

Road building completed using ash from Drax power station

Ash from Drax's UK power station has been used in the concrete structure of the £1.5B A14 Cambridge to Huntingdon road-building scheme. The use of power station ash in cement production has reduced energy consumption and prevented fresh aggregate from being mined.

Drax is introducing bioenergy and carbon capture and storage technology to the Yorkshire site and will stop using coal in March 2021 as part of plans to become carbon negative by 2030.

Why does this matter? The above is another example of circular economic principles being adopted so that waste products are put to long-term use. In addition to other projects to surface roads using recycled materials, we've also previously highlighted waste being repurposed for building materials and railway sleepers.

Power Minerals, which markets Drax's fly ash from coal and biomass-fired generation as substitute aggregate for cement production, labels the activity as sustainable as it diverts the waste from landfill and sources the ash domestically. It has also acknowledged the need to valorise biomass by-products in the future.

Based on recent biomass power generation statistics, the [IEA](#) estimates 10 million mt of resulting ash globally per year, some of which could be directed to cement production. Embedding biomass ash in cement could offer a means of simultaneously reducing the material's energy intensity while [capturing](#) emissions in a closed loop. This is supported by a recent [study](#), which demonstrated multiple environmental benefits.

Using [biomass](#) fly ash can also result in improved compressive strength when partially replacing ordinary Portland cement (OPC). Better functional results are achieved when a combination of sustainable biomass and coal fly ash is used, however, creating an environmental trade-off.

Bio-bitumen made from [lignin](#) is also emerging as a sustainable material for road building as a replacement for traditional asphalt. A [collaboration](#) between Peab and Sekab is already using the material in Sweden.

Further thought from Curation – UK-based critics have recently commentated that any emissions reductions generated by the further adoption of electric vehicles will be offset by those created in planned [road-building projects](#). Against this backdrop, surely solutions like the one mentioned in the above article begin to grow in their appeal.

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