A sewage company is claiming to be the first in the UK to use dried poo granules to generate electricity.

Thames Water has installed a £1.5 million sewage sludge dryer at its treatment plant in Slough and estimates that the resulting renewable fuel will be worth £300,000 and reduce its carbon emissions by over 500 tonnes a year.

Rupert Kruger, Thames Water's head of innovation, said: "This is the first time in Britain that a waste dryer has been used to create ready-to-burn fuel from sewage sludge, rather than simply being used as a waste-reducer."

The dryer will process five tonnes of sewage sludge a day, which represents a fifth of the solid remains of the treatment process, heating it to about 180oC and stirring it with heated rotating paddles.

The fuel, which then has a calorific value similar to that of brown coal (8–10 MJ/kg), is transported to Thames Water's Crossness sewage works in Bexley, East London, and fed into a combined heat and power generator to generate renewable electricity.

The CHP plant has so far burnt 160 tonnes of 'sludge cake' a day. This unsavoury name refers to de-watered solids from sewage - the conventional form of post-treatment waste.

However, sludge cake is still 75% water. In order to burn this wet fuel, the generator also has to burn non-renewable gas from the grid.

But the new dried poo granules only contain 5% water, so this will help to reduce the amount of gas required, which is where the carbon savings come in.

The Slough sludge dryer is also eligible for additional government ROC (Rewewable Obligation Certificate) support, providing extra revenue.

A further saving is achieved from a reduction in the number of truck journeys required to transport the sludge to where it was previously spread on agricultural land as fertiliser.

However, the process does mean that the nutrient value of the material is lost, leaving farmers to have to source alternative fertiliser elsewhere.

The dryer at the Slough sewage works, developed by US firm Komline-Sanderson, is 98% thermally efficient, which means all but 2% of the energy used to heat the system is used.

However, the fuel created with this method is not entirely renewable because the drying process consumes 800kWh per tonne of dehydration water, which is typically supplied by fossil fuels.

A cheaper and more eco-friendly solution is practised in a plant that came online in May this year, at a sewage treatment facility in Strass, Styria. This dries the sludge using solar thermal power.

Run by the regional wastewater association of Leibnitzerfeld Süd and using a patented Wendewolf® process, this drying method requires just 30kWh of electricity for each tonne of dehydration water - a reduction of 98%.

At 126.3 metres, the solar dryer at Strass is currently the world’s longest solar sludge drying unit, and treats 1,700 tonnes of sludge a year, turning it into 460 tonnes of granules.

Back at Thames Water, Rupert Kruger insists that their new plant is part of the company's ongoing transition to turn more of its product into revenue-generating renewable fuels.

“For decades we have generated £15 million a year of electricity by burning biomethane from sewage," he said, pointing out also that last year the company was the first in the UK to feed renewable gas, from sewage at a plant in Didcot, Oxfordshire, into the gas supply network.

It has also agreed plans to build Europe's first reactor to produce phosphate-based fertiliser from sewage, also at Slough.

"The new sludge dryer is the next chapter in our quest unlock the full energy potential of waste,” he said.

Crossness is one of two Thames Water sites with sludge-powered generators. A further twenty, including the one at Slough, generate electricity and heat by burning biomethane gas from sewage, to help power the company's works.

The company claims this saves an average of £15 million a year on energy bills.