Department for Transport

UK approach to transport RFNBOs

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Policy overview

Schemes

RFNBO's are supported by:

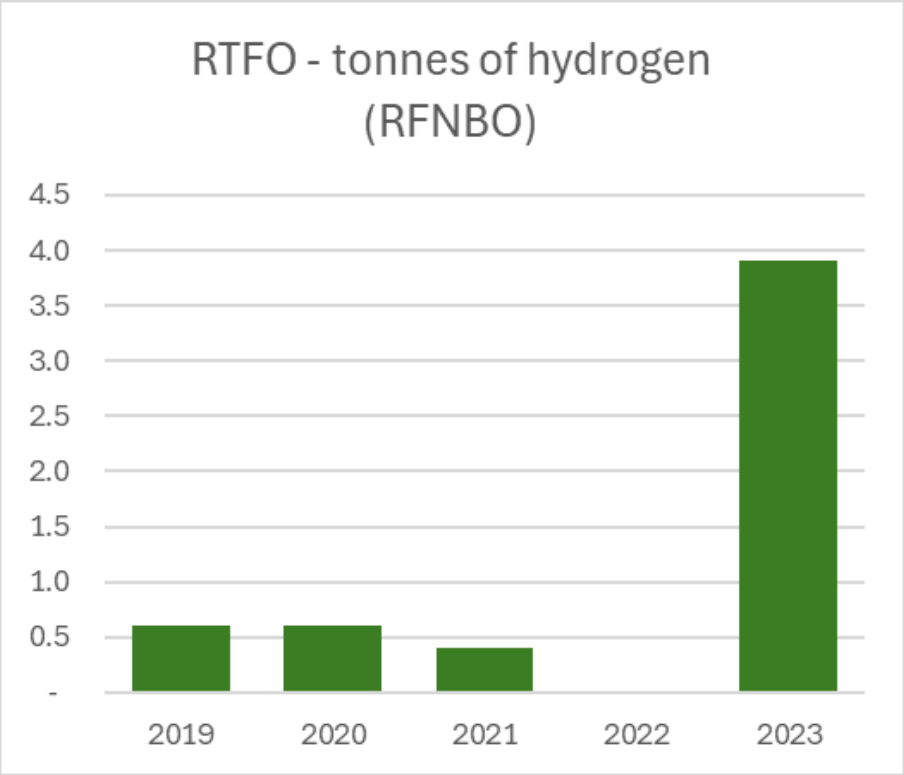
- **RTFO's "Development Fuel Obligation"** – covers surface transport including rail and maritime.
- **The SAF Mandate** via the "Main Obligation" (hydrogen as a fuel) and the separate "Power to Liquid Obligation".
- Eligibility criteria for both schemes are broadly the same except the maximum carbon intensity threshold:
  - RTFO = 32.9 gCO_2e/MJ
  - SAF M = 53.4 gCO_2e/MJ
- RTFO is a volume scheme, while SAF M rewards based on carbon intensity – better performing fuels get more certificates.
- SAF Mandate also permits the use of nuclear energy in hydrogen production.

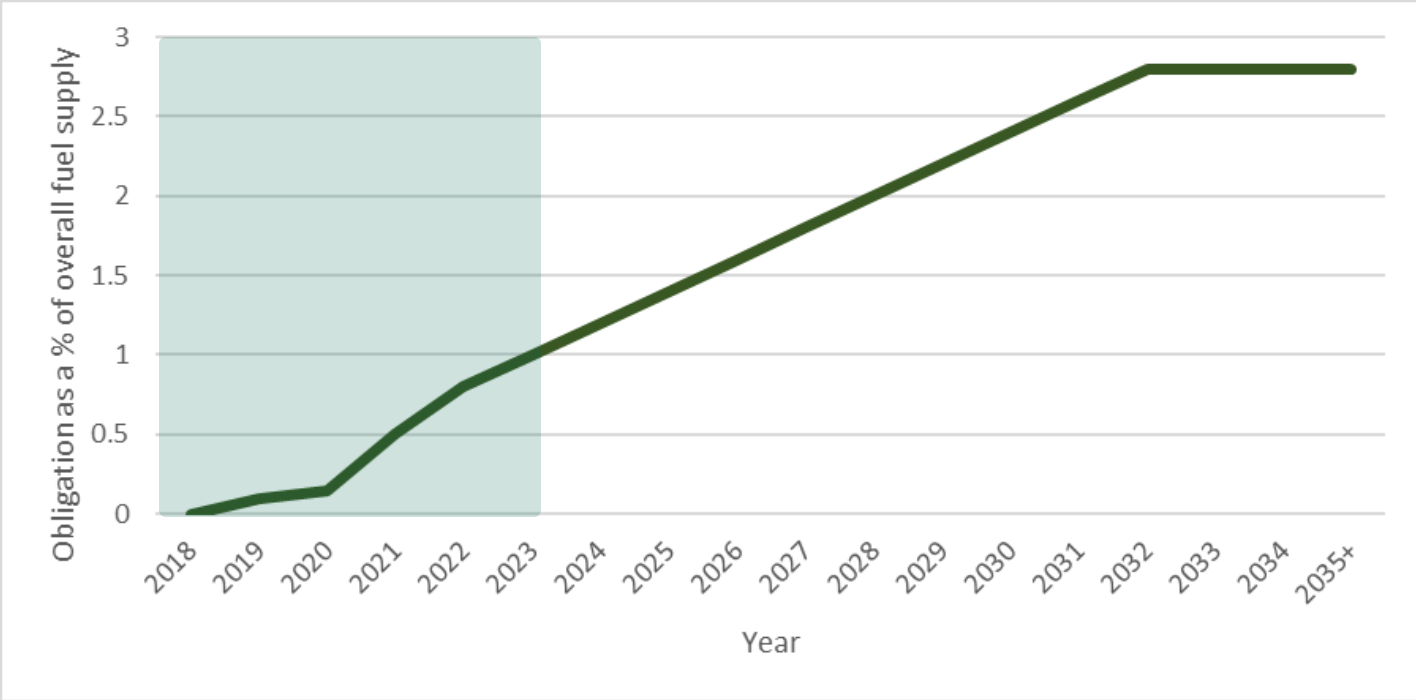
Key principles:

- Energy for hydrogen production should not be diverted from existing uses – "additionality"
- CO_2 used for power to liquid fuels should not be produced for the purpose of creating the fuel - however waste biogenic and fossil CO_2 can be used.

RTFO to date and future

- **Low levels of supply – however significant increase in 2023**
- **A number of hydrogen fuel cell buses are operational in UK – efforts are being made to supply qualifying hydrogen.**
- **Development fuel target set to increase – but still under served**
- **Call for Evidence on future RTFO policy has recently closed. Considering future policy now.**





The SAF Mandate and Hydrogen

- The obligation to supply SAF started on 1st January 2025 and increases each year to 2040

- There are **three ways to earn certificates from Hydrogen** through the SAF Mandate:

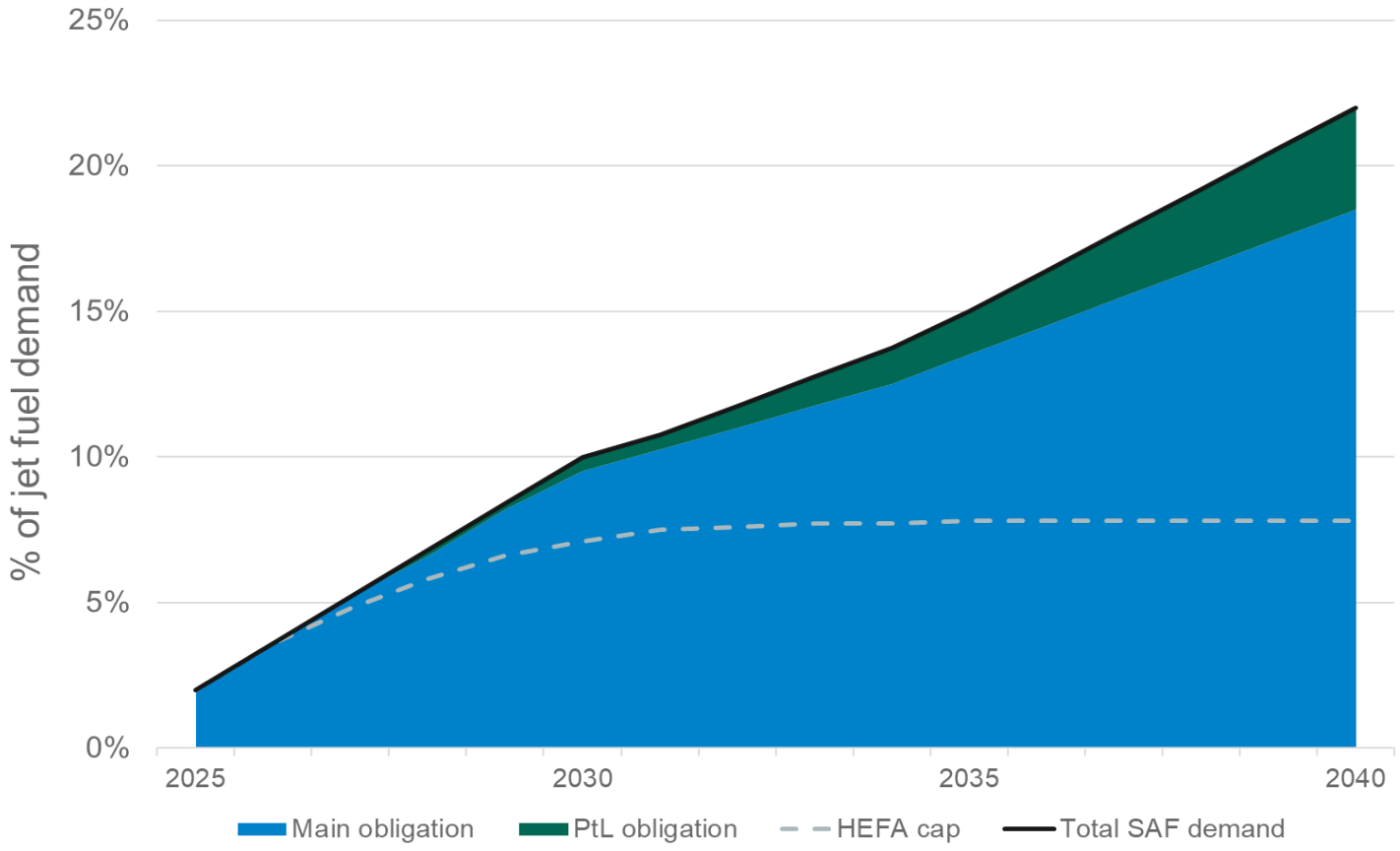
1) Hydroprocessing SAF* (process input) – where it results in SAF of lower carbon intensity and greater carbon savings

2) Low carbon hydrogen (direct combustion or fuel cell)

3) Supplying power-to-liquid (PtL) SAF

*hydroprocessing fossil fuels is **not** rewarded

SAF Mandate – PtL obligation



Year	Main obligation	PtL obligation	HEFA cap	Total SAF demand
2025	2%	0%	2%	2%
2030	9.5%	0.5%	7.1%	10%
2035	13.5%	1.5%	7.8%	15%
2040	18.5%	3.5%	7.8%	22%

- SAF Mandate targets increase on an annual basis from 2025 until 2040
- The SAF Mandate's power-to-liquid (PtL) obligation (£5.00/litre buyout price) applies from 2028
- We are driving feedstock and technology diversity through the PtL obligation and HEFA cap

RFNBO compliance

Department for Transport

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 retiring 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 of 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_2e/MJ (RTFO) or a minimum of 40% saving against the fossil compartor of 89gCO2e/ML (SAF Mandate)

Process

- LCF Administrator considers evidence
- If applicable, issues a letter confirming in-principle eligibility for RTFCs / PtL certificates

RFNBOs

Key differences

Criterion	RTFO	REDII	
 **Regionalisation**	• National electricity grid • 'Topologically distinct' electricity grid	• National bidding zones • Interconnected bidding zones	
 **Temporal correlation**	**1.** **Annual** grid averages *or* 2. Real-time figures for **30-min.** periods (Whole life-cycle carbon intensity needs to be available) *or* 3. Real-time figures for **30 min.** periods and PPA	• Before 2030: **Monthly** matching • From 2030: **Hourly** matching (Subject to review in 2028)	
 **Renewable electricity is additional**	• **All** renewable electricity projects can receive support	• No subsidies for renewable electricity PPAs **< 3 years old** and in bidding zone with **grid emissions < 18g CO_{2eq}/MJ**	

RFNBOs

Key differences

Criterion	RTFO	REDII	
Eligible CO_2 sources		• Restricted use of **non-biogenic carbon**	
GHG emission savings threshold	• **65%**	• **70%**	
GHG calculation methodology	• **Upstream emissions:** Emissions from ‘extraction or collection of raw materials’ • **Grid emission factors:** National grid average *or* real-time emissions for given 30-minute periods of RFNBO production • **Allocating GHG emissions to co-products:** ~ Approach for biofuels	• **Upstream emissions:** ‘Elastic’ and ‘rigid’ inputs • **Grid emission factors :** Default emission factors *or* real-time emissions of the electricity-generating unit at the time of RFNBO production • **Allocating GHG emissions to co-products:** Introduction of new concepts	

RFNBOs

Way forward

Three VS have now passed the EC's technical assessment for RFNBOs (ISCC, REDCert, CertifHy), and are officially recognised.

It should be possible to use VS recognised by the European Commission to demonstrate:

Permissible sources of CO_2 – if stated on the Proof of Sustainability (POS)

Additionality, if:

1. RFNBO production is located in a grid area with emissions that meet UK and EU criteria
2. A PPA project has access to half-hourly matching
3. If the electricity source is (i) a new, direct connection project, or (ii) not older than 36 months and used only for RFNBO production, or (iii) would have been curtailed
4. Project can demonstrate that it will not create congestion ('topologically distinct' site)

VS will need to provide extra information under the RTFO on:

Gas grid accounting *(See biomethane)*

GHG calculations: Companies seeking to supply RFNBOs to the UK market will need to undertake separate GHG calculations