

Anaerobic Digestion is Now Economically Viable in Europe and Can Provide Much Needed Security of Energy Supply

By Steve Last

Summary:

Anaerobic Digestion is both a waste treatment technology and a highly sustainable energy technology. Recent rises in energy costs, coupled with EU member state incentives, and waste management policy, now mean that economic viability has been attained.

This article explains how this technology can also provide a politically secure energy supply, and argues that there should be more fiscal assistance to promote Anaerobic Digestion.

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Garden and food waste constitutes approximately 37 percent of the UK's municipal waste. Similar proportions are seen throughout the developed world, and may even be higher in some nations.

There is potential for this putrescible fraction, together with other wastes, such as domestic sewage and a wide range of agricultural and farm wastes, to be treated by Anaerobic Digestion (AD) plants using what is in effect wasted energy, to generate useable energy in a variety of forms, and to produce hygienically safe end products from the digestate (solid and liquid) process products. These products in turn will reduce demand for chemical industry/non-renewable resource derived fertiliser, and improve soil structure.

So this large energy source is available, and the AD process itself provides win, and win again, benefits not only for the sustainable energy, but also from bio-safety (pasteurization) benefits, to the ability to produce useful products from the residues from the process.

At a recent Methane to Markets Workshop (November 2006) in the UK, organised by the UK government Department DEFRA,

statements were made by a number of speakers in regard to the economic viability of Anaerobic Digestion. The presentations were positive for AD profits in Europe in the context of current energy prices.

Differing prices were quoted for the break-even electricity price per kilowatt hour fed into the local grid by AD Plants. Nevertheless, a consensus appears to exist that at unit payments at 16 to 20 US Cents per kilowatt hour (or 8 to 10 UK pence) Anaerobic Digestion should be economically viable, even without achieving significant income from the end products of the process.

This means that in most of Europe, where renewable source generated "green energy" supplies are currently paid for by the electricity supply utility companies at 10% to 20% above these prices, there is profit to be made now. Also, profitability is likely to get better in the future as governments introduce more financial benefits to encourage renewable energy production. Premium prices also will be available for biofuels for vehicle transport which can be produced from AD methane.

By producing methane in a large number of these plants and burning the methane, or further processing it into fuels to run vehicles and moveable plant, extensive use of AD would provide a large contribution to reducing fossil fuel use, and averting the future impacts of climate change.

Anaerobic Digestion Plants are depending on the fuels/feedstocks used, at worst carbon neutral and almost always substantially carbon negative. That means that by installing AD systems nations can begin to put right the negative effects of greenhouse gas emissions to our atmosphere.

Unlike wind turbine energy AD energy it is not weather dependent. The methane produced can even be stored in gasometers, and can be pumped, after some further purification, into gas distribution systems.

Sweden is the nation which intends to lead the world in renewable fuels. They like some other EU states have a number of large scale

Anaerobic Digestion Plants in operation already, and Sweden has a target to cease the importation of fossil derived fuels entirely within 10 years. Anaerobic Digestion features prominently in their plans to do this. The Swedish government clearly recognises the benefits of encouraging this level of sustainability both nationally and globally.

It should also not be forgotten that to any nation, security of energy supply is also extremely important. If Sweden achieves its aim and in 10 years is no longer reliant on fossil fuels, as a nation without its own fossil fuel resources, this will greatly assist their economy. However, it also gains hugely in the security of its energy supply, and as oil, gas and fossil fuels generally become scarcer the need for action to avoid power cuts due to remote energy supply shortages is bound to come more to the fore.

Germany has a successful Anaerobic Digestion industry with the most proven technology at the large scale, and like Sweden and some other Nordic Countries, also uses energy crops to augment the waste materials used as the feedstock. The Austrians and the Swiss need also to be mentioned here as they are comparable with German AD technology skills and investment in most aspects. The Danish are also AD implementers.

The United Kingdom has not invested significantly in AD in any area until recently; however, a few projects are now in operation with others to follow.

The United Kingdom has in the past possessed its own gas and oil resources, however, supplies from these are rapidly diminishing, and as of 2005 it became a net importer of natural gas. This was for the first time since North Sea gas was developed 20 to 30 years ago. The UK will now become heavily reliant on energy imports. Natural gas supplies will come in the main via just two sources; Russia and North Africa. The UK in common with other EU states, needs to plan carefully about its energy security.

Unfortunately, Anaerobic Digestion is not yet economically viable in the US by the yardstick we have quoted. US energy prices remain much lower than in Europe due to low energy taxation and available

national resources which provide for a depressed energy price when compared with international markets.

The US, with its cheap energy is not unique. Other nations have their own supplies of fossil fuels and similarly their electricity prices are lower than in Europe. Energy prices in these nations will not yet support the cost of Anaerobic Digestion and examples are Argentina, and South Africa.

Nevertheless, it is justifiable to say that in many EU states in general, Anaerobic Digestion is now economically viable and it is a win win technology. It can provide sustainability in energy, reduce greenhouse gas emissions when fuelled by wastes, provide benefits to agriculture, and provide politically secure energy supplies.

All governments, except perhaps for the Swedes and the Germans where support is already high, should be giving far more financial and market support than they are at present to Anaerobic Digestion plant development and operation.

Visit www.anaerobic-digestion.com for further information.

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