In August the NTA 8080 certification system was officially recognised by the European Commission. This approval brings us one step closer to sustainability certification becoming mandatory for the biomass and pellet sector

Nearing the inevitable?

For the last two centuries the manufacturing industry has looked to mineral deposits and fossil fuels for most of its raw materials and energy supplies. This is changing, for many reasons both environmental and economic. More biomass used in power generation and heating is being used to produce liquid and gas fuels for transport and industrial use and in the chemical industry. This increased usage has raised concerns about sustainability. It is in no-one's long-term interest to reduce GHG emissions from, for example, coal-fired power generation if the result is devastation of forests and increased emissions arising from land clearance and drainage schemes.

Concerns are all very well but unless translated into regulations they tend to be ignored. In the EU the Renewable Energy Directive (RED) exists to provide targets for the use of renewable fuels, and to define what is meant by 'renewable'. The current EU target is to derive a 20% share of energy from renewable sources by 2020, and a 10% share of renewable energy in the transport sector. To qualify as 'renewable' a fuel producer must be able to show a reduction in greenhouse gases of at least 35% in comparison to fossil fuel used to produce a comparable amount of energy. This threshold is expected to rise to 50% by 2017, and to 60% by 2018.

If the biomass used is not considered sustainable it cannot contribute to the EU targets.

Having set the targets the EU leaves it to member countries' governments to write the laws, and to the industry to set up schemes to ensure their fuels are compliant. Many countries in the EU, and elsewhere, have their own schemes. Some

utility companies have their schemes for their suppliers. Currently in use are:

Nordic Ecolabel is one of the oldest schemes still in use. Started in 1989 by the Nordic Council of Ministers to certify a wide range of products, including solid biomass and biofuels.
Green Gold Label (GGL) created by Essent (now RWE),

a large Dutch energy company and Skall International (now Control Union Certifications) in 2002 for its biomass suppliers. This certification system has grown to include eight separate standards and is currently being used in at least nine countries by 25 different suppliers.

Laborelec Certification System, similar to GGL,

was designed by Laborelec and SGS in 2005 for Belgian energy company Electrabel. This certification system is designed to be equivalent to GGL for use in Belgium.

Drax Sustainability Policy: UK-based Drax Power is the most recent utility company to define sustainability principles to which all suppliers must adhere.

Currently, Drax requires minimum compliance with UK sustainability requirements.

The problem with industry and national schemes is that they complicate trans-national and business-to-business trade. A similar problem pertains in the liquid biofuel industry. In 2011 the EU approved seven voluntary certification schemes will carry an audit of a fuel producer's supply chain and processes and issue a certificate if the fuel is judged sustainable by the EU RED criteria.

Some of these schemes are restricted to a single product, such as soya or sugar, and work with food and chemical companies as well as fuel producers. Others will audit a wide range of feedstocks and processes, but focus on liquid fuels. Only one, the International Sustainability and Carbon Certification scheme (ISCC) developed in Germany, covers both liquid and solid biomass. Now there are two, in August this year the EU approved the NTA 8080 certification developed by the Dutch standards organisation NEN which is intended to cover all biomass and any solid, liquid or gas fuels made from it.

NTA 8080

Founded nearly 100 years ago NEN is an important standards organisation with a reach far beyond the Netherlands. Its 350 employees organise 1,400 standards committees. In 2007 a group of 20 Dutch

companies, educational institutions and trade groups began to develop criteria for the 'Sustainable production of biomass'? The intention was to develop a standard that would be the basis for a certification system that could be used to demonstrate RED compliance. Some of the companies have overseas interests and it was always intended that the work would have relevance outside the Netherlands.

NEN is involved in both European (CEN) and international (ISO) standardisation on sustainability and is taking part in their efforts to develop sustainability standards for biomass. According to NEN's standardisation consultant Harmen Willemse, NTA 8080 is more comprehensive than the expected ISO and CEN standards. By complying with NTA 8080, a company will comply with the international standards as well. When the standards are published, NEN will absorb them in the NTA 8080 certification system. In fact, as Willemse points out: 'For CEN standards, we — as a national standardisation body — have an obligation to harmonise national standards with the European ones. This means that there will be no conflicting requirements in national standards.'

There are already nearly 20 NTA 8080 certified Dutch companies in solid, liquid and gaseous biomass supply chains. NEN expects that EU recognition will give a boost to this number. Already there are other companies in Indonesia and Ukraine embarking on the certification process.

ISCC

ISCC was developed and is now run by Meo Carbon Solutions with backing from the German Federal Ministry for Nutrition, Agriculture and Consumer Protection. Like NTA 8080 it was intended to be used across a wide range of fuels and feedstocks, and to be used internationally. It has, to date, issued 1,750 certificates.

ISCC is truly international, with 750 companies and groups registered from all over the world. ISCC works with 17 certification bodies and can draw on more than 360 trained auditors.

Many regional trade bodies such as the European Pellet Council (EPC) are members of ISCC. Such membership undoubtedly helps smaller companies raise their game and aspire to RED certification, but it is not granted automatically, each

has to be independently audited. Most members are either large companies or trade associations; smaller companies can register to have their supply chain and processes audited and certified without becoming full members.

Both NEN and ISCC approve various certification bodies such as Intertek and Control Union to carry out the inspections and certifications.

Do we need certification?

No one likes having to deal with extra bureaucracy so is certification of biomass really necessary? In the liquid biofuels market the certifications schemes have generally been accepted without much complaint, and the fact that some fuels struggle to meet the current 35% GHG reduction target shows that some form of certification is necessary if only to protect companies with truly green credentials from unfair competition from others trying to 'greenwash' an unsustainable product. Solid biomass fuels are in a different league.

The PELLETS@LAS (Pellets Atlas) scheme, funded by the Intelligent Energy Europe programme, provides market information based on data collection all over Europe. Pellets Atlas figures for energy efficiency of wood pellets burned within 50Km of the feedstock source show that energy equivalent to 1% of the energy content of the wood is used to transport the wood to the factory, 2.1% used in processing the wood into pellets, and 0.4% in distribution. Even if pellets are shipped from Canada to Europe, that only adds another 2.5%.

This may be a bit optimistic and varies with the type of pellets. Chris Williams, CEO of biomass consultants GEP says that a large pellet mill making 100,000 tonnes/year of straw pellets consumes

around 2-2.5MWh, with an average annual uptime of 8,000 hours. That works out to between 0.16 and 0.2MWh/t. Straw pellets only have an energy density of around 4-4.5 Mwh/t, so processing could be equal to about 15% of the energy produced by the pellets.

Nevertheless, that still leaves 85% energy replacement — a lot better than the EU target of 35%. So do we need to check every little detail of each pellet's manufacture?

At present a utility burning a mix of biomass and fossil fuel and claiming whatever green subsidy or premium applies in its country is under no obligation to prove the sustainability of the biomass used. That said, public perception of the industry is important. As Pöyry's Silvio Mergner points out, lobby groups such as 'Stop Burning Our Trees' in the UK and similar groups throughout Europe are campaigning against biomass energy production, so it is important to establish that the industry is responsible and sustainable.

Arnold J R Dale, VP of bioenergy at Ekman & Co in Sweden, agrees. Ekman has been in the timber business since the 17th century, in pulp and paper since 1890 and involved in import, export and logistics throughout. One of its many areas of interest is wood pellets produced by JSC Vyborgskaya Cellulose. Built in 2010 in Sovietsky in the Leningrad region of Russia and equipped by Andritz, it is the largest pellet plant in Europe. Ekman has an exclusive sales agency agreement for the plant's output. When asked his opinion on sustainability certification, his response was:

'Sustainability certification is an absolute must. But it must be sensible and there is no need for the bioenergy industry to reinvent the wheel. Forest certification systems already

In February 2011 Vagroen, collector and processor of woody residues was the first NTA 8080 certified company for solid biomass. Left to right: Cor van Ommeren (Quality Services), Ton Schroor (alderman municipalityGroningen), Arend de Wagenaar (Vagroen), Harmen Willemse (NEN)

One week later (Feb 2011) Colza farmer Van Gorsel was the first producer in a liquid biomass chain to receive the new NTA 8080 certificate. Left to right: Eric Evers (Dekra), Jan Wesseldijk (NEN), Wim van Gorsel (Arable farm Van Gorsel)

exist in most countries and this should suffice.'

Keeping things simple

Edita Vagonyte, European affairs manager of the European Biomass Association (AEBIOM) also supports certification, pointing to the public disquiet about liquid biofuels, especially issues of land use change and the 'food versus fuel' debate. The biomass industry needs to avoid that kind of issue if possible, and having well-accepted sustainability criteria in place can only help.

Could we have simpler certification then? AEBIOM has operated a quality standard for wood pellets, ENplus, since 2010. ENplus has some limited sustainability criteria and the association did consider extending these and converting it into a quality and sustainability standard. At present producers have to report the amount of forestry certified product they are using and since January this year they have to state the amount of CO_2 they are releasing as a consequence of producing the pellets.

AEBIOM has had long discussions with all sides of the biomass industry from producers to groups such as the Initiative Wood Pellets Buyers (IWPB) to try to reach agreement on extra sustainability requirements that could be put into ENplus.

AEBIOM's proposals acknowledge that not all biomass is created equal. If a plant is using waste sawdust for example to make pellets, it should not have to prove sustainability, but it should be able to prove the wood is from a legal source and the 'waste' has not been created deliberately.

Going a step further, a plant using whole trees should have to prove that they come from forestry certified sources. A plant using plantation woods such as coppice would have to go even further accounting for soil, air and water quality. Here Rechberger thinks ENplus could not be used — they would have to rely on NTA 8080 or something similar.

Discussions were, as Rechberger put it, 'hard' and AEBIOM realised that NTA 8080, GGL and other schemes go beyond what they could achieve. Now they are working on a new update of ENplus which will be presented in October.

This June AEBIOM announced ENagro, a new pellet standard for agricultural and mixed biomass pellets. No launch date has been set yet, the handbook is still being agreed but Rechberger expects it will be easy to implement because it will use the same structure, inspection and verification bodies as the ENplus standard. Like ENplus it will be a technical standard concerned with pellet quality with some sustainability criteria added.

Tempting though it is to go for the simpler option of something like AEBIOM's standards, they may not be rigorous enough to keep in check some rogue producers from outside the EU importing pellets created without due regard for sustainability.

Too many schemes?

Referring to the number of schemes already available, Ekman's Dale says:

'In the absence of single system which is acceptable to all end users, we are forced to use whichever system the end users impose upon us. The Vyborgskaya wood pellet plant has been audited many times by many different companies.'

That surely makes no sense and only serves to drive up costs. How about a single scheme for everyone?

International standards

NTA 8080 is a Dutch standard adopted by the EU. ISCC was created in Germany, and adopted by the EU, all the other schemes are either national or created by companies and consortia for their own convenience. What about the official international standards bodies? CEN publishes standards created by the EU and ISO for the whole world. Both are trying to create sustainability standards for biomass fuels.

The EU approach is to encourage industries to create their own voluntary schemes (at their own expense naturally) then to examine each in practice to see what works well and what does not, then incorporate best practice into a CEN standard. ISO has a bigger problem. In trying to cover all types of biomass right around the world, its standard looks like becoming too general to be much use. As AEBIOM's Rechberger put it, discussing broad principles is easy but implementation of the principles is tricky. He is rather wary of both CEN and ISO but admits that it depends what the final checklists for auditors look like and who is involved in administering the schemes.

Compulsion in future?

NEN's Willemse explains the fine line between voluntary standards and compulsion:

'Standards are always voluntary. It is up to the legislator to define what is considered sustainable. Standards and certificates can be a helpful tool to demonstrate compliance with legislation.'

Regulators always tend towards compulsion, often by degrees. First supporting industry self-regulation, then adopting preferred schemes, then insisting on their use, then taking them over and implementing a set of rules for all. Dale for one is keen that certification becomes mandatory:

'This will only happen if the countries which do not have much forestry, such as the UK, Belgium and the Netherlands, stop trying to dictate forestry terms to the countries that have excellent legislation already in place, like Sweden, Finland and the Baltic states for example.

'Russia also has a long standing history of good forestry management. Though if you read the western media you would believe that all logging in Russia is illegal.'

Willemse is more circumspect; NEN aims to grow the number of certificates issued worldwide and to connect to CEN and ISO standards for sustainable biomass as they emerge. ●