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Cracks in nuclear reactor threaten UK energy policy

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Problems at Hunterston B in Scotland trigger doubts over **six other 1970s and 80s plants**

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The government's energy policy is under renewed pressure after the prolonged closure of one of Britain's oldest nuclear reactors because of cracks in its graphite core raised questions over the future of six other plants built in the 1970s and 1980s.

The temporary shutdown of reactor three at Hunterston B in Scotland is also expected to burn an estimated 120m hole in the revenues of its owner, EDF Energy. **The firm said this week that it was taking the reactor offline for six months after inspections revealed more cracks than expected.**

Safety fears have been quashed, but the potential impact on wider energy strategy has alarmed experts who say the reactor may never be restarted.

Peter Atherton, an analyst at the consultancy Cornwall Insight, said : "Let's say worst-case scenario they found a big graphite core problem and Hunterston never comes back on.

"That would be a big hole in the plan [for electricity supplies]. The gas-fired power stations, we've probably got enough of them, but it would be pretty tight. It would also be a knock-back to carbon targets. You could build more windfarms, but that would take time."

The Hunterston plant is one of seven using advanced gas-cooled reactors (AGRs), which were

switched on during the 1970s and 80s. Several have had their lifetimes extended, but all are due to close by the end of the next decade.

The Hunterston outage is the longest yet over the graphite issue, which EDF calls a “unique challenge”, and company presentations concede the cracking “will probably limit the lifetime for the current generation of AGRs”.

The graphite core is used to moderate the neutrons in a nuclear reaction, but over time the irradiation degrades the graphite, ultimately leading to cracks. These cause a series of knock-on effects that can impair control of the nuclear reaction.

The UK nuclear regulator points out that the total number of cracks is well below specified safety limits. It has also welcomed more frequent inspections such as those that led EDF to take the Hunterston reactor offline.

Experts estimate the 40% cut in the power station’s output – it normally supplies enough electricity for 1.8m homes – will cost the French state-owned firm 100m-120m in lost revenue.

That is small compared with the impact of temporary safety closures at EDF’s French plants, which led profits to fall 16% last year, but it is still a blow the company could do without as it ramps up construction of the 20bn Hinkley Point C nuclear power station in Somerset.

EDF will not be the only energy company affected by the outage. Deepa Venkateswaran, an analyst at Bernstein bank, said she thought it would also hurt the price British Gas’s parent company, Centrica, would fetch for its stake in the plants. Centrica recently said it hoped to sell its 20% share by 2020.

Brian Cowell, EDF’s generation managing director, said he was very confident the Hunterston reactor would come back online in mid-November.

So far, significant cracks have only been found at reactors three and four at Hunterston B.

Hinkley Point B, which came online in the same year as Hunterston, is offline to carry out checks for cracks, which will be completed in three to four weeks.

“The one that will be worrying them is Hinkley [Point B],” said John Large, a nuclear consultant who has advised the UK government.

Hinkley Point has not only become an industry showcase for why new nuclear reactors should be built in the UK, but the old power station is providing electricity for the 3,500-strong workforce constructing the new plant.

EDF maintains that the prospect of more old reactors having a sustained outage is highly unlikely, but experts said it would pose a significant challenge to power supplies if they did.

Nuclear provides about a fifth of UK electricity, but experts said this week that it would slump to 10% by 2027, as the old plants are retired.

BMI Research said it did not expect Hinkley Point C to come online by 2025 as planned, given recent warnings of further delays to EDF’s Flamanville plant in France, which uses the same reactor design.