






-  **BIOGAS**
-  **LIQUID BIOFUELS**
-  **WOOD ENERGY**

**Certifying
liquid, gaseous
and solid
biofuels**

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Biofuels

- Solid biofuels
 - Wood chip and hog fuel
 - Densified biomass fuel – wood pellets or briquettes
- Gaseous biofuels
 - Biogas and biofertiliser
 - Biomethane
 - Renewable LPG
 - Bio-syngas from gasification
- Liquid biofuels
 - Biodiesel
 - Renewable diesel
 - Bioethanol
 - Biocrude, pyrolysis oils and biochar



Solid biofuels

- Wood chip and hog fuel
 - Not homogenous
 - Sourced from plantation forestry, wood processing, agriculture
 - Sold to meet contract specifications
 - Standards for classification
 - Accredited suppliers
 - Declaration that sustainably sourced
 - External audited quality assurance
- Densified biomass fuel
 - Homogenous
 - Produced to quality standard
 - Producers accredited or certified to ensure quality



Solid biofuels certification

- Currently fuel suppliers (accredited aggregators) have QA of process – external product testing
- Accredited supplier's declaration of sustainability
- Individual sale contracts specify fuel specification
- GHG value is from avoiding high cost fossil fuels
- Some fuel suppliers have external certification of fuel quality, most self certify



Gaseous biofuels

- Biogas and biofertilizer
 - Produced by anaerobic digestion of organic matter
 - Biogas not often traded but on-site or specific use
 - Product characteristics depend on feedstocks
 - Biofertiliser certified to be used on land
 - Biogas certification linked with biofertilizer certification
 - Biofertiliser certification based on feedstocks is under development
- Biomethane
 - Cleaned and upgraded from biogas
 - Meets the traded natural gas specification
 - Traded or injected into natural gas pipelines
 - Certification will link back to biogas/biofertiliser certification
- Renewable LPG
 - Must meet the LPG specifications (drop-in)
- Bio-syngas from gasification
 - Generally not traded but a feedstock for other products



Gaseous biofuels certification

- Biogas not currently traded. Most for self use.
- Biofertiliser traded so external certification has value. Criteria for production certification under development.
 - Technical Guide 8
- Biomethane produced to UK Biogas Quality Protocol
- Biomethane, rLPG not yet produced or traded
- GHG value is from avoiding fossil fuels by circular economy



Liquid biofuels

- Retailed liquid biofuels
 - biodiesel, renewable diesel, bioethanol
 - Must meet the Engine Fuel Specifications Regulations 2011
 - Regulations require labelling of blended biofuels with a refined petroleum distillate
 - Renewable diesel is a liquid hydrocarbon fuel with the same characteristics as mineral diesel. (drop-in)
- Biocrude, pyrolysis oils and biochar
 - Biocrude and pyrolysis oils a feedstock for another product
 - Biochar use on land must meet Biosolids Guidelines
 - Certification of biochar linked to organic feedstocks or energy components similarly linked.

Liquid biofuels certification

- Biodiesel and bioethanol
 - Not drop-in
 - % biofuel is regulated
 - Currently retailers self certify GHG attributes based on external testing.
- Drop-in fuels
 - Meet the same spec so no current requirement to notify buyers
 - Government is expected to require % biofuel shown
- Biofuels not traded retail
 - Covered by contract conditions
 - Covered by Fair Trading Act



Blending biofuel feedstocks

- Most biofuel production facilities designed for specific renewable feedstocks
- Some biocrude technologies can use biomass or residual waste plastics as feedstocks
 - Renewable diesel, renewable LPG, pyrolysis oil
 - Residual waste plastics are “renewable” - recycling
 - Producer will establish QA of feedstock received.
- Certification
 - Will enhance market growth
 - Required for some applications
 - Can often be linked to existing declaration /certification requirements