SWEDISH
ENVIRONMENTAL
PROTECTION
AGENCY

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Supporting documentation regarding waste incineration

Swedish Experience of Including Waste Incineration in the EU ETS: Key Lessons for the ETS Review

Sweden included all waste incineration and co-incineration installations in the EU ETS in 2013. At the same time, Sweden has long-standing bans on the landfilling of combustible and organic waste. As a result, emission reductions in the waste sector largely need to come from changes in waste streams, increased recycling, or reduced emissions from the incineration process itself.

Waste incineration has also contributed to the phase-out of fossil fuels in district heating

When waste incineration was included in the EU ETS, the Swedish district heating sector had not yet fully phased out fossil fuels. Waste-to-energy facilities formed part of a broader transition away from coal, oil and peat in district heating and combined heat and power generation, while simultaneously providing a treatment solution for residual waste that could no longer be landfilled. The development of the sector should therefore be viewed both in the context of waste management and the decarbonisation of the Swedish heating and power sector.

EU ETS has created incentives for improved waste sorting, changes in waste flows and the deployment of CCS

Sweden's experience is that inclusion in the EU ETS has contributed to increased investments aimed at reducing emissions from waste incineration while maintaining the overall critical societal function as waste disposal. Several facilities now apply differentiated gate fees based on the plastic content of the waste, operators have invested in post-sorting facilities to remove plastics before incineration, and several major installations are planning investments in carbon capture and storage (CCS/CCUS).

Three major waste-to-energy operators are participating in the Swedish Energy Agency’s second reverse auction for bio-CCS

Many of these measures are expected to have their largest impact during the 2030s. This is particularly true for CCS investments, which require the development of both capture facilities and transport and storage infrastructure. In Sweden's second bio-CCS auction, three waste and energy companies, which together emit more than one million tonnes of CO_2 annually, submitted bids for support. The auction is conducted as a reverse auction, where participants compete by specifying the level of support they require per tonne of captured and permanently stored biogenic CO_2.

A growing share of fossil plastics has limited emission reductions

While emissions from the sector have not fallen as quickly as investment activity has increased, this development needs to be seen in the context of changing waste streams. One important reason is that the share of fossil plastics in the waste stream has increased over time. This is partly a consequence of organic waste fractions increasingly being diverted to biological treatment and biogas production, while the use of virgin fossil plastics has continued to grow. As a result, plastics account for an ever-larger share of the residual waste that remains for energy recovery.

Complementary policies are needed

The Swedish experience therefore suggests that the EU ETS can create important investment incentives in the waste sector while limiting the increased costs for housholds. At the same time, it demonstrates the need for complementary policies higher up the value chain to reduce the input of fossil plastics, increase material recycling and achieve more substantial emission reductions over time.