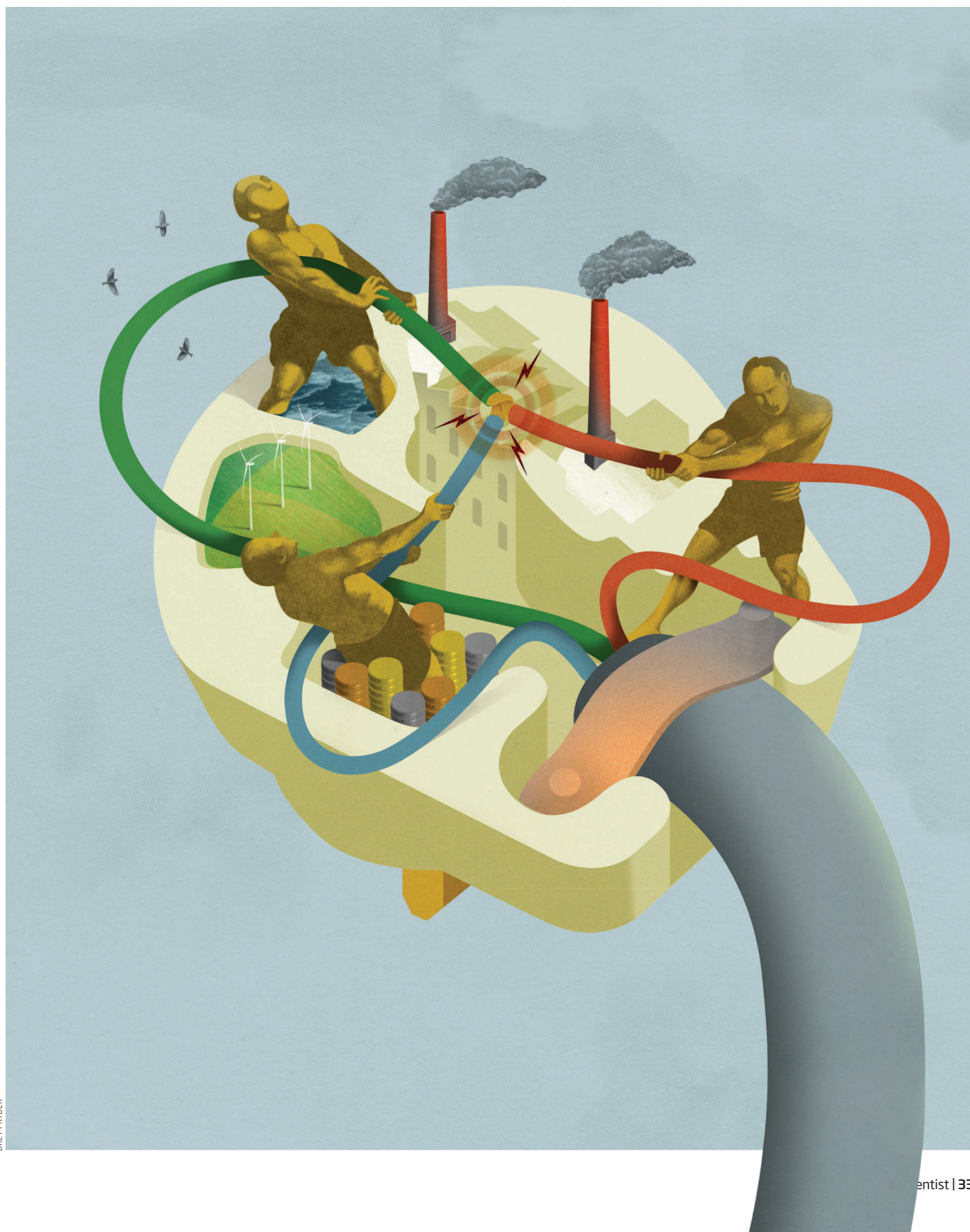
All things considered, this has been a reasonably good deal for the consumer, says Pollitt. According to the UK's Office of National Statistics, energy costs absorbed 5.4 per cent of the average UK household budget in 1982. By 2003, it was just 2.1 per cent. That proportion has risen since, to just over 3 per cent, but the UK government's independent Committee on

Climate Change has found this to be largely due to an increase in the prices energy suppliers pay for gas. Figures from the energy industry suggest the cost of gas for a UK household is roughly 29 per cent below the EU average, with electricity 15 per cent below – although some of this can be accounted for by the UK's relatively low rates of tax on fuel.

But cost isn't the only factor. "My first rule of energy policy is that government ministers lose their jobs when the lights go out," says Nick Eyre, an energy researcher at the University of Oxford. In the UK, electricity demand on a typical day might vary between 25 and 50 gigawatts, depending on the season, weather, whether people are at work or home, and which TV programmes have just finished or entered an ad break (see diagram, page 34).

Covering that variation means having back-up power stations that might end up barely operating. "It's perfectly possible for some capacity never to be used," says Eyre. That is an expensive luxury, but our requirement that energy should be available 24/7 means it is a necessity. To meet this need, the National Grid, the private company that operates the long-distance electricity transmission network in the UK, pays firms generating electricity to keep capacity in reserve, a scheme known as the Short Term Operating Reserve. Grid operators elsewhere in the world have similar schemes, the cost of which, one way or another, must come out of consumers' pockets. Reliability trumps cost.

Now let's add in the carbon question. In pursuit of its international climate-change obligations, the UK has been making steady, if unspectacular, progress in cleaning up its energy act. Renewable energy sources now ➤



Download English Version:

<https://daneshyari.com/en/article/114022>

Download Persian Version:

<https://daneshyari.com/article/114022>

[Daneshyari.com](https://daneshyari.com)