

# Energy from waste certainties



The UK is poised for a 'resource' revolution, but what form of technology will drive it forward? **Peter Jones** argues the case for the emerging gasification industry

**M**any waste industry commentators cite global population growth for fuelling the engine of consumption and transforming the UK waste market in the future.

However, the real driver for change is the estimated 300 million annual growth in the global middle class, adding the equivalent of six UKs in terms of demand for energy, meat, packaging and goods every year.

This development will lead to a "resource" revolution. The question is – what form will it take? To date, the emphasis in landfill diversion has been around recycling and composting.

However, these £5B markets both pale into insignificance compared to the £110B energy from waste market for gas, electricity and transport fuels.

Against this changing dynamic, local government decision makers fall into three broad groups when it comes to dealing with waste issues. First, there is the mass burn to electricity

**“To be profitable, facilities must maximise the conversion of waste gigajoules per tonne into saleable outputs”**

group (early mover). Second, the mixed solutions group (late mover) and thirdly an uncommitted group that is looking to attract private sector investment from companies interested in tapping into household waste arisings.

This final group has more flexibility than it realises. The rising value of both recyclate and "peak oil" are encouraging end processors such as paper and board manufacturers and retailers into direct participation in waste collections. However, it is the size and supply issues for energy markets, especially electricity, which is seen by private sector investors in waste reprocessing as the least risky route.

So what are the implications for local authorities, particularly for those in the final wave of commitment that have yet to sign up to a waste exit strategy? As with recycling materials, the UK is exporting most of its embedded energy

abroad. Germany's decision to move away from nuclear energy has created a market "supply gap" for underutilised energy from waste mass burn plants both domestically and in the neighbouring Low Countries.

Planners in the UK have found it easier to give consent to materials recovery facilities than to the more controversial energy from waste plants. As a result, around 800,000 tonnes now exit these shores as refuse derived fuel.

Investors accept that continued dithering on the nuclear option coupled with uncertainties on the yield from wind at sensible cost creates an opportunity for waste to fill a gap in the renewable energy resources market. The question is what technology will drive this development?

## Innovations

The United States is at the forefront of energy from waste innovations. At one end of the spectrum are the huge 500,000 tonne facilities generating electricity and combined heat and power. Then, there are the similar-sized facilities using starved air gasification, which offer routes to hydrogen as a fuel industrial gas. Finally, at the other end of the spectrum are the 60,000 tonne combined heat and power units, which are co-located next to existing facilities using fossil fuels or gas pipeline grids.

To be profitable, these facilities must meet three simple requirements. First, they must maximise the conversion of waste gigajoules per tonne into saleable outputs. Second, they need to get a higher price for those saleable gigajoules than their competitors. Third, they need to do so in processes with low-carbon "footprints", which also reduces future exposure to the threat of carbon taxation.

In meeting all of these requirements, energy from waste converters are best placed to compete for feedstock from local authorities and private sector producers.

The emerging gasification industry ticks most boxes compared to other energy from waste converters and is currently where anaerobic digestion was in the late 1990s when it was seen as a mere curiosity rather than a credible alternative. However, times are changing so...watch this space. ■

*Peter Jones is an independent consultant and chairman of Waste2Tricity*