

Uranium supply boosts energy security

Europe's new wave of nuclear reactors will have a reliable fuel source in Spain to meet power demands, **Bill Hedley** writes

The only constant in energy markets is change. The dynamics of supply and demand are modulated by competition between energy types, environmental regulation and policy, geopolitical manoeuvres and volatility, and public perception of risk versus the rewards of security and affordability.

Europe's engagement with nuclear power illustrates these complexities. Euratom, the European Union's co-ordinating and policy group, was established in 1957, when the overriding concerns were energy security and counterbalancing the growing US dominance in nuclear engineering. It envisioned a single EU-controlled nuclear power system across member states, but vastly varied priorities proved more powerful. France is now the world's leading nuclear power nation, at 75pc of its total capacity, while Germany has no nuclear power stations at all.

About a quarter of EU power comes from nuclear, and that is expected to continue; Euratom wants 100 new stations commissioned by 2050 but these will be mostly replacing old plants that are coming offline.

Yet the EU has little indigenous uranium fuel supply – just 3pc of demand, coming from small mines in the Czech Republic and Romania, as well as some recovered as a by-product from other metal extraction. Kazakhstan, by far the biggest supplier, has more than 41pc of the global market. That is more than the next three – Canada (16pc), Australia (9pc) and Niger (7pc) – combined.

Despite the range of national nuclear take-up within the EU, Euratom continues to operate as the overseer and regulator of fuel provisions. Its commitment to security and stability of supply remains one of its primary policies, and it is committed to ensuring a diversity of suppliers and the operation of long-term forward contracts. This even applies to



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those member states – the Czech Republic, Slovakia, Finland, Bulgaria and Hungary – whose nuclear infrastructure is of Soviet design and still reliant on Russian-produced core fuel components, where Euratom has recently contracted Western suppliers to produce alternatives.

Fulfilling that directive through diversity is easier when more supply choices are available, but global oversupply and political heel-dragging has discouraged investment worldwide in developing new sources. Building new mines that can provide sufficient output over a period consistent with decade-long forward contracts needs construction of the mines and also communication, power and human infrastructures.

Yet new and diverse supplies are going to be needed now that the

future demands of the industry are becoming clearer, as exemplified by the UK's commitment in September to a new reactor at Hinkley Point. Non-EU markets such as China's new fleet of 60 reactors will be coming online just as many forward contracts end. Uranium supplies in Western Europe are thus becoming more interesting, as they will be geopolitically secure and have modern infrastructure to hand.

Even so, just because there is a uranium deposit within Europe does not necessarily mean it makes sense to develop it. An experimental project in the Swedish region of Jämtland to recover uranium from shale closed down primarily because of the poor quality of the raw material, while a large proposed open-cast mine in Orkney, off the north coast of

Scotland, never got started owing to substantial local opposition.

But where these factors are different, so is the outcome. New research into far cheaper purification techniques – specifically, sulphur-hungry bacteria bioleaching contaminants – may yet revive the effort in Sweden. And where the numbers are already good, such as at Berkeley Energia's Salamanca project in Spain, commercial advantages work very well with the need for diversity of supply.

The Salamanca mine is situated in a historic uranium mining region and as a result local people are well aware of the socioeconomic benefits of having an operating mine in the region – and are hugely supportive of the project. The Zona 7 deposit, which was discovered in 2015,

Cleaning up Europe's energy market is driven by demands for decarbonisation and less reliance on outside producers

transformed the economics of the project; the uranium is easily accessible, just a few metres beneath the surface, and of outstanding quality. The area also benefits from extensive EU-funded modern infrastructure and is located just a few hours' drive west of Madrid, making it easily accessible. When the Salamanca mine comes online in 2018, it will be economically viable on the world market and also fit very well into the Euratom model for sustainability, competitiveness and diversity.

Most of the attention on improving the diversity and security of the EU energy market is focused on the replacement of hydrocarbons with renewables, both for decarbonisation and for decreasing reliance on outside producers. Paul Atherley, chief executive of Berkeley Energia, says: “No country moving towards a renewable future is doing it without nuclear power in the mix. Even Germany imports nuclear-sourced energy from France when its renewables fall short and exports back when they're in surplus.”

While the EU energy market in general and the nuclear power side in particular have seen huge changes since the European project first took shape, the initial premise of keeping the lights on while ensuring commercial viability has stood the test of time. Energy supply policy is a remarkably complex jigsaw, and a stable, commercial, substantial source of uranium has been a piece that was conspicuously missing. At last, that is changing.

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