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Running on empty

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Britain's energy-generating capacity is shrinking fast (Duncan Vere Green)

Ed Miliband steps up to the microphones. Looking drawn after an all-night crisis session with his Lib-Lab coalition cabinet, the prime minister clears his throat.

“The unprecedented cold spell has put our energy system under tremendous strain,” he says. “We are doing everything to ensure your lights stay on but the risk of power cuts is high. I am asking all citizens to switch off all non-essential electrical equipment.”

It is January 2017, four years hence. The harsh winter has pushed electricity and gas consumption to record highs. Britain's antique power plants are struggling to cope.

The rocks under Lancashire and other parts of the country are thought to be rich in shale gas but exploratory work has been held up by community meetings and impact assessments. Plans for new nuclear power plants, the first for two decades, have been delayed by government reluctance to offer energy companies the guaranteed high prices they demand before stumping up the billions each one costs to build.

Faced with the prospect of having to impose part-time working, the government decides to risk angering Brussels instead. Miliband orders coal-fired plants, mothballed to comply with European pollution regulations, to be fired up again, even though it means hundreds of millions of pounds of fines for breaking our commitment to cut CO₂.

Scaremongering? Not necessarily. Britain is caught in an energy crunch that is shaping up to be one of the most serious problems to face this administration — and the next. Nuclear plants that produce about a fifth of our

energy began to be shut down last year. By 2023, only one — Sizewell B in Suffolk — will still be in operation.

By the middle of this year several coal-powered stations, which have been supplying the equivalent of 6m homes' worth of power, will be closed under EU agreements to reduce carbon emissions. Only a single gas-fired power plant is being built to replace them, and uncertainty over policy has paralysed the industry.

The lethargy is palpable. No fewer than 27 consultations are being carried out by Ofgem, the regulator, and the Department of Energy and Climate Change on different aspects of the industry. These include reviews of the Electricity Market Reform Bill, the government's flagship legislation for its £200bn plan to replace old fossil-fuelled plants with expensive, and cleaner, alternatives such as nuclear and wind power. Why does it seem impossible to make a plan and execute it before it is too late?

By the early years of the next decade, Britain, once the envy of Europe thanks to its North Sea energy riches, will have lost nearly a third, 25-30 gigawatts (GW), of its generating capacity. At the same time, America is enjoying an energy bonanza. If nothing is done, we could face decades lurching from crisis to crisis.

Yet we can keep the lights on — provided that we act now. THE great potential game changer is shale. In America, the exploitation of vast reserves using a process known as fracking has slashed energy bills — easing the burden on consumers and reducing industry costs so sharply that some manufacturing is returning there from China and other low-wage countries.

PwC, the accountancy firm, predicted in a report published last week that lower energy prices brought about by the shale-energy revolution could boost the world economy — pushing up British GDP an extra 2-3.3% by 2035.

There is also growing excitement about our own shale reserves. The British Geological Survey had estimated them to be 5.3 trillion cubic feet. Its new report, due next month, is thought to increase this by a factor of more than 200 to 1,300-1,700 trillion cubic feet — in theory enough to heat every home in Britain for 1,500 years.

The survey declined to comment last week. Energy experts warn that only a fraction of this total, perhaps as little as 10%, is exploitable. "There may well be as much as they say there is, but what are the conditions that would allow you to extract it economically?" said Jim Watson, head of research at the UK Energy Research Council.

Even if it were just 10%, that would still transform the energy landscape. But establishing how much is down there — let alone extracting it — has been painfully slow.

Cuadrilla Resources, which is exploring for shale gas under Lancashire, is in talks with the county council to address its concerns over the potential environmental and community impact. Francis Egan, the Staffordshire-based company's chief executive, hopes to restart fracking this summer. If all goes well, he said the company could start feeding gas into the national grid by 2015.

Yet the repeat of an American-style fracking boom here remains unlikely unless there are big changes to the government's approach.

The contrast with the US is great: in just eight years more than 15,000 wells have been drilled in Texas's Barnett shale formation alone. In Britain so far there have been just two.

Egan says the biggest obstacle to progress is the length of time it takes to get planning permission.

One solution would be to hand responsibility for large fracking projects to Infrastructure UK, a body set up to expedite projects of "national importance", even though this risks alienating local communities.

There is also the question of who owns the shale and other minerals: in America these belong to the landowner; here they are the property of the crown. Changing to a US system would give landowners an incentive at a stroke, and combat nimbyism, but also be a huge step with potentially unforeseen legal consequences.

As a halfway house, the Treasury is consulting on a profit-sharing model that could hand significant tax revenues to regions, which might help convince councils to allow big drilling operations to go ahead.

Dan Byles, the Conservative MP for North Warwickshire and Bedworth, who is starting a parliamentary group on shale gas, wants the government to move more quickly. He says it could introduce regulations to govern exploration and production to reassure consumers. "We don't know whether this potential resource will turn into an actual resource unless we start doing some more drilling," says Byles. "I find myself in meetings with officials and business and NGOs and politicians all agreeing that we should be switching off the cheapest forms of producing energy, such as oil and gas, and replacing them with more expensive forms. The person missing is the consumer, who is ultimately going to pay for it."

YET it could be dangerous to rely on shale alone. There is an immediate need to replace the nuclear and coal capacity as it is switched off and give energy companies incentives to create the extra capacity needed to protect the system against surges in demand. By next winter there will be as little as 4% of slack in the system, compared with 14% in the days of the Central Electricity Generating Board, which was privatised in 1990. If the winter of 2013-14 is as cold as that of 2011-12, that could mean blackouts.

Dieter Helm, professor of energy policy at Oxford University, wants the state to auction the right to boost this cushion. An open, transparent system, he says, "would be good for competition, good for customers and good for the environment by finding the cheapest ways of reducing emissions".

The green lobby says the looming energy gap can be filled by a mixture of efficiencies, wind and wave power. The government plans to cut demand by using energy more efficiently, but even combined with a boost to renewables this will almost certainly not be enough.

The most obvious answer is nuclear power: if we want to keep the lights on at a reasonable price and meet our emissions targets, we will have to build at least half a dozen new fission reactors.

The upfront costs are huge, but nuclear remains a proven zero-carbon technology with stable, low running costs.

There has been some progress: planning laws were changed in 2010 to streamline the process of getting approval to build new reactors. Eight sites, capable of producing 16GW, have been identified — all next to existing reactors.

Three companies — EDF Energy; Horizon Nuclear, owned by the Japanese firm Hitachi; and NuGeneration, a French-led group — plan to build up to a dozen reactors, beginning with EDF's twin 1.6GW plants at Hinkley Point in Somerset. Yet, despite relaxation of the planning rules, problems remain — such as how to fund building costs that, in the case of Hinkley, reach £14bn.

EDF was reported last week to be in talks with the Treasury over the "strike price" — a guaranteed minimum paid to firms for electricity they generate. EDF was said to be holding out for nearly £100/MWh, about twice the wholesale price of power: the government, which has ruled out any public subsidy for nuclear power, does not want to go so high.

Despite the impasse, industry insiders are optimistic that a deal can be done, perhaps as early as spring, allowing the bulldozers to start rolling this summer. Once work starts there, it may swiftly follow at other sites.

"We need to get an agreement on Hinkley Point quickly," says Lord Hutton, chairman of the nuclear industry association. "The beginning of construction will be a new era."

Which only leaves the problem of what to do with the waste. Baroness Verma, an energy minister, admitted last week that plans to build an underground facility to store waste in west Cumbria were now dead, after they were vetoed by the county council, leaving the government to find an alternative site.

A report by MPs published this month put the cost to taxpayers of clearing up waste at Sellafield at £67.5bn.

IN THE meantime, the government drags its feet, hampered by a difference of opinion within the coalition.

George Osborne, the chancellor, has been hoping the advent of shale could lessen the need to subsidise renewable energy or nuclear power.

However, Ed Davey, the Liberal Democrat energy secretary, has pushed for government policy to promote renewable energy such as wind and biomass power. He wanted legislation last year on reforming the energy market to include a numerical target for the reduction in emissions from power stations to be achieved by 2030.

The disagreement threatened to halt legislation until a last-minute compromise, with Osborne agreeing to continue taxpayer support for renewable energy in return for delaying setting Davey's so-called decarbonisation target until 2016 at the earliest.

The row broke out again last week, with prominent MPs proposing an amendment to the energy bill that would require ministers to reinstate the decarbonisation target.

They are led by Tim Yeo, Tory chairman of the Commons energy committee, and Barry Gardiner, Miliband's envoy on climate change.

The government is also under fire elsewhere, such as over its delay in giving the go-ahead for the conversion of coal-powered plants to biomass. Such a switch would allow Eggborough in North Yorkshire to continue providing

electricity for 2m homes but in a green, sustainable way.

“We could be on build by now,” says Tom Bairns, the station’s chief financial officer. However, delays coupled with an increasingly complex framework of subsidies and cross-subsidies mean his station still runs on coal.

“We need decisive action. No more delays,” he adds.

The debate, it seems, will run and run. We can only hope the same will be true of our power stations.