Britain cannot rely on gas imports from Europe to help keep the lights on during extremely cold weather, a report out on Monday warns, underlining the vulnerability of the country’s energy supplies to market volatility.

During the cold snap at the start of March — dubbed the “Beast from the East” — domestic demand for power surged as households and businesses turned up their heating. Britain’s interconnector with France, however, exported power to the Continent on two of the coldest days — February 28 and March 1 — new research shows.

Wholesale power prices in the UK rose five times the average for the quarter, peaking at £990 per MWh, but prices on the Continent climbed even higher to meet strong French demand. French consumers use more electricity for heating than their British counterparts.

"While the European interconnector is an important part of Great Britain’s electricity infrastructure, it responds solely to price," said Andy Koss, chief executive of Drax Power. "Therefore, if Europe has a cold snap, the country is at the end of the line, leaving consumers vulnerable to security of supply and higher prices.”

The interconnector with France represents about 50 per cent of the UK’s total interconnector capacity. The remainder is accounted for by links between the UK and the Netherlands, and Northern Ireland and the Republic of Ireland. Prices remained lower in the Netherlands so gas kept flowing to Britain.

The research, compiled by Imperial College London for the Electric Insights report series published by Drax, the energy group, is the latest evidence of Britain’s increasing dependence on imported gas as domestic North Sea reserves decline. National Grid, which owns the UK’s grid infrastructure, warned during the cold snap that demand for gas could outstrip supply.

Gas is critical to UK energy security as the source of 40 per cent of electricity generation and heating in most homes and businesses. Critics have accused the government of increasing market vulnerability by authorising the closure of the UK’s largest gas storage facility in the North Sea. The site, known as Rough, was able to hold a tenth of daily peak gas demand until it was closed last year by Centrica, the owner of British Gas.

Proposals for several more UK interconnectors are at varying stages of planning, including five with France and if all of these were completed, the UK’s interconnection capacity would increase from its current 4GW — about 7 per cent of peak domestic demand — to more than 20GW.

However, uncertainty over the future terms of cross-Channel trade in electricity in light of the Brexit negotiations has raised doubts over some of the proposed investment.