The New UK Legislation
Moving Ahead with Biofuels, Non-Bio Renewables and Aviation

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UK Policy challenge: Reducing emissions from transport

UK is committed to the Climate Change Act 2008 to reduce GHG emissions* by 80% by 2050

*Compared to GHG emissions in 1990

UK GHG emissions trajectory to 2050

Challenge is
Reducing GHG emissions
(Reducing energy demand)

Emissions from UK transport

Cars 58%
Vans 15%
Heavy goods vehicles 16%
Other 3%
Domestic shipping 2%
Buses 3%
Domestic aviation 2%
Rail 2%
**Road to Zero: Published in July**

**Road to Zero** Strategy sets out Government’s comprehensive plans to support the move to zero emission vehicles.

They will help make the UK the best place in the world to build and own electric vehicles.

Despite an increase in electric cars uptake, the demand for **liquid transport fuels** will continue for decades.

There is a need to focus on reducing GHG emissions from modes of transport that are more difficult to electrify.

Background: The RTFO

- **Renewable Transport Fuel Obligation (RTFO)** has been operating since 2008
  - Is one of the Government's main policies for reducing GHG emissions from fuel supplied for use in transport
  - Fuel suppliers to UK must provide a **volume** of sustainable renewable fuel, based on their overall volume of fuel they supply to road transport
  - This is met by tradable Renewable Transport Fuel Certificates (**RTFCs**) that are awarded per litre/kg of renewable fuel.

Suppliers can get RTFCs by:

- buying renewable transport fuel and getting RTFCs
- or buying RTFC certificates
- or paying the ‘buy-out’ price

30p per certificate
Background: Reducing the use of food crops

The RTFO Unit publishes a list of accepted and qualifying feedstocks for RTFCs, and defines:

- Fuels made from products
  - E.g. crops, industrial products

- Fuels made from qualifying wastes and residues
  - E.g. food waste, used cooking oil, agricultural residues

- Fuels made from energy crops
  - E.g. willow, Miscanthus, switchgrass
Recent amendments to the RTFO

To meet UK greenhouse gas saving targets

And to align with European Commission’s Indirect land Use Change (ILUC) Directive and Fuel Quality Directive (FQD)

RTFO was amended following Government decision - took effect 15 April 2018

- Renewable fuel volume targets set out to 2032 and beyond
- A target for a specific sub-set of advanced 'development fuels'
- Updated GHG savings thresholds for renewable fuels
- Definitions of wastes, residues and dedicated energy crops
- Requirements for Member States to report on ILUC values for crops
- A crop cap for Year 11 of the RTFO

RTFO Obligation and development fuels sub target

Increasing RTFO targets for main obligation.

**Development fuel sub-target** (blue bars)
- 2019 – 0.1%
- 2032 – 2.8%

Crop cap (red line)
- 2020 - 4%
- 2032 - 2%
UK waste biofuel demand set to increase two-fold

Crop-based bioethanol to reduce in late 2020’s

Waste-based biofuels set to double in volume
Why development fuels?

Development fuels are fuels that meet the UK's long term strategic objectives. They will focus on sectors difficult to electrify (e.g. aviation, freight) and will stimulate investment in the technologies needed to produce them.
What are development fuels?

- Aviation fuel (avtur or avgas)
- Hydrogen
- Renewable-synthetic natural gas (SNG)
- "Drop in fuel" that can be blended at rates of at least 25% and still meet the relevant fuel standard
  - *i.e. EN228 for petrol, EN590 for diesel*
- Renewable Transport Fuels of Non-biological origin

- 60% GHG Savings
- Sustainable wastes or residues (all are double counted)
- *Not:*
  - Segregated oils and fats (e.g. used cooking oil, tallow)
  - Crops, including energy crops
  - Hydrogen/methane via anaerobic digestion
Development fuels: Why isn’t used cooking oil allowed?

“Segregated” oils and fats

- Development fuels are intended to **widen** the available mix of feedstocks

- Therefore they cannot utilise feedstocks already used to produce Fatty acid methyl-ester (FAME) or hydrogenated vegetable oil (HVO) in conventional biodiesel refineries

- UCO and Tallow can still be used to fulfil main obligation and will still get 2x RFTCs

- New feedstocks could include
  - Other waste oleochemical feedstocks? Algae?
  - Pyrolysis oil from pyrolysis of woody wastes or straw.
The RTFO Unit will assess new applications for development fuels—determine if feedstocks are **genuine wastes**

We may publish an updated list of feedstocks and identify which oily feedstocks are considered to be “segregated oils and fats”

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**Table 3 - Wastes & processing residues**

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
<th>Valid from</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown grease</td>
<td>Brown grease is the grease that is removed from wastewater sent down a restaurant’s sink drain. This is a waste. Material removed from sewers known as “FOG” (fats, oils and grease) should now be reported as “Sewage system FOG” Brown grease may use the waste vegetable or animal oil default GHG value.</td>
<td>15/12/11</td>
</tr>
<tr>
<td>Cashew nut shell liquid</td>
<td>Cashew nut shell liquid (CNSL) is a process residue. The material is squeezed from the shells of cashew nuts after the edible portion has been removed. There are other potential uses which may be affected by large scale use of CNSL for biofuel, therefore the Administrator will be keeping this decision under review.</td>
<td>15/09/14</td>
</tr>
<tr>
<td>Crude glycerine</td>
<td>Crude glycerine is specifically named as a residue from processing in the RED. (The RED treats refined glycerine from as a product - see above).</td>
<td>15/12/11</td>
</tr>
<tr>
<td>Empty palm fruit bunches</td>
<td>Empty fruit bunches from palm are a process residue. The palm fruits are separated from the bunches at the palm oil mill, and the bunches can then receive further treatment to extract low grade oil residues. There is no default carbon intensity for this feedstock, and so actual data need to be reported.</td>
<td>15/09/17</td>
</tr>
</tbody>
</table>
| Food waste (unsuitable for animal feed) | Whether from manufacturers, retailers or consumers, this will be a waste. This may include food that is: 
  i) Out of date (food that has exceeded its shelf life) 
  ii) Out of specification (food that fails to meet the required end of use specification) 
As with all wastes, this material must be unsuitable for other non- | 15/12/11   |

For example- As published by RTFO Unit

Development fuels: RFNBOs

Renewable Transport Fuels of Non-Biological Origin

- Made with renewable energy of non-bio origin
- Feedstock inputs of either carbon dioxide (CO$_2$) or water (and possibly N)
- Carbon dioxide can be captured or from waste sources
- Simplest RFNBO is hydrogen from electrolysis of water
- Must meet the GHG savings criteria- producers must prove their process energy is low carbon/renewable and does not displace grid electricity.
## Development fuels: Summary

<table>
<thead>
<tr>
<th>Fuel level</th>
<th>A development fuel must be either:</th>
<th>or:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Renewable hydrogen, BioSNG, or aviation fuel</td>
<td>A petrol or diesel substitute that can be blended at 25% or more, and still meet the relevant fuel standard</td>
</tr>
</tbody>
</table>

| Feedstock level | and: Made from a double counting waste material that is not a segregated oil or fat | or: A Renewable Fuel of Non-Biological Origin |
Summary

- The UK is committed to long term targets for reducing GHG emissions from transport
- New targets for development fuels mean there will be a two-fold increase in the use of genuine wastes for biofuels
- There is a focus on aviation fuels and hydrogen to meet the UK’s long term strategic objectives
Thank you for listening

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