Carbon Balances and Energy Impacts of the Management of UK Wastes

Defra R&D Project WRT 237

Final Report

Extract from section Section 5.3.4

Scenarios for the management of waste plastics present an altogether different picture to those for organic materials. *Figure 5.28* and *Figure 5.29* show the profile of average net greenhouse gas emissions over time for dense and film plastic wastes. These highlight the greenhouse gas implications of burning plastics and releasing fossil carbon into the atmosphere. This release of carbon is greater than the carbon savings achieved through energy recovery, and an overall impact associated with thermal treatment is seen.

Note that emissions and net energy demand cease in 2031, as it was assumed that these materials do not degrade on disposal in/on land and there is no associated impact (or benefit) of residual materials in landfill.

Note also that the story with respect to energy demand is somewhat different, as the benefits of recovering energy are seen, but with no associated burden. *Figure 5.30* shows net energy demand estimates for alternative scenarios for dense plastic waste management. It is useful to note this wide disparity between the results for greenhouse gas emission and energy demand, as it highlights the risks of making conclusions with regard to environmental impact on the basis of one indicator only. It is further useful in reminding us that this assessment is of climate change and energy impacts only, it does not assess other categories of environmental impact, such as toxicity, or eutrophication – and, as such, does not attempt to present the complete story.

The full document can be found on the Defra Website.