



Department  
for Transport

# UK Approach to RFNBOs

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# Policy overview

# RTFO development fuel obligation

- Introduced from 2019 as a separate obligation within the RTFO
- Intended to cover strategically important fuels of the future:
  - Avoid the need for compatibility concerns – as seen with E10 / B7 blend-wall
  - Help decarbonise hard to decarbonise sectors e.g. maritime and aviation
  - Use different feedstocks to that generally used to meet standard obligation – no segregated oils/fats
  - Avoid Indirect Land Use Change risk
  - Help develop strategically important technology in both fuels and supply chain



Eligibility – fuels must be:  
 produced from a “double counting waste” – that isn’t a segregated oil/fat  
 or,  
 produced from renewable energy (RFNBO)  
 and,  
 one of the fuel types listed below

| Development fuel types                            |  |
|---|--|
| <b>Aviation fuel</b>                              | <b>Hydrogen</b>  |
| <b>Drop in (petrol/diesel) blendable @&gt;25%</b> | <b>Bio substitute natural gas (via gasification/pyrolysis)</b> |



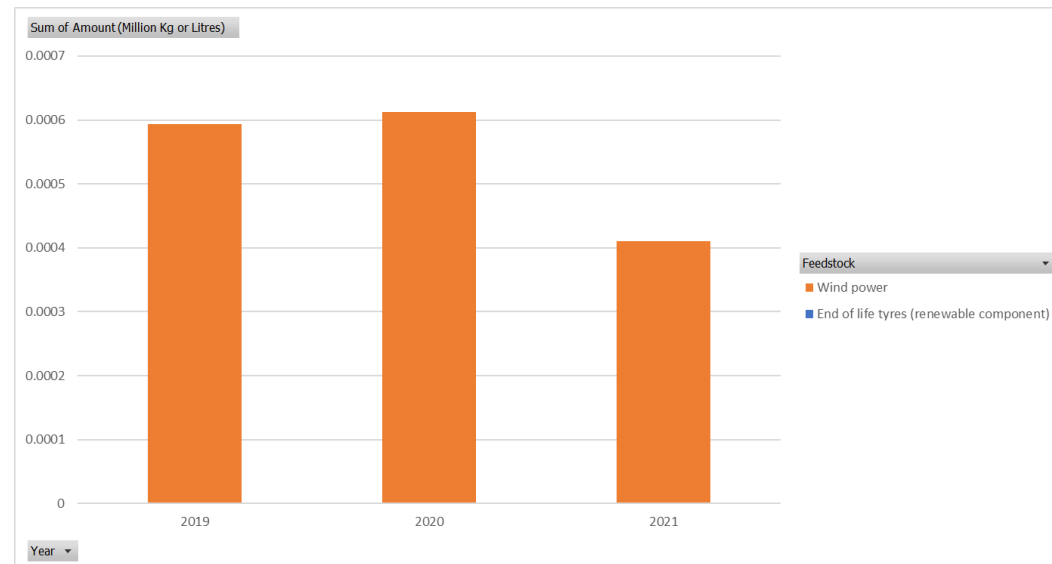
# Our position on RFNBOs in Transport

- **Technology neutral.**
- Likely to play a significant role in transport applications, particularly where **energy density requirements or refuelling times** make it the most suitable choice.
- Energy used in producing RFNBO shouldn't be diverted from existing uses
- PtL RFNBOs likely to have more significance in aviation



# Renewable Transport Fuels Obligation – Hydrogen

- The RTFO **supports renewable hydrogen** - derived from both **renewable electricity** and biomass such as biomethane through steam methane reformation (SMR)
- For **electrolysis**, RTFO support is targeted to **ensure renewable energy is not diverted from existing uses**, thereby delivering true and sustainable reductions in greenhouse gas emissions.
- **Almost all RTFO hydrogen has been RFNBO**



# Key low carbon fuel policies

- The UK is a global leader in low carbon fuels policy:
- The **Renewable Transport Fuel Obligation (RTFO)**, has been in place since 2008
  - It was the first **scheme to support hydrogen and RFNBOs supply in the UK**
- We are developing a package of measures to **support the uptake and production of sustainable aviation fuels (SAF)** in the UK, including a **SAF mandate**
- The **SAF mandate** (10% by 2030) will have a **specific RFNBO target**

**5.4%** of total UK road and non-road mobile machinery fuels were renewable fuels in 2021 (est.)



# Renewable Transport Fuels Obligation – Hydrogen – new developments

- In January 2022 the RTFO expanded Renewable Fuels of Non-Biological Origin (RFNBOs) support to include fuel cell rail, non-road transport and maritime vessels.
- In July we published a government response to our treatment of RFNBOs which includes hydrogen. We **increased flexibility for RFNBO production to reward grid renewable energy**, not just direct connection of renewable energy supply
- Sustainability is ensured by **requiring additionality** (proved by Power Purchase Agreements and temporal correlation) and pairing proof of renewability to be retired in conjunction



[https://www.greencarreports.com/news/1114608\\_california-to-fall-short-of-100-hydrogen-fueling-stations-by-2020](https://www.greencarreports.com/news/1114608_california-to-fall-short-of-100-hydrogen-fueling-stations-by-2020)

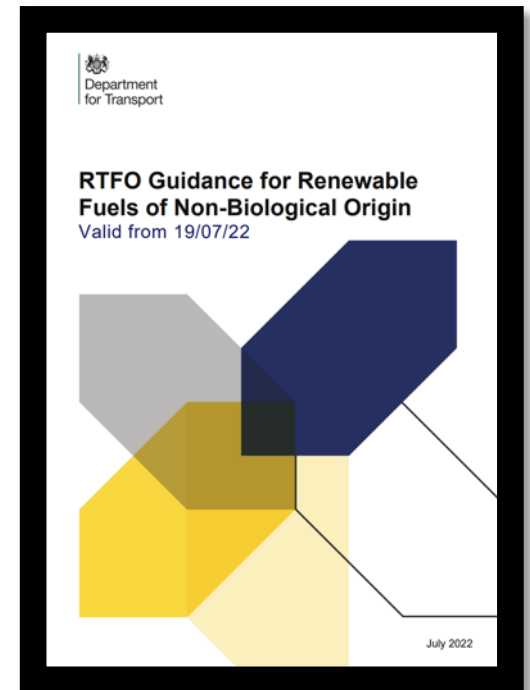
# RFNBO compliance



# New Guidance published in July 2022

## Timeline

- Changes to how we treat RFNBOs under RTFO were consulted on in 2021
- Published government response in July 2022, accompanied by updated guidance.
- Significant liberalisation compared to our previous treatment of RFNBOs:
  - allowing producers to supply renewable energy over the grid
  - use PPAs with temporal matching to demonstrate the use of additional renewable energy



# Principles based system for determining eligibility

## Demonstrating additionality

- Non-diversion of energy from an existing use:
  - Overspill
  - Curtailment
  - New build
  - Re-tasking of dedicated generation if the original purpose is decommissioned
  - Life extension of retired generation



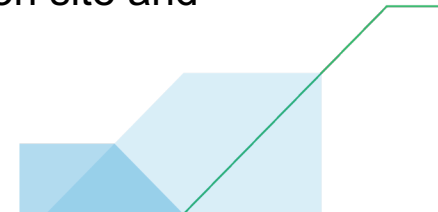
## Evidencing grid transmission of additional renewable energy

- Use of bilateral PPAs + retirement of GOOs.
- Use of 'portfolio' PPAs + retirement of GOOs.
- Sub-grid areas can have a localized average GHG intensity IF they are topologically distinct.

# Evidence requirements

| Case | Description                                 | New generation capacity | Temporal correlation | Purchase agreement | Grid losses | Grid congestion |
|------|---|-------------------------|----------------------|--------------------|-------------|-----------------|
| A    | Direct connection, no grid connection       | •                       | •                    | •                  | •           | •               |
| B    | Direct connection, grid connection          | •                       | •                    | •                  | •           | •               |
| C    | Additional capacity via an electricity grid | •                       | •                    | •                  | •           | •               |
| D    | Curtailment and wastage                     | •                       | •                    | •                  | •           | •               |

- **New generation capacity:** New, upgraded, life-extended or recommissioned site.
- **Temporal correlation:** Generation and consumption balanced over 30 minute settlement periods.
- **Purchase agreement:** PPA or equivalent in place.
- **Grid losses:** Grid loss factor applied – default of 10% in UK.
- **Grid congestion:** No systematic grid congestion between the generation site and RFNBO production site.



# Pre-assessment Process

## Aspects considered

- Overview of the plant:
  - currently operational or being built
  - timeline for completion and fuel production
  - location
  - schematic diagram (generator, electrolyser, grid connection, metering points)
- Source of power? Grid connected?
- Type of fuel
- Evidence of additionality
- Evidence that the fuel will make a minimum of 65% saving against the fossil comparator of 94gCO<sub>2</sub>e/MJ



## Process

- RTFO Administrator considers evidence
- If applicable, issues a letter confirming in-principle eligibility for RTFCs