



**Renewable Fuels**  
Assurance Scheme

# Technical Guidance

## **Renewable Fuels Assurance Scheme – Technical Guidance**

Zemo Partnership, 3 Birdcage Walk, London, SW1H 9JJ

T: +44 (0)20 7304 6880

E: rfas@Zemo.org.uk

Date Published: 10<sup>th</sup> April 2024

Version 3.0

**Copyright and reproduction:** This report is the Copyright of Zemo Partnership, a trading name of the Low Carbon Vehicle Partnership. The contents of this report may not be reproduced, in whole or in part, without the specific prior written permission of Zemo Partnership. Zemo Partnership accepts no liability whatsoever to any third party for any loss or damage arising from any interpretation or use of the information contained in this report, or reliance on any views expressed therein.

## Contents

|  |    |
|--|----|
| 1. Introduction.....   | 5  |
| 1.1 Objectives of the Scheme .....                               | 5  |
| 1.2 RFAS Scope.....  | 5  |
| 1.3 RFAS Performance Standards.....                              | 6  |
| 2. RFAS Application Process and Compliance Requirements.....     | 8  |
| 2.1 RFAS Application.....  | 8  |
| 2.2 Compliance Audits and Ongoing Monitoring .....               | 9  |
| 2.3 Renewable Fuel Declarations.....                             | 10 |
| 2.4 Group Approvals.....   | 12 |
| 3. RFAS Performance Standard – Compliance Requirements .....     | 14 |
| 3.1 Renewable Fuel Supplier Operations .....                     | 14 |
| 3.2 System Procedures, Responsibilities and Record Control ..... | 15 |
| 3.3 Greenhouse Gas Emissions Performance .....                   | 15 |
| 3.4 Feedstock Sustainability Performance .....                   | 15 |
| 3.5 Supply Chain Traceability .....                              | 16 |
| 3.6 Logos and Claims .....                                       | 18 |
| 3.7 Complaints.....  | 18 |
| 4. Governance.....   | 20 |
| 4.1 RFAS Technical Committee .....                               | 20 |
| 4.2 RFAS Guidance Updates and Consultation .....                 | 20 |
| 4.3 Record Retention .....                                       | 20 |
| 4.4 Complaints and Appeals.....                                  | 21 |
| 4.5 Renewable Fuel Supplier Suspension and Withdrawal .....      | 21 |
| 4.6 Public Information - Website .....                           | 22 |
| 4.7 RFAS Application and Participation Fees.....                 | 22 |
| 4.8 RFAS Information .....                                       | 22 |
| 5. Responsibilities and Competencies .....                       | 23 |
| 5.1 Zemo Partnership.....  | 23 |
| 5.2 RFAS Technical Committee .....                               | 23 |
| 5.3 Renewable Fuel Supplier .....                                | 23 |
| 5.4 RFAS Audit Provider .....                                    | 23 |
| 5.5 RFAS Technical Lead .....                                    | 24 |
| Appendix A: Renewable Fuel Supplier Approval Document.....       | 25 |
| Appendix B: Renewable Fuel Declaration Examples.....             | 26 |
| Appendix C: GHG and Sustainability Disclosure.....               | 30 |

|  |    |
|--|----|
| Appendix D: Fuel Lifecycle Greenhouse Gas Emissions Calculations .....                       | 31 |
| Appendix E: RFAS Compliance Requirements for Renewable Hydrogen Supply Chains (RFNBOs) ..... | 33 |
| Appendix F: RFAS GHG Emissions and Company Carbon Reporting.....                             | 36 |
| Appendix G: Terms and Conditions .....   | 37 |
| Appendix H: Definitions.....   | 38 |

## 1. Introduction

The Renewable Fuels Assurance Scheme (RFAS) provides commercial vehicle fleet and non-road mobile machinery (NRMM) operators with independent assurance of the life cycle greenhouse gas emissions and feedstock sustainability performance of renewable fuels sold in the UK. The RFAS works alongside national renewable transport fuel regulations, such as the UK Renewable Fuel Transport Obligation, providing a mechanism for guaranteeing that fleet operators are purchasing bulk supplies of sustainable low carbon fuels. The scheme facilitates fleet operators receiving renewable fuel supply chain-specific greenhouse gas (GHG) emissions data, thereby ensuring accurate and representative information for company carbon reporting<sup>1</sup>. Furthermore, credible GHG emissions data will help inform decision-making processes regarding vehicle fleet decarbonisation options by demonstrating the merits of sustainable low carbon fuels. The RFAS is managed by Zemo Partnership.

### 1.1 Objectives of the Scheme

- To verify claims made by companies supplying renewable fuels and blends, regarding their product's life cycle GHG emissions savings and provenance of raw material feedstocks.
- To encourage greater use of renewable fuels by heavy duty vehicle and NRMM plant operators, and establish a unique approach to raising the profile and credibility of sustainable low carbon fuels.
- To ensure the provision of reliable, accurate, robust and transparent GHG emissions data reported to vehicle fleet operators by renewable fuel suppliers.

### 1.2 RFAS Scope

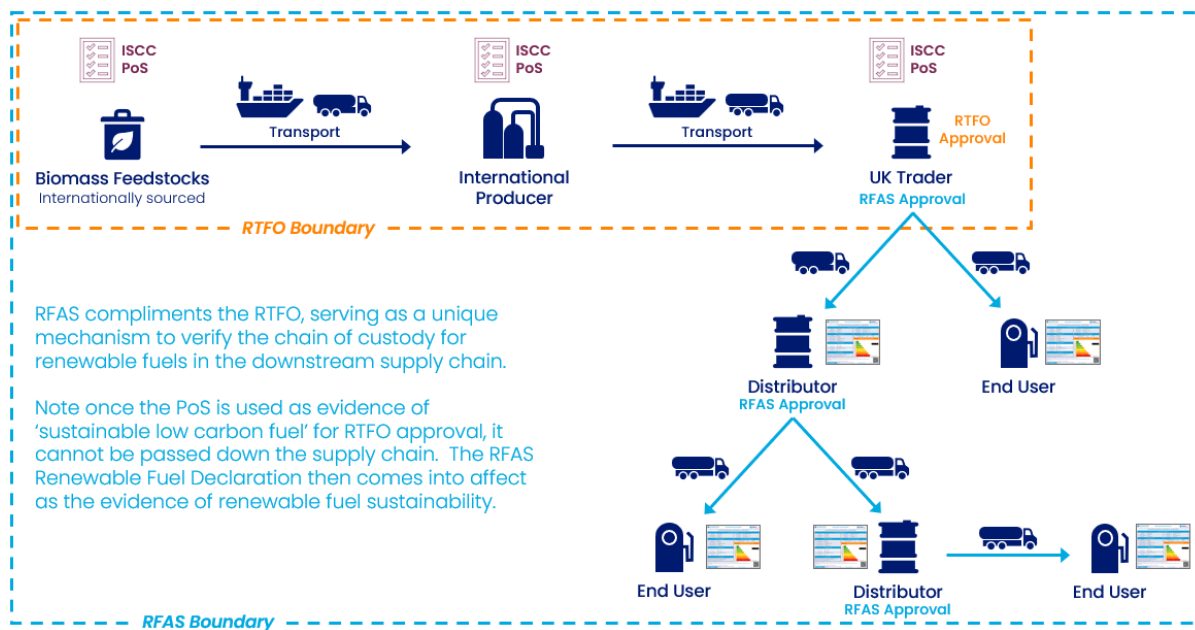
The RFAS is open to companies supplying renewable fuels and blends such as biodiesel B20, renewable diesel including hydrotreated vegetable oil, biomethane, renewable hydrogen, bio-propane and advanced renewable fuels. The scheme specially covers renewable fuels supplied through the RTFO in the UK, or similar regulatory frameworks in other countries, and as such is open to producers and suppliers of renewable fuels in addition to traders and distributors. Transport sectors covered by the scheme are road vehicle and heavy duty off-highway, notably non-road mobile machinery. Figure 1 illustrates the links between the UK RTFO and RFAS.

The RFAS encompasses the complete renewable fuel supply chain from feedstock cultivation or waste raw material collection, production and distribution of the final product to the customer. This is commonly referred to as the upstream fuel supply chain. In the case for renewable hydrogen the fuel pathway would cover primary energy source, hydrogen production plant, storage, distribution, dispensing at the refuelling station plus fugitive emissions.

---

<sup>1</sup> <https://ghgprotocol.org/corporate-standard>

**Figure 1: Example supply chain to show RFAS and RTFO boundaries**



RFAS was initially developed for the UK to verify the chain of custody for renewable fuels, and blends, sold after the point of duty (RTFO end point). The RFAS is now expanding outside of the UK. However the scheme can only be adopted in countries which have a regulatory framework associated with national quotas and incentives for renewable fuel supplied to decarbonise road transport. Examples of this are the RTFO scheme in the Republic of Ireland and the 'Sistema Nacional de Verificación de la Sostenibilidad' in Spain.

Because the GHG emissions savings associated with renewable fuel approved under RFAS are counted towards transport GHG emissions savings targets (e.g. RTFO in the UK), the fuel should not be used for other applications, such as stationary generators, heating or marine vessels (this is not permitted under the RTFO). As such, RFAS declarations cannot be used to provide evidence of sustainability for other purposes (e.g. UK Emissions Trading Scheme, ETS). *Note: Zemo are exploring the possibility of developing 'sister' schemes alongside the RFAS, to verify the chain of custody and provide evidence of sustainability (e.g. for ETS) for renewable fuels used for commercial heating and stationary generators.*

### 1.3 RFAS Performance Standards

The RFAS comprises of three performance standards which companies approved under the scheme are required to meet.

#### Greenhouse Gas (GHG) Emissions Savings Threshold

Renewable fuels shall meet the following minimum GHG emissions savings threshold compared to the fossil fuel comparator:

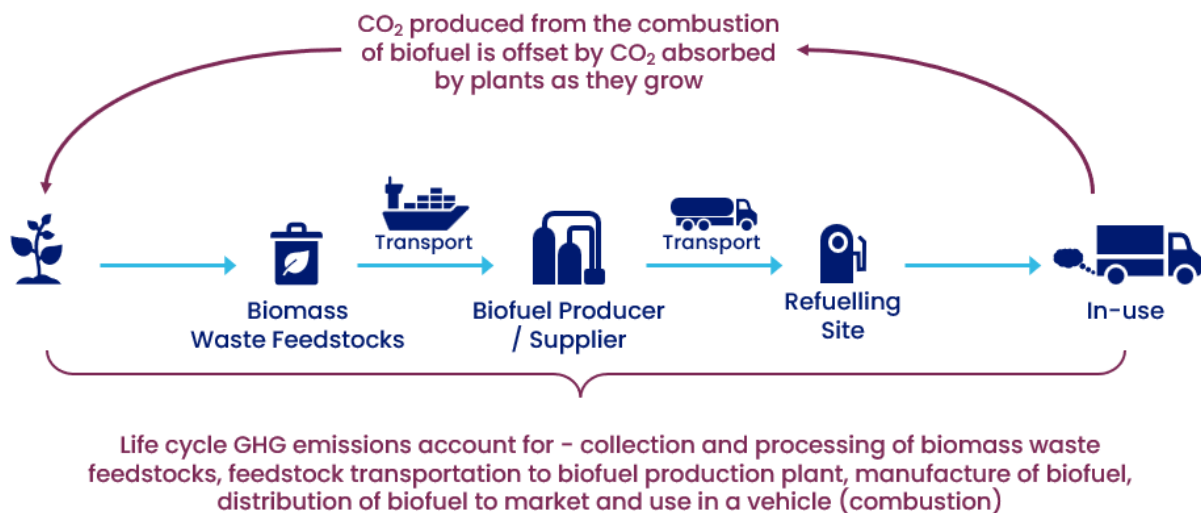
- 65% GHG savings for biofuels and renewable fuels of non-biological origin.
- 10% GHG savings for the total blend of fossil and renewable fuels<sup>2</sup>.

<sup>2</sup> This is to ensure significant savings are achieved and limits the use of high carbon fuels, such as fossil synthetic fuels (e.g. GTL).

Calculations must be based on a life cycle methodology; refer to Appendix D for details. Fossil fuel comparator carbon intensity can be found in Table D2 within Appendix D.

These standards were initially developed for the UK market however they are well suited to worldwide implementation.

**Figure 2: Example biofuel supply chain life cycle**



#### Feedstock Sustainability

- Protection of land and biodiversity: energy crops, and forest products, shall not be cultivated on land of high biodiversity value or high carbon stock such as wetlands and peatland.
- Use of waste as a resource: a chain of custody will be required to demonstrate provenance of the biomass waste and residues and exclusively those covered under the approved lists of the relevant national quotas (e.g. the 'RTFO list of feedstocks including wastes and residues').
- Use of renewable energy and resources for renewable fuels of non-biological origin (RFNBOs): these fuels shall only be produced using energy from renewable sources. Production of renewable hydrogen via electrolysis shall demonstrate additionality with regards to renewable electricity supply. In the case of CO<sub>2</sub> as a feedstock, this shall arise from waste fossil sources, biological or atmospheric or naturally-occurring geothermal sources. Applicable requirements are set out in Appendix E.

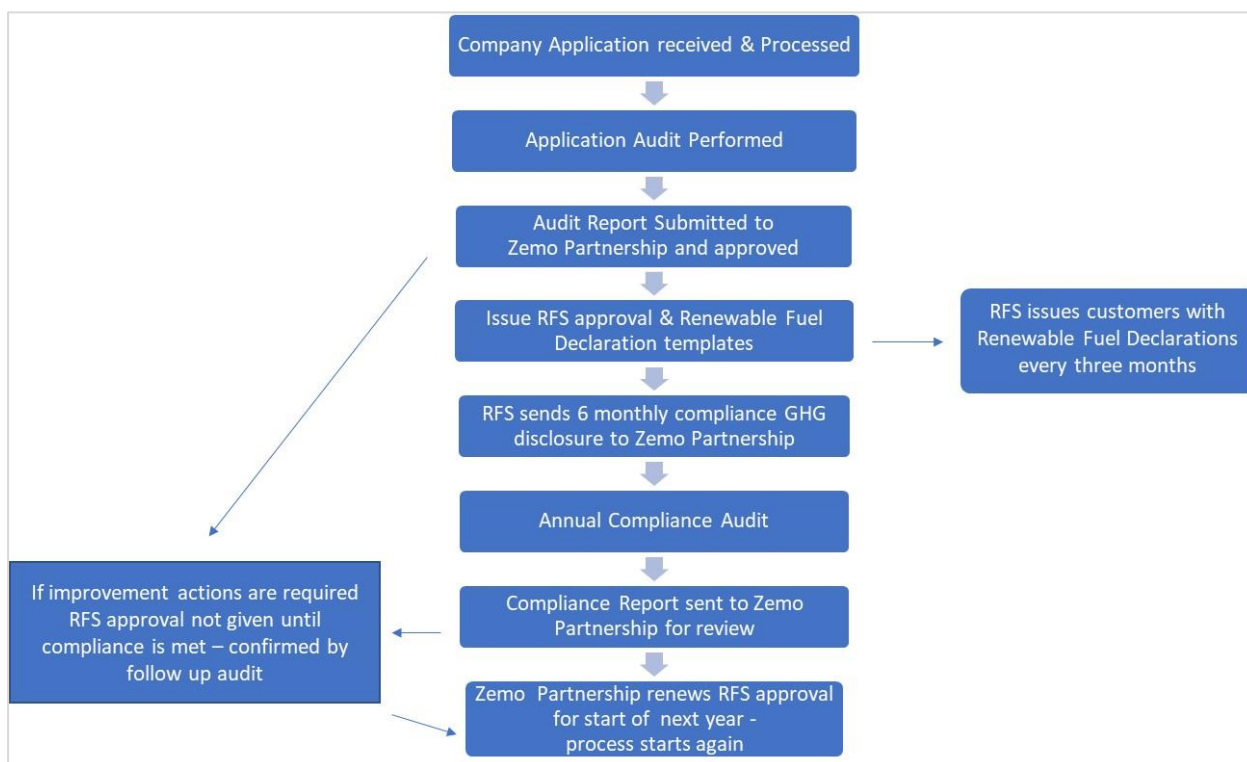
#### Supply Chain Traceability

- The renewable fuel supply chain shall be traceable from feedstock origin to customer refuelling depot in terms of greenhouse gas emissions and sustainability performance (see Figure 1).
- When national quotas apply (e.g. RTFO in the UK), there shall be alignment between greenhouse gas emissions and feedstock sustainability performance of verified renewable fuel reported and batches of renewable fuel sold to fleet operators.

## 2. RFAS Application Process and Compliance Requirements

Companies selling renewable fuels are required to make an application to Zemo Partnership to become an approved Renewable Fuel Supplier (RFS) and submit evidence demonstrating compliance with the RFAS' performance standards – Section 2.2. This will require independent verification by an approved auditor. Once approved, the RFS will be required to submit on-going evidence of compliance with the scheme performance criteria, including an annual audit report and a six-monthly 'GHG emissions and sustainability disclosure'. The RFS is required to issue their customers with Renewable Fuel Declarations in accordance with batches of renewable fuel sold. Figure 3 shows how the scheme operates.

**Figure 3: Renewable Fuels Assurance Scheme process flow diagram**



### 2.1 RFAS Application

To become an approved Renewable Fuel Supplier, a company will need to complete the RFAS application form and sign the RFAS agreement once approved.

An 'Application Audit' against the RFAS performance standards will be undertaken by the approved auditor appointed by Zemo Partnership. The Application Audit will be arranged between the Renewable Fuel Supplier and the auditor within one month of submitting the application. The aim of the audit will be to assess the capacity and readiness to comply with the Performance Standard.

Once the audit is completed an RFAS Application Audit Report will be sent to the RFS and Zemo Partnership. The application audit will entail a review of the RFS records for the last six months.

Zemo Partnership will approve the application within two weeks of the paperwork being submitted. The following will be issued to the RFS once the application is approved:



- RFS approval document including a unique identifier reference for the company (Appendix A). This document shall identify the type and blends of renewable fuels supplied by the supplier.
- RFAS agreement letter signed by the RFS. This document will present a set of conditions that the supplier is requested to agree to.
- Renewable Fuel Declaration template with the unique identifier reference (Appendix B).
- GHG and Sustainability Disclosure template for 6-monthly reports (Appendix C).

## 2.2 Compliance Audits and Ongoing Monitoring

### Renewable Fuel Supplier Compliance Monitoring

'Compliance Audits' against the RFAS Performance Criteria will be conducted by Zemo's appointed auditor on an annual basis (see Table 1). The aim of these audits will be monitoring compliance against the RFAS performance standard and will include a sample of the declarations issued to customers. A Compliance Audit Report will be prepared by the auditor and sent to Zemo Partnership and the RFS within ten working days of the audit. Zemo Partnership recommends the first compliance audit is undertaken between seven and nine months after the RFS approval document has been issued.

If nonconformities are raised, the RFS has 40 days to take action. An improvement plan will be issued by Zemo Partnership. A follow-up audit, and report, will be required to demonstrate compliance. If action is not taken, approval under the RFAS can be terminated. Depending on the nature of non-compliance, Zemo Partnership may deem the RFS at high risk of repeated non-compliance. A follow up compliance audit will be undertaken within three months of the original audit. The RFS will be required to cover the cost of this audit.

If the compliance audit identifies three or more nonconformities, the RFS will be required to have two compliance audits during the following year and the annual participation fee will be increased to cover the additional costs. Once Zemo is satisfied that the RFS has demonstrated full and consistent compliance with the scheme, the frequency of compliance audits will revert to one audit per year.

Zemo Partnership shall issue each company a new RFS Approval Document at the start of the second year of RFAS, once the compliance audit has been reviewed and approved. This process will continue each year. The information to be provided during compliance audit can include:

- Written procedures.
- Mass balance of renewable fuel against customer sales.
- Mass balance of incoming Renewable Fuel Declarations against customer sales.
- GHG emissions of renewable fuel blends.
- Proof of sustainability documentation.
- Voluntary sustainability scheme certification.
- Sales documents – supplier and sales invoices.
- Incoming documents, including renewable fuel purchases (if applicable).
- HMRC records for duty payment.
- Duty payment confirmation.
- National quotas reported quantities and approval (e.g. RTFO reported quantities and RTFCs issued).
- RFAS Application and RFAS T&Cs.
- RFAS claims and logos.
- Renewable Fuel Declarations.

- Markets supplied – the RFS shall inform the auditor if they supply renewable fuel to markets other than road transport and NRMM (these volumes must be segregated from renewable fuel approved under RFAS).

#### Six-month GHG and Sustainability Disclosure for RFS within the UK

Once approval is awarded it is the responsibility of the RFS in the UK to send a 'GHG and Sustainability Disclosure' to Zemo Partnership every six months as follows:

- Q1 and Q2 by 30<sup>th</sup> November of the applicable calendar year;
- Q3 and Q4 by 31<sup>st</sup> May of the following calendar year.

Zemo Partnership will send an acceptance email following review and follow-up on any queries. The information to be submitted is presented in Appendix C. This information will assist Zemo Partnership in monitoring the UK high blend renewable fuels market as well having robust well-to-tank GHG emissions data for internal analysis.

#### Annual GHG and Sustainability Disclosure for RFS outside the UK

Once approval is awarded it is the responsibility of the RFS outside of the UK to send a 'GHG and Sustainability Disclosure' to Zemo Partnership on an annual basis by 15<sup>th</sup> May of the following calendar year.

Zemo Partnership will send an acceptance email following review and follow-up on any queries. The information to be submitted is presented in Appendix C. This information will assist Zemo Partnership in the monitoring of RFAS.

### **2.3 Renewable Fuel Declarations**

Once approved under the RFAS, Zemo Partnership will issue Renewable Fuel Declaration templates with a unique reference number specific to the RFS. RFS are required to use a unique declaration number for each declaration issued and have a record keeping system that enables customers to be matched with these specific numbers.

By default the RFS can only issue declarations for renewable fuel sold after the approval date, as shown in the RFS approval document. If the RFS had previous mass balance data available and was able to demonstrate full compliance during the application audit, Zemo will permit the RFS to issue Renewable Fuel Declarations for volumes sold for up to one quarter (no more than 3 months) prior to RFAS approval. Written evidence of this permission will be required during the first compliance audit.

Zemo Partnership recommends that declarations be issued to each customer on a monthly basis although the maximum permitted timeframe is quarterly.

Declarations shall reflect the lifecycle GHG emissions and feedstock sustainability performance of the renewable fuel sold. The information to be included, covering each period, is: customer name and address, renewable fuel or blend sold, GHG emissions savings, GHG emissions intensity, description of feedstocks, countries of origin of the feedstocks and status regarding voluntary sustainability scheme certification. Example declarations can be found in Appendix B.

Declarations are mandatory for customers receiving more than 10,000 kg or 16,000 litres of renewable fuel or blends over a quarterly period. Zemo Partnership's approval shall be sought if any deviations are needed.

It is essential that the most recently issued declarations are communicated with customers to provide the robust and representative GHG emissions data, in order that they can be used in company carbon reporting.

RFS can only issue Renewable Fuel Declarations to their customers, they cannot be traded or transferred to another renewable fuel supplier. Declarations are only valid for the periods they cover and are specific to each customer. In the event of an RFS selling renewable fuel or blends to a fuel distributor and/or trader, the distributor and/or trader will need to become an approved RFS in its own right if it wishes to benefit from the scheme, and issue declarations to its customers.

The GHG and feedstock sustainability information presented on the RFAS Declaration is not transferable to any other UK scheme or activity related to decarbonising road vehicles or NRMM. The life cycle GHG emissions values, and information pertaining to renewable fuel feedstocks, cannot be separated in any capacity from the volume of renewable fuel, or blend, purchased by the customer. Any alternation of the Zemo template and/or manipulation of the data presented on Renewable Fuel Declarations once issued, will result in the Renewable Fuel Supplier being automatically withdrawn from the RFAS, and their approval terminated.

The RFS mass balance and record keeping system shall allow traceability throughout the process for each declaration raised. The declarations shall be made available to the auditor at the time of the compliance audit for a sample to be taken and compliance assessed.

#### Interim Renewable Fuel Declarations (only for Category A RFS)

On occasions, sustainability data might not be readily available due to:

- National quotas approval delays e.g. RTFC issuance delay.
- Renewable fuel quantity reconciliation period.

In these cases, Zemo Partnership recommends simplifying the declarations to reduce errors. If the risk of error is high however, Zemo Partnership allows for drafts to be provided with the following conditions:

- Zemo Partnership approval has been obtained prior to issuance of interim Renewable Fuel Declarations.
- 'Draft' watermark is added to the declaration if the information only covers a fraction of the volume supplied.
- Final Renewable Fuel Declarations are sent as soon as the process is finalised. If the RFS supplies to end users (e.g. fleet operators), the final declaration can be sent as a final annual declaration.

## 2.4 Group Approvals

RFS may operate through multiple legal entities; each being responsible for different parts of the renewable fuel and blends supply chain. For example:

- A parent company responsible for the renewable fuel bulk buying and selling (Company X).
- A subsidiary responsible for distributing to filling stations (Company Y).
- Another subsidiary responsible for fleet operators management services (Company Z).

In order to avoid the cost and complexity of multiple applications, the group might opt for a joint approval and operate as an RFS Group. The application and compliance audit will follow the same principles as individual approvals, however, all the steps within the supply chain covered by the group may need to be audited. In order to ensure sufficient time is allocated, the following information must be provided in the RFAS RFS Group Approval application form:

- Names of all legal entities to be included in the group.
- Description of the operational overview of each entity. This is required to understand the group structure from an administration perspective and in terms of the physical flow of the renewable fuel. All legal entities will be listed in the RFAS register and website as a group. If for any reason there are contractual sensitivities for one or more legal entities to be signposted on the RFAS website, Zemo will consider identifying only one company.
- One legal entity shall be nominated as the RFS Group Lead and provide the umbrella for RFAS approval. It is recommended that the RFS Group Lead be the parent company, or the legal entity with access to the purchasing information for the renewable fuel and/or blends. Where the group includes a Category A entity (see Table 1), this entity should be the RFS Group Lead. Other RFAS Group structures shall be discussed and agreed with Zemo before the application audit takes place.
- Explanation of the group structure including:
  - Document and evidence availability to demonstrate compliance (centralised or available at each individual entity).
  - Management structure.

In order to operate as an RFS Group, the following conditions shall be met:

- All legal entities must be part of the same renewable fuel supply chain.
- Only one Category A legal entity can be included in the RFS Group (see Table 1).
- RFS Group Lead shall have access to end customer physical transactions/renewable fuel sales.
- RFS Group Lead shall issue all Renewable Fuel Declarations. RFS Group Members can be included in conjunction with the RFS Group Lead, in the entry for Renewable Fuel Supplier on the declarations: e.g. Company X via Company Z.
- Each RFS Group Member shall have individual mass balances related to their specific operations.
- Six-month disclosure reports shall be provided by the RFAS Group Lead and must include the split for all RFS Group Members included in the application.
- Agreement between the RFS Group Lead and RFS Group Members shall specify:
  - Member trading arrangements;
  - Supply chain operations;
  - Cooperation during RFAS compliance audits and provision of documentation required for continuous compliance with RFAS.
- RFAS Group Lead to approve all uses of RFAS logos and claims.

Companies outside of the legal structure may be added to a RFS Group and become RFS Group Members providing the following requirements are met:

- They only operate as a category B supplier (see Table 1) – unless a different structure has been agreed with Zemo.
- They are not already independently approved under RFAS or a member of another RFS Group.
- They have RFAS operational exclusivity with the RFS Group Lead.
- Sales transactions, and issuance of RFDs, for the RFAS supply chain can only be made via the RFS Group Lead.

An example of evidence required to demonstrate compliance under RFAS

In addition to the requirements set out in Section 2.2, the RFS Group Lead shall:

- Provide evidence of national quota reporting (where applicable) for the volumes of renewable fuel supplied to the RFS Group Members. This needs to include information reported to the quota and the associated characteristics of the renewable fuel including: quantity of renewable fuel, GHG emissions intensity, feedstock type and country of origin.
- Maintain a mass balance specifically for renewable fuel volumes supplied to each RFS Group Member. The RFS Group Member will need access to this mass balance. The volumes of national quota approved renewable fuel supplied by the RFS Group Lead need to be linked to equivalent volumes sold by the RFS Group Members.

In addition to the annual compliance audits, the RFAS auditor may carry out interim checks remotely, if non-conformities in data flow and management are identified. The frequency of the checks will be agreed by the RFAS Technical Lead and Zemo, based on the findings from the compliance audits. Failure to meet the compliance criteria or provide sufficient information to satisfy the auditor, could result in suspension from the scheme.

### 3. RFAS Performance Standard – Compliance Requirements

A company’s capability to successfully comply with this standard will be verified as part of the ‘Application Process’. ‘Compliance Audits’ will be conducted annually and actual performance against the RFAS will be assessed.

The RFAS focuses on the volumes of renewable fuel reported under the RTFO, therefore the reporting periods and submissions will be based on a calendar year.

#### 3.1 Renewable Fuel Supplier Operations

In order to allow characterization within the RFAS and assess compliance requirements, as part of the initial RFS application companies shall define their RFAS category type, operations and fuels as follows:

**Table 1: Category type**

| Category A  | Category B  |
|---|---|
| Company is distributing fuel to fleet operators and/or fuel traders and registered and reporting under the national quota and/or products purchased and received as certified under one of the RTFO or EC approved Voluntary Schemes. | Company is purchasing sustainable low carbon fuel from an approved RFS and distributing fuel to fleet operators and/or fuel traders.  |
| Basis of Evidence for Compliance  |   |
| Evidence of compliance will relate information pertaining to national quota reporting or issuance of RTFCs and mass balancing of verified renewable fuel against customer sales.  | Evidence of RFAS approval will be required. Declarations supplied from the existing RFS, and declarations issued to customers shall be clearly traceable through record keeping and mass balance. |
| Compliance Audit Frequency  |   |
| Annual (this may be increased to two audits per year if substantial nonconformities are raised)   |   |

#### Renewable fuels and blends

|                             |                                  |
|-----------------------------|----------------------------------|
| Biodiesel                   | Bio-propane                      |
| Renewable Diesel            | Hydrotreated Vegetable Oil (HVO) |
| Compressed Biomethane (CBG) | Renewable Hydrogen               |
| Liquified Biomethane (LBG)  | Others not already listed        |

#### Processes related to their business activities

|   |                             |
|---|-----------------------------|
| Cultivation of feedstocks                     | Renewable fuel production   |
| Collection of feedstocks                      | Storage                     |
| Feedstocks processing                         | Blending                    |
| Feedstocks transport                          | Distribution                |
| Trading                                       | Customer/refuelling Station |
| Activity sectors covered (fuel, heat, marine) |                             |

Category A suppliers shall identify the national quota followed if applicable.

The RFS must notify Zemo Partnership in writing of any changes that occur regarding:

- Category type.
- Renewable fuels or blends supplied.
- Supply chain specific processes.
- Suppliers of renewable fuel to the RFS.

- An increase in the number of fuel bunkering and distribution sites.

### **3.2 System Procedures, Responsibilities and Record Control**

The RFS shall implement and maintain written procedures appropriate to its size and complexity to ensure its continuous conformity with the RFAS. These shall include but might not be limited to activity procedures, renewable fuels, blends and key responsibilities.

Records demonstrating conformity with the scheme criteria shall be up-to-date and maintained for a period of at least five (5) years or longer as defined by legislation.

### **3.3 Greenhouse Gas Emissions Performance**

The RFS shall provide GHG emissions intensity and emissions savings figures for renewable fuels, and blends, covered by the scheme.

The methodology used to calculate the GHG emissions and supporting data shall be aligned with the Lifecycle Analysis (LCA). See Appendix D.

The RFS shall define their procedure for calculating and reporting GHG emissions per product supplied, and maintain all relevant records.

The RFS shall inform Zemo Partnership if there are material changes in the storage and distribution of gaseous renewable fuels impacting the carbon intensity above or below 20% of the figures reported during audits and/or via communication with Zemo. This is most relevant for renewable hydrogen.

When the RFS undertakes GHG emission calculation amendments following a compliance audit, Zemo shall be informed and agree to the changes prior to declarations being issued to the customer.

### **3.4 Feedstock Sustainability Performance**

#### Protection of land and biodiversity

Evidence of RTFO or RED approved voluntary sustainability scheme certification<sup>3</sup> shall be provided for energy crop cultivation and forest products.

#### Use of biomass waste as a resource

Identification of biomass wastes and residues used for producing renewable fuels is required. Traceability of wastes and residues needs to cover the whole chain of custody, going back to the origin of the material. This could include voluntary sustainability scheme certification and 'Proof of Sustainability' documentation. Categorization of wastes and residues shall be aligned with the national quota (e.g. RTFO 'List of feedstocks including wastes and residues'.)

#### Use of renewable energy and resources for RFNBOs

Identification of RFNBO feedstocks is required including type of renewable energy for power, heat and/or cooling. Evidence of development fuel RTFCs will suffice as evidence for compliance with requirements for 'additionality' with regards to renewable electricity generation. However, if these are not in place, please refer to further applicable requirements in Appendix E.

---

<sup>3</sup> This could include ISCC-EU, REDCert, RSB scheme.

### 3.5 Supply Chain Traceability

To maintain traceability of GHG and sustainability of a renewable fuel throughout the supply chain, from the feedstock origin to the customer's depot, the following shall be met:

#### 3.5.1 Supplier Control

The RFS shall maintain an approved supplier list for their inputs, including:

- Supplier name;
- Applicable registration identifier;
- Feedstocks and/or renewable fuel supplied.

The approved supplier list shall be monitored at least on an annual basis to ensure the information is up to date.

Incoming transaction documentation shall be checked upon receipt for completeness. Information relevant to the applicable scheme(s) shall be included, or as minimum:

- Supplier's name and address;
- Date and location when the document is issued;
- Quantity and type of feedstock and renewable fuel;
- Land criteria compliance if applicable.

If supplier documentation is not compliant, a complaint shall be raised with the fuel supplier.

Confirmation shall be sought from the fuel supplier that the fuel bought has not been used to report under any other initiative scheme and measures have been taken to prevent double counting.

#### 3.5.2 Mass balance

The RFS shall establish a mass balance system to ensure:

- Output quantities of sustainable material sold do not exceed input quantities;
- Total renewable fuels and/or blend volumes sold are aligned with the material purchased and/or reported under the national quota.

The mass balance shall:

- Be per legal entity registered.
- Be per site.
- Be reconciled over a maximum period of three months.
- Allow the physical movement of renewable fuels and/or blends to be traced between site locations.
- Allow Renewable Fuel Declaration traceability.
- Allow consignment identification per feedstock, origin, blend (if applicable) and carbon intensity. Sustainability allocation can be made directly from input to output; simplifying the process when a RFS has multiple locations.
- Segregate renewable fuel volumes approved under RFAS (supplied to the road transport and NRMM market) from volumes supplied to other markets e.g. heating.

The following data shall be used for the mass balance:

- Input inventory;
- Output inventory;
- Conversion factor (if applicable);
- Stock levels (if applicable).



The data used shall be accurate, consistent, and reliable in terms of source, fuel volumes, and measurement units.

Sustainable characteristics are not transferable to non-sustainable products, and such circumstances will be classed as a major breakdown of the RFAS process which could result in suspension.

Further guidance on establishing a mass balance system can be provided by the Zemo Partnership.

### 3.5.3 Renewable Fuel Declarations

Renewable Fuel Declarations shall be issued to all customers as per RFAS Guidance Section 2.3. The RFS shall use the Renewable Fuel Declaration templates issued by Zemo Partnership and complete the required fields (Examples in Appendix B). If changes are required, Zemo approval must be sought.

Declarations shall cover information pertaining to volumes of the renewable fuel which has been approved under a national quota of a maximum of three months previous. GHG emissions intensity and saving are recommended to be presented as the overall average of the Renewable Fuel Declaration reporting period or as the actual value from the allocated input consignment. Companies are permitted to transfer over batches for RTFO verified fuel from one period to the next; the mass balancing of this renewable fuel with customer sales must be completely transparent. Biomethane batches must be reconciled within a 12 month period.

RFAS declarations cannot be used as evidence of chain of custody verification for any other sector than road transport. Issuing declarations for this purpose could result in the RFS being suspended or withdrawn from the scheme.

Appendix F provides further information regarding how GHG emissions intensity data reported under the RFAS can be used for company carbon reporting. Zemo has created a calculator to help fleet operators quantify their vehicle fleet WTW GHG emissions using RFAS data. Please visit <https://www.zemo.org.uk/RFAS> to download the latest version of the calculator and user guide (this will be updated annually).

RFAS deadlines for issuing the renewable fuel declarations are as follows:

**Table 2: Declaration and disclosure report deadlines**

| Month | Renewable Fuel Declaration Deadline |                                       |                                       | 6-month GHG and Sustainability Disclosure |                                       |                                       |
|-------|-------------------------------------|---------------------------------------|---------------------------------------|---|---------------------------------------|---------------------------------------|
|       | Period                              | Category A                            | Category B                            | Period                                    | UK                                    | Outside UK                            |
| Jan   | Q1                                  | 30 <sup>th</sup> Jun                  | 31 <sup>st</sup> Jul                  | Q1+Q2                                     | 30 <sup>th</sup> Nov                  | 31 <sup>st</sup> May (following year) |
| Feb   |                                     |                                       |                                       |   |                                       |                                       |
| Mar   |                                     |                                       |                                       |   |                                       |                                       |
| Apr   | Q2                                  | 30 <sup>th</sup> Sep                  | 31 <sup>st</sup> Oct                  |   |                                       |                                       |
| May   |                                     |                                       |                                       |   |                                       |                                       |
| Jun   |                                     |                                       |                                       |   |                                       |                                       |
| Jul   | Q3                                  | 31 <sup>st</sup> Dec                  | 31 <sup>st</sup> Jan (following year) | Q3+Q4                                     | 31 <sup>st</sup> May (following year) | 31 <sup>st</sup> May (following year) |
| Aug   |                                     |                                       |                                       |   |                                       |                                       |
| Sep   |                                     |                                       |                                       |   |                                       |                                       |
| Oct   | Q4                                  | 31 <sup>st</sup> Mar (following year) | 30 <sup>th</sup> Apr (following year) |   |                                       |                                       |
| Nov   |                                     |                                       |                                       |   |                                       |                                       |
| Dec   |                                     |                                       |                                       |   |                                       |                                       |

## Declaration Recall Process

Where renewable fuels have been delivered and/or sold with inaccurate information, the RFS shall:

- Notify the customer and Zemo Partnership within 5 business days;
- Analyse the root cause and implement corrective action;
- Implement measures to avoid reoccurrence.

The RFS shall maintain records of all sustainability declarations and recall situations. These will be subject to inspection during compliance audit.

## **3.6 Logos and Claims**

### **3.6.1 Product and Company Statements**

Renewable Fuel Suppliers might be interested in marketing their RFS status and renewable fuels approved under the RFAS. In order to do this, the following disclaimers can be used:

- Company 'x' is an approved Renewable Fuel Supplier under the RFAS, our reference number is XXXXX.
- Company 'x' follows the RFAS requirement to supply renewable and/or low carbon fuels. Our RFAS reference number is XXXXX.
- The 'RFAS APPROVED FUEL' supplied conforms to RFAS requirements. Our Renewable Fuel Supplier reference number is XXXXX.
- Our 'RFAS APPROVED FUEL' is assured under RFAS. Our Renewable Fuel Supplier reference number is XXXXX.

Renewable Fuel Suppliers shall be mindful of their marketing claims and avoid misleading life cycle GHG emissions savings for renewable fuels, and blends, approved under RFAS. Whilst there will be variability in life cycle GHG emissions over the course of the year, Renewable Fuel Suppliers are advised to promote the average life cycle GHG emissions savings reported in the RFAS six monthly disclosure report.

### **3.6.2 RFAS Logo Use**

The RFS will be issued with the RFAS logo. The following requirements shall be met:

- The RFS reference number shall be included wherever the logo is used to allow a validity verification.
- The following actions are not allowed:
  - Changing the proportions of the design, the content, or the colour.
  - Changing the logo orientation.
  - Combining any logos or designs in a way that implies association.

The logo can only be used by the RFS and signposted on their company website and reports, such as corporate sustainability reports.

## **3.7 Complaints**

The RFS shall ensure that complaints received regarding the RFAS compliance are adequately considered, processed, and monitored, including the following:

- Acknowledge receipt of the complaint to the complainant within five (5) business days of receiving the complaint.

- Investigate the complaint and specify its proposed actions in response to the complaint within one (1) month. If more time is needed to complete the investigation, an agreement between relevant parties shall be reached.
- Take appropriate actions with respect to complaints and any weaknesses found in processes.
- Notify the complainant and Zemo Partnership when the complaint is successfully addressed and closed.

Records of complaints shall be maintained, to demonstrate that appropriate action was taken. These will be subject to inspection during compliance audits.

## 4. Governance

Zemo Partnership is responsible for managing the day-to-day delivery of the scheme and engagement with relevant stakeholders, which include RFAS approved suppliers, auditors, technical team and RFAS Technical Committee. Zemo Partnership is an independent not-for-profit partnership, working with government and their members to inform and shape net zero road transport policy, and create influential transport initiatives to reduce GHG emissions.

The scheme delivery will aim to:

- Maintain integrity, transparency and robustness in the supply of renewable transport fuels.
- Ensure a homogeneous audit approach.
- Easily embed compliance requirements in common systems and processes.
- Establish a harmonised and consistent approach for the RFS to report renewable fuel GHG emissions and sustainability information to their customers.
- Raise confidence in the life cycle GHG emissions and sustainability credentials of renewable fuels sold to HDV and NRMM operators.

### 4.1 RFAS Technical Committee

The RFAS Technical Committee Group (RFAS TC) is the decision-making body that oversees the technical management and delivery of the Scheme. The RFAS TC is made up of Zemo Partnership, Technical Lead, the Renewable Fuel Transport Association and SCE Limited (both members of Zemo Partnership).

### 4.2 RFAS Guidance Updates and Consultation

The Technical Guidance document includes the general requirements that all RFAS Scheme stakeholders need to follow. In the event of requirement improvement, alternation, inclusion or removal, Zemo Partnership will engage, communicate, and gather feedback before final approval to all relevant stakeholders. The consultation process procedure is as follows:

- The RFAS TC will discuss and agree RFAS Technical Guidance changes.
- Technical Lead will prepare the consultation questionnaire.
- Zemo Partnership will distribute and arrange meetings with RFS members when requested.
- Results will be collated, analysed and approved by the RFAS TC.
- Newsletters will be sent to all relevant stakeholders detailing changes, validity starting date and transitional period, if applicable.

The Consultation process will not apply to adjustments required to ensure legal compliance and error corrections.

### 4.3 Record Retention

Zemo Partnership will keep all documents and records related to RFAS scheme for at least 7 years, including but not necessarily limited to:

- Scheme Membership Application;
- Complaints and appeals;
- Ongoing Monitoring;
- RFAS audits;
- Suspension documentation;
- Withdrawal.

Zemo Partnership will keep all information submitted by RFS as confidential, unless advance agreement is made regarding how to share and use specific information.

#### **4.4 Complaints and Appeals**

Zemo Partnership will ensure that complaints and appeals received in relation to audit check results, fees, suspension and withdrawals are considered, processed and monitored. The following steps will be followed:

- Acknowledge receipt of the complaint or appeal to the complainant within five (5) business days of receiving the complaint.
- Investigate the complaint and specify its proposed actions in response to the complaint within one (1) month. To cater for a situation in which an agreement cannot be reached, an agreement between relevant parties should be sought.
- Take appropriate action with respect to complaints and any weaknesses found in processes.
- Notify the complainant when the complaint is successfully addressed and closed.

#### **4.5 Renewable Fuel Supplier Suspension and Withdrawal**

##### Suspension

Failure to comply with the clauses stipulated in the RFAS agreement signed by each Renewable Fuel Supplier (RFS) once approved under the RFAS may result in suspension from the scheme.

The Renewable Fuel Supplier approval will be suspended if any of the following scenarios arise:

- Renewable fuels and/or blends sold by the RFS are no longer in compliance with the RFAS. This can be due, but not limited to, failure to close corrective action requests or the fuel no longer meeting the RFAS criteria.
- Evidence of serious misuse and/or fraudulent behaviour against RFAS requirements during verification audit checks, or ongoing monitoring.
- Failure to provide the documents required for on-going monitoring.

Documentation related to major non-compliances shall be collated by Zemo. This includes RFAS compliance audit reports, correspondence between Zemo and the RFS, or any information provided by the RFS in relation to the non-compliant matters. Deadlines for meeting RFAS compliance shall be clearly identified, in conjunction with the nonconformities.

Zemo shall trigger a concern regarding a RFS's failure to meet compliance and recommend RFAS suspension to the Technical Committee. All relevant documentation related to the non-compliance shall then be forwarded to the Technical Committee. The group shall determine whether the suspension should be approved. The review period is fourteen days.

At the end of the fourteen-day period, the RFS shall be informed of the suspension in writing, and within seven days of the suspension notice the company will be removed from the RFAS website and prohibited from issuing Renewable Fuel Declarations. The RFAS logo must be removed from the company website and all marketing materials.

The RFS shall be offered fourteen days to appeal the suspension in writing. This shall be emailed to [rfas@zemo.org.uk](mailto:rfas@zemo.org.uk). If a written appeal is not received, RFAS members who are the RFS's distributors shall be informed of the suspension and provided with guidance on how to issue their next round of Renewable Fuel Declarations. If a written appeal is submitted, the Technical Committee shall review any new evidence and make a recommendation to the RFAS Appeal Committee as to whether the suspension shall remain in place or be retracted.

The RFAS Appeal Committee shall determine whether to uphold the suspension or not, as the final decision. This shall take twenty-one days. If the RFS is permitted to return to the RFAS following their appeal, the company will be required to go through the formal RFAS application process including a compliance audit. The RFAS application fee will apply.

Zemo Partnership will review the suspension with the RFAS Technical Committee and RFAS Technical Lead. If all parties agree on suspension being the best course of action, the RFS will be notified within five working days of the decision being taken. Once notified, the RFS will have ten working days to appeal. Upon appeal receipt, Zemo Partnership will distribute the appeal to the RFAS TC and RFAS Technical Lead so that a final decision can be reached based on the evidence provided in the RFAS appeal and input received from RFAS TC and RFAS Technical Lead.

Once the suspension decision is taken and appeal process finalised, Zemo Partnership will formalise the suspension and update their records to show 'suspension date DD/MM/YYYY'. A final letter will be sent to the RFS and the RFS will remove all logos and RFAS references from all marketing material within five working days of the suspension date. The RFS suspension date will be shown on the Zemo Partnership website for a period of six months.

#### Withdrawal

In the event a Renewable Fuel Supplier does not intend to continue being approved under RFAS, written notification shall be sent to Zemo Partnership. The withdrawal will be processed within 10 days. Zemo Partnership will update their records to show the RFS has withdrawn its participation in the scheme 'withdrawn date DD/MM/YYYY'. The RFS will remove all logos and RFAS references from all marketing material within 30 days of the date of a signed confirmation of withdrawal letter from Zemo Partnership. The RFS' withdrawal date will be presented on Zemo's website for a period of six months.

#### **4.6 Public Information - Website**

Zemo Partnership will make the following information publicly available on their website:

- Renewable Fuel Supplier company name and renewable fuel blend(s) sold;
- Renewable Fuel Supplier reference number.

#### **4.7 RFAS Application and Participation Fees**

The RFAS requires companies to pay an application fee and annual participation fees to maintain on-going approval under the scheme. This includes the auditor compliance checks.

#### **4.8 RFAS Information**

RFAS application forms, GHG and Sustainability Disclosures and other enquires should be sent to [rfas@zemo.org.uk](mailto:rfas@zemo.org.uk).

## **5. Responsibilities and Competencies**

### **5.1 Zemo Partnership**

- Processing RFS application approval.
- Processing RFS suspension and withdrawal.
- Liaising with relevant stakeholders to harmonise the approach with RFAS.
- Providing and/or engaging with technical support when required.
- Processing complaints and appeals as per RFAS Technical Guidance Section 4.4.
- Managing public information shared on the website.
- Appointing audit providers.
- Ongoing monitoring, including the 6 month disclosure report and compliance audit checks.

### **5.2 RFAS Technical Committee**

- Providing Zemo with support on matters related to RFAS performance standards, compliance requirements and any regulatory changes influenced by national renewable fuels regulations.
- Commenting on consultation exercises Zemo undertakes and provide a sounding board for agreeing any revisions to RFAS Technical Guidance and RFAS application process.
- Supporting Zemo in determining any amendments required to the RFAS to allow the scheme to be managed more efficiently and evolve as membership expands.
- Providing independent review of non-compliance issues raised by Zemo.
- Reviewing evidence related to a Renewable Fuel Supplier's RFAS approval being suspended, and if the company wishes to appeal to the Technical Committee, they shall review mitigation attempts and if deemed appropriate, approve suspension from the scheme.

### **5.3 Renewable Fuel Supplier**

- Making its application to the scheme.
- Engaging with the audit provider.
- Ensuring on-going compliance with RFS performance standards.
- Informing Zemo Partnership about any changes affecting their status, such as contact personnel, company name, change in operations or similar.
- Ensuring compliance audit checks and six-month reporting are conducted within the timeframes.
- Determining corrective actions and sending evidence to the auditor for nonconformity closure.
- Reporting to Zemo Partnership any complaints received related to the compliance and performance within the scope of the scheme operations.

### **5.4 RFAS Audit Provider**

- Conducting application and compliance audits.
- Providing opportunities for improvement.
- Raising nonconformities when RFAS requirements are not met.
- Reviewing corrective actions and related evidence for nonconformities closure within 40 days of issuance.
- Reporting to Zemo Partnership any complaints or concerns relating to the scheme, that could compromise the reputation of the RFAS and/or Zemo Partnership.

#### Audit Provider Competencies:

- Knowledge and skills regarding the RTFO or other national renewable fuel policies, including GHG emissions calculations, mass balance and chain of custody requirements.
- Knowledge and audit skills (Lead Auditor Certificate).
- Experience in conducting audits following assurance engagement standard (ISAE 3000, AA1000).
- Audit experience for bespoke schemes and standards in line with RFAS.

#### **5.5 RFAS Technical Lead**

- Remaining up to date with legislation and applicable standards.
- Train and approve RFAS auditors.
- Conducting application and compliance audit reviews.
- Monitoring RFAS Audit Provider.
- Informing Renewable Fuel Suppliers of Technical Guidance updates.
- Preparing consultation documentation when updates in the Guidance are done.
- Collating RFS feedback for RFAS Technical Committee Meetings.
- Reviewing audit complaints and investigating as appropriate following Section 4.4 within the guidance.



## Appendix A: Renewable Fuel Supplier Approval Document



### Renewable Fuel Supplier Approval

**<Company name>, <registered address>**

<Company name> is approved under the Renewable Fuels Assurance Scheme, reference number <##/###/##>, to supply <renewable fuel> with a renewable fuel fraction of <#>%.

Approval period

<6<sup>th</sup> Month 2024> to <5<sup>th</sup> Month 2025>

Zemo Partnership signature  
Gloria Esposito, Head of Sustainability

<signature>

Approval date: <6<sup>th</sup> Month 2024>

## Appendix B: Renewable Fuel Declaration Examples

### Example 1: Liquid or Gaseous Biofuels



### Renewable Fuel Declaration



This declaration can only be issued by a RFAS approved fuel supplier. Reliance on a declaration obtained from a non-approved supplier results in the chain of custody being broken and the information presented becoming invalid. Scan the QR code for a list of approved suppliers.

| Customer & Supplier Information     |                   |                                    |                                |
|-------------------------------------|-------------------|------------------------------------|--------------------------------|
| Customer name                       | Zemo Logistics    | Customer address                   | An Industrial Estate, AB12 3DE |
| Renewable fuel supplier             | Fuel Supplies Ltd | Renewable fuel supplier identifier | XYZ1/22                        |
| Category of renewable fuel supplier | Trader            | Declaration period                 | 3 months - Apr to Jun 2024     |
| Declaration number                  | XY/01/Apr-Jun24   | Date declaration issued            | 3rd July 2024                  |

| Renewable Fuel Description           |                                 | Greenhouse Gas Emissions Performance         |                             |
|--------------------------------------|---------------------------------|--|-----------------------------|
| Renewable fuel                       | HVO                             | GHG emissions intensity of fuel supply chain | 12.39 gCO <sub>2</sub> e/MJ |
| Renewable content percentage         | 100%                            | GHG emissions savings                        | 87%                         |
| Volume of fuel supplied              | 10,000 litres                   |  |                             |
| Renewable fuel production process    | Hydrogenation and isomerization |  |                             |
| Country of renewable fuel production | Netherlands                     |  |                             |
| Distribution of fuel to customer     | Road tanker                     |  |                             |

| Feedstock Sustainability                                      |                                  |
|---|----------------------------------|
| Renewable fuel feedstocks                                     | Used cooking oil                 |
| Country(s) of origin  | China, Singapore                 |
| Traceability from feedstock origin                            | Feedstock has been mass balanced |
| Supply chain voluntary sustainability scheme certification(s) | Yes - ISCC                       |

| Further Information   |  |
|---|--|
| GHG emissions relate to Scope 3 emissions in corporate GHG emissions reporting (Greenhouse Gas Protocol). |  |
| GHG emissions savings of more than 100% means that the renewable fuel is carbon negative.                 |  |
| Renewable fuel supplier has corporate GHG emissions reduction plan: Yes                                   |  |

**GHG Emissions Savings Compared To Fossil Fuel**  
(calculated using the RTFO Fossil Fuel Comparator of 94 gCO<sub>2</sub>e/MJ)

GHG savings %

| Grade | GHG Savings % Range |
|-------|---------------------|
| A+    | 101+                |
| A     | 91-100              |
| B     | 81-90               |
| C     | 71-80               |
| D     | 61-70               |
| E     | 51-60               |
| F     | 41-50               |
| G     | 31-40               |
| H     | 21-30               |
| I     | 11-20               |
| J     | 0-10                |

Fossil and pump diesel

**This declaration is non-transferable:** fuel distributors must be approved under the RFAS to issue declarations to their customers.

The GHG emissions savings associated with this renewable fuel have been counted towards the UK transport GHG emissions savings targets under the Renewable Transport Fuel Obligation (RTFO).

Guidance on calculating Well-to-Wheel GHG emissions can be found via the QR code.

|              |           |
|--------------|-----------|
| RFAS period: | 2024-2025 |
|--------------|-----------|

[www.zemo.org.uk/RFAS](http://www.zemo.org.uk/RFAS)

Version 2.1

## Example 2: Blends of Liquid or Gaseous Biofuels



### Renewable Fuel Declaration



This declaration can only be issued by a RFAS approved fuel supplier. Reliance on a declaration obtained from a non-approved supplier results in the chain of custody being broken and the information presented becoming invalid. Scan the QR code for a list of approved suppliers.

| Customer & Supplier Information     |                   |                                    |                                |
|-------------------------------------|-------------------|------------------------------------|--------------------------------|
| Customer name                       | Zemo Logistics    | Customer address                   | An Industrial Estate, AB12 3DE |
| Renewable fuel supplier             | Fuel Supplies Ltd | Renewable fuel supplier identifier | XY/Z1/22                       |
| Category of renewable fuel supplier | Trader            | Declaration period                 | 3 months - Apr to Jun 2024     |
| Declaration number                  | XY/01/Apr-Jun24   | Date declaration issued            | 3rd July 2024                  |

| Renewable Fuel Description           |                                 | Greenhouse Gas Emissions Performance         |                             |
|--------------------------------------|---------------------------------|--|-----------------------------|
| Renewable fuel                       | HVO                             | GHG emissions intensity of fuel supply chain | 52.16 gCO <sub>2</sub> e/MJ |
| Renewable content percentage         | 50% HVO, 50% fossil diesel      | GHG emissions savings                        | 45%                         |
| Volume of fuel supplied              | 10,000 litres                   |  |                             |
| Renewable fuel production process    | Hydrogenation and isomerization |  |                             |
| Country of renewable fuel production | Netherlands                     |  |                             |
| Distribution of fuel to customer     | Road tanker                     |  |                             |

| Feedstock Sustainability                                      |                                  |
|---|----------------------------------|
| Renewable fuel feedstocks                                     | Used cooking oil                 |
| Country(s) of origin  | China, Singapore                 |
| Traceability from feedstock origin                            | Feedstock has been mass balanced |
| Supply chain voluntary sustainability scheme certification(s) | Yes - ISCC                       |

| Further Information   |  |
|---|--|
| GHG emissions relate to Scope 3 emissions in corporate GHG emissions reporting (Greenhouse Gas Protocol). |  |
| GHG emissions savings of more than 100% means that the renewable fuel is carbon negative.                 |  |
| Renewable fuel supplier has corporate GHG emissions reduction plan: Yes                                   |  |

**GHG Emissions Savings Compared To Fossil Fuel**  
(calculated using the RTFO Fossil Fuel Comparator of 94 gCO<sub>2</sub>e/MJ)

| Grade | Savings Range (%) |
|-------|-------------------|
| A+    | 101+              |
| A     | 91-100            |
| B     | 81-90             |
| C     | 71-80             |
| D     | 61-70             |
| E     | 51-60             |
| F     | 41-50             |
| G     | 31-40             |
| H     | 21-30             |
| I     | 11-20             |
| J     | 0-10              |

Fossil and pump diesel

|  |           |
|--|-----------|
| <b>This declaration is non-transferable:</b> fuel distributors must be approved under the RFAS to issue declarations to their customers.   |           |
| The GHG emissions savings associated with this renewable fuel have been counted towards the UK transport GHG emissions savings targets under the Renewable Transport Fuel Obligation (RTFO). |           |
| Guidance on calculating Well-to-Wheel GHG emissions can be found via the QR code.  |           |
| RFAS period:   | 2024-2025 |
| <a href="http://www.zemo.org.uk/RFAS">www.zemo.org.uk/RFAS</a>   |           |
| Version 2.1  |           |

### Example 3: Renewable Hydrogen



## Renewable Fuel Declaration



This declaration can only be issued by a RFAS approved fuel supplier. Reliance on a declaration obtained from a non-approved supplier results in the chain of custody being broken and the information presented becoming invalid. Scan the QR code for a list of approved suppliers.

| Customer & Supplier Information     |                   |                                    |                                |
|-------------------------------------|-------------------|------------------------------------|--------------------------------|
| Customer name                       | Zemo Logistics    | Customer address                   | An Industrial Estate, AB12 3DE |
| Renewable fuel supplier             | Fuel Supplies Ltd | Renewable fuel supplier identifier | XY/Z1/22                       |
| Category of renewable fuel supplier | Trader            | Declaration period                 | 3 months - Apr to Jun 2024     |
| Declaration number                  | XY/01/Apr-Jun24   | Date declaration issued            | 3rd July 2024                  |

| Renewable Fuel Description            |                               | Greenhouse Gas Emissions Performance  |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
|---------------------------------------|-------------------------------|---|----------------------------|----|------|---|--------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|------|
| Renewable fuel                        | Hydrogen                      | GHG emissions intensity of fuel supply chain  | 7.22 gCO <sub>2</sub> e/MJ |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| Renewable content percentage          | 100% renewable                | GHG emissions savings   | 92%                        |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| Volume of fuel supplied               | 10,000 kg                     | <div style="background-color: #f96; padding: 5px;"> <b>GHG Emissions Savings Compared To Fossil Fuel</b><br/> <small>(calculated using the RTFO Fossil Fuel Comparator of 94 gCO<sub>2</sub>e/MJ)</small> </div> <p>GHG savings %</p> <table border="1"> <tr><td>A+</td><td>101+</td></tr> <tr><td>A</td><td>91-100</td></tr> <tr><td>B</td><td>81-90</td></tr> <tr><td>C</td><td>71-80</td></tr> <tr><td>D</td><td>61-70</td></tr> <tr><td>E</td><td>51-60</td></tr> <tr><td>F</td><td>41-50</td></tr> <tr><td>G</td><td>31-40</td></tr> <tr><td>H</td><td>21-30</td></tr> <tr><td>I</td><td>11-20</td></tr> <tr><td>J</td><td>0-10</td></tr> </table> <p>Fossil and pump diesel</p> |                            | A+ | 101+ | A | 91-100 | B | 81-90 | C | 71-80 | D | 61-70 | E | 51-60 | F | 41-50 | G | 31-40 | H | 21-30 | I | 11-20 | J | 0-10 |
| A+                                    | 101+                          |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| A                                     | 91-100                        |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| B                                     | 81-90                         |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| C                                     | 71-80                         |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| D                                     | 61-70                         |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| E                                     | 51-60                         |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| F                                     | 41-50                         |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| G                                     | 31-40                         |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| H                                     | 21-30                         |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| I                                     | 11-20                         |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| J                                     | 0-10                          |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| Renewable fuel production process     | Electrolysis                  |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| Depot based or centralised production | Centralised production        |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| Country of renewable fuel production  | UK                            |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| Distribution of fuel to customer      | HGV tube trailer - compressed |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |
| Dispensing                            | 350bar compressed gas         |   |                            |    |      |   |        |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |      |

| Feedstock Sustainability                                       |                       |
|--|-----------------------|
| Renewable fuel feedstocks                                      | Renewable electricity |
| Method of renewable electricity generation                     | Wind turbines         |
| Country(s) of origin   | UK                    |
| Supplier certified under international H2 certification scheme | No                    |

| Further Information   |  |
|---|--|
| GHG emissions relate to Scope 3 emissions in corporate GHG emissions reporting (Greenhouse Gas Protocol). |  |
| GHG emissions savings of more than 100% means that the renewable fuel is carbon negative.                 |  |
| Renewable fuel supplier has corporate GHG emissions reduction plan: Yes                                   |  |

**This declaration is non-transferable:** fuel distributors must be approved under the RFAS to issue declarations to their customers.

The GHG emissions savings associated with this renewable fuel have been counted towards the UK transport GHG emissions savings targets under the Renewable Transport Fuel Obligation (RTFO).

Guidance on calculating Well-to-Wheel GHG emissions can be found via the QR code.

RFAS period: 2024-2025

[www.zemo.org.uk/RFAS](http://www.zemo.org.uk/RFAS)

Version 2.1

### Example 4: Non-UK



## Renewable Fuel Declaration



This declaration can only be issued by a RFAS approved fuel supplier. Reliance on a declaration obtained from a non-approved supplier results in the chain of custody being broken and the information presented becoming invalid. Scan the QR code for a list of approved suppliers.

| Customer & Supplier Information     |                      |  |                                |
|-------------------------------------|----------------------|--|--------------------------------|
| Customer name                       | Zemo Logistics       | Customer address                             | An Industrial Estate, AB12 3DE |
| Renewable fuel supplier             | Fuel Supplies S.A.U. | Renewable fuel supplier identifier           | XY/Z1/22                       |
| Category of renewable fuel supplier | Trader               | Date or period of fuel renewable fuel supply | Apr to Jun 2024                |
| Declaration number                  | XY/01/Apr-Jun24      | Date declaration issued                      | 3rd July 2024                  |

| Renewable Fuel Description        |                                 | Greenhouse Gas Emissions Performance         |                             |
|-----------------------------------|---------------------------------|--|-----------------------------|
| Renewable fuel                    | HVO                             | GHG emissions intensity of fuel supply chain | 12.39 gCO <sub>2</sub> e/MJ |
| Renewable content percentage      | 100%                            | GHG emissions savings                        | 87%                         |
| Volume of fuel supplied           | 10,000 litres                   |  |                             |
| Country of renewable fuel supply  | Spain                           |  |                             |
| Renewable fuel production process | Hydrogenation and isomerization |  |                             |
| Distribution of fuel to customer  | Road tanker                     |  |                             |

| Feedstock Sustainability                                      |                                  |
|---|----------------------------------|
| Renewable fuel feedstocks                                     | Used cooking oil                 |
| Country(s) of origin  | China, Singapore                 |
| Traceability from feedstock origin                            | Feedstock has been mass balanced |
| Supply chain voluntary sustainability scheme certification(s) | Yes - ISCC                       |

| Further Information  |           |
|--|-----------|
| The GHG emissions intensity of the fuel supply chain is calculated on a Well-to-Wheel basis using the Renewable Energy Directive 2018/2001/EU (RED II) methodology. The methodology accepts Tank-to-Wheel GHG emissions to be zero.                    |           |
| GHG emissions savings of more than 100% means that the renewable fuel is carbon negative.  |           |
| The GHG emissions savings associated with this batch of renewable fuel have already been taken into account in the calculation of the share of renewable energy in an EU member state or under a similar mandate in another country (e.g. UK, Norway). |           |
| <b>This declaration is non-transferable:</b> fuel distributors must be approved under the RFAS to issue declarations to their customers.   |           |
| RFAS period:   | 2024-2025 |

**GHG Emissions Savings Compared To Fossil Fuel**  
calculated using a fossil fuel comparator of 94 gCO<sub>2</sub>e/MJ

GHG savings %

|    |        |
|----|--------|
| A+ | 101+   |
| A  | 91-100 |
| B  | 81-90  |
| C  | 71-80  |
| D  | 61-70  |
| E  | 51-60  |
| F  | 41-50  |
| G  | 31-40  |
| H  | 21-30  |
| I  | 11-20  |
| J  | 0-10   |

Fossil and pump diesel

[www.zemo.org.uk/RFAS](http://www.zemo.org.uk/RFAS)

Version 2.1

## Appendix C: GHG and Sustainability Disclosure

The RFS shall submit the following information per renewable fuel approved under the RFAS to Zemo Partnership on a six-monthly basis.



| Greenhouse Gas and Sustainability Disclosure Report  |  |  |  |
|--|--|--|--|
| Renewable fuel supplier name   |  |  |  |
| Renewable fuel supplier identifier   |  |  |  |
| Company contact name   |  |  |  |
| Company contact email  |  |  |  |
| Date of submission   |  |  |  |
| Declaration reporting period   |  |  |  |
| Renewable fuel types and blends sold   |  |  |  |
| Volumes of each renewable fuel type and blend sold or dispensed  |  |  |  |
| Volume units (litres or kg)  |  |  |  |
| Proportion of each renewable fuel blend going to road vehicle fleet  |  |  |  |
| Proportion of each renewable fuel blend going to NRMM  |  |  |  |
| Proportion of each renewable fuel blend going to distributors / other  |  |  |  |
| Units for proportion of fuel to road / NRMM / other (litres, kg or %)  |  |  |  |
| Average GHG emission intensity for each renewable fuel blend (gCO <sub>2</sub> e/MJ)   |  |  |  |
| Average GHG emission savings* for each renewable fuel blend (%)  |  |  |  |
| Renewable fuel feedstocks  |  |  |  |
| Number of customers receiving each renewable fuel type and blend   |  |  |  |
| List (or provide the range for) the renewable fuels declaration unique reference numbers raised over the last 6 months (e.g. REF/001-REF/010)  |  |  |  |
| List your renewable fuel suppliers for this period (applicable to Category B suppliers)  |  |  |  |
| <p><i>This report should be emailed to Zemo Partnership (rfas@zemo.org.uk).</i></p> <p><i>UK RFS: Data for Q1 and Q2 (combined or separate) is due by 30th November of the same calendar year.</i></p> <p><i>                  Data for Q3 and Q4 (combined or separate) is due by 31st May of the following calendar year.</i></p> <p><i>Non UK RFS: Data for Q1, Q2, Q3 and Q4 (combined or separate) is due by 31st May of the following calendar year.</i></p> |  |  |  |

Version 2.1

\* based on Fossil Fuel Comparator of 94 gCO<sub>2</sub>e/MJ

## Appendix D: Fuel Lifecycle Greenhouse Gas Emissions Calculations

The following GHG emissions values are required for the RFAS:

- Renewable fuel: GHG emissions intensity (gCO<sub>2</sub>e/MJ) and GHG emissions savings (%).
- Renewable fuel blends: GHG emissions intensity (gCO<sub>2</sub>e/MJ) and GHG savings (%).

This can entail using a default value for the renewable fuel or calculating the fuel lifecycle GHG emissions applying actual values. The following fuel lifecycle parameters shall be used and calculated in accordance with D1 – D4. These are based on the RTFO Guidance 2, therefore please refer to the guidance for further details.

Table D1: Fuel Supply Chain Parameters for Calculating Total GHG Emissions (E)

|                  |   |
|------------------|---|
| E <sub>ec</sub>  | Extraction or cultivation of raw materials.   |
| E <sub>l</sub>   | Annualized over 20 years GHG emissions from carbon stock change due to land use change.   |
| E <sub>p</sub>   | Renewable fuel production process.  |
| E <sub>td</sub>  | Transport and distribution - includes downstream emissions for distribution up to and including the filling station. Compression or liquefaction of gaseous fuels and distribution by road tanker, marine vessel or distribution through dedicated pipeline (including UK and European gas grid in the case of biomethane). |
| E <sub>u</sub>   | Fuel in use (CO <sub>2</sub> treated as zero).  |
| E <sub>sca</sub> | Savings from soil carbon accumulation via improved agricultural management.   |
| E <sub>ccr</sub> | Savings from carbon capture and replacement.  |
| E <sub>ccs</sub> | Savings from carbon capture and geological storage - this shall take into account GHG emissions associated with abatement technology and transport and distribution of CO <sub>2</sub> to storage.  |
| E <sub>fh</sub>  | Fugitive hydrogen emissions specifically related to hydrogen losses in RFNBO supply chains.   |

Under RFAS it is possible to apply a GHG emissions offset for biomethane produced from biogenic waste feedstock comprising of manure and slurry (consistent with the REDII framework). This 'manure credit' recognises the capture of fugitive methane emissions. Evidence of the GHG emissions calculation verification will be requested during the compliance audit, e.g. Proof of Sustainability documentation.

### Calculating GHG emissions intensity of renewable fuel

#### D.1 Biofuels

GHG emissions intensity calculation:  $E = E_{ec} + E_l + E_p + E_{td} + E_u - E_{sca} - E_{ccs} - E_{ccr}$

#### D.2 RFNBO Fuels

GHG emissions intensity calculation:  $E = E_{ec} + E_p + E_{td} + E_u - E_{ccs} + E_{fh}$

### D.3 Default & Disaggregated GHG values

The RTFO Guidance 2 allows for use of default and disaggregated default values as long as these are available for the renewable fuels, feedstock and specific processes. Please refer to the guidance for further details. However, when these figures are not available, actual calculations will be required.

- Any direct land-use change must be taken into account and the additional emissions added to the default value.
- Any fossil fuel not listed in this appendix, will need an LCA for savings calculation purposes.
- There are no default factors under RED and RTFO for liquified biomethane, only compressed. Therefore, a separate calculation shall be performed for bio-LNG. A GHG intensity value for liquification and road tanker distribution to a refuelling station will need to be determined, with the fuel life cycle calculation evidenced. This shall be added to the GHG intensity for CBG, taking into account AD plant operation, grid injection and any grid fugitive losses, in cases where biomethane is mass balanced through the gas grid.

### Calculating GHG emissions intensity of renewable fuel blends

GHG emissions intensity calculation:

$$E = \left( E_{FF} \times \frac{Q_{FF}}{Q_{Fuel}} \right) + \left( E_{RW} \times \frac{Q_{RW}}{Q_{Fuel}} \right)$$

- $E_{FF}$ : GHG emissions intensity from fossil fuel used. See Table D2
- $Q_{FF}$ : Fossil fuel quantity
- $Q_{Fuel}$ : Total renewable fuel quantity
- $E_{RW}$ : GHG emissions from renewable fuel used
- $Q_{RW}$ : Renewable fuel quantity

Table D2: Fuel Supply Chain Parameters for Calculating Total GHG Emissions (E) in Net CV

| Fossil Fuel                                   | Carbon Intensity (gCO <sub>2e</sub> /MJ) |
|---|--|
| CNG <sup>4</sup>                              | 67.96                                    |
| LNG <sup>4</sup>                              | 76.76                                    |
| Diesel (fossil) <sup>4</sup>                  | 91.93                                    |
| Petrol (fossil) <sup>4</sup>                  | 88.96                                    |
| Gas-To-Liquid (Synthetic Diesel) <sup>5</sup> | 94.0                                     |

In relation to fossil synthetic fuels not listed, the source of the fuel lifecycle carbon intensity shall be identified. Evidence shall be provided of the final GHG emissions savings for different GTL and renewable fuel blends following the same calculation.

### Calculating GHG emissions savings

$$\text{GHG savings} = \frac{(FFC_{CI} - F_{CI})}{(FFC_{CI})} \times 100$$

- $FFC_{CI}$ : Fossil Fuel Comparator carbon intensity (94 gCO<sub>2e</sub>/MJ)

$F_{CI}$ : Carbon intensity for fuel to be reported under RFAS (as a blend or as 100% renewable)

<sup>4</sup> DESNZ (2023) UK Government GHG Conversion Factors for Company Reporting (Scope 1 + Scope 3)

<sup>5</sup> JEC (2020) Well To Tank Pathways



## Appendix E: RFAS Compliance Requirements for Renewable Hydrogen Supply Chains (RFNBOs)

### Chain of custody and mass balance

Requirements as set out in Section 3 'RFAS Performance Standard – Compliance Requirements' within the RFAS Guidance documents must be followed in addition to the following sector specific requirements:

E.1 System procedures shall specify the production technique, process flow, hydrogen purity and production energy sources.

E.2 Feedstock categorisation shall be aligned with the RTFO 'List of feedstocks including wastes and residues'.

E.3 Hydrogen shall meet the following criteria for under RFAS:

- a. Produced using electricity and/or heat and/or cooling from wind, solar, aerothermal, geothermal or water (including hydrothermal sources, waves and tides).
- b. Energy production must not be derived from biomass, landfill gas, sewage treatment plant gas or biogases.
- c. Guarantees of origin (GoO) may be used to provide evidence that a given share or quantity of energy required to produce hydrogen was generated from renewable sources. In this scenario, Guarantees of Origin and the production unit can be connected through the national electricity grid. A Power Purchase Agreement between the renewable electricity producer and the hydrogen producer shall be in place.

E.4 The feedstock and process energy type shall be given, e.g. water and solar electricity.

E.5 For part RFNBO, part non-RFNBO:

- a. Renewability methodology at production plant level shall be included in the application form and approved by Zemo;
- b. The same GHG intensity is applied to both the RFNBO and non-RFNBO parts of the fuel;
- c. The GHG emissions intensity shall be calculated for the RFNBO (renewable) and non-RFNBO (fossil) fractions;
- d. Only the RFNBO fraction shall be claimed as renewable;
- e. Quantities shall be monitored and supporting evidence maintained.

E.6 Mass balance requirements must:

- a. Follow clause '3.5.2 Mass balance' within the RFAS Guidance and shall incorporate purity information and supporting evidence shall be provided (e.g. production reports, analysis);
- b. The mass balancing period shall not exceed three months;
- c. Electricity and GoOs shall be allocated equally to the overall production within the plant and all byproducts;
- d. Renewable Fuel Credits can be transferred into the next mass balance period if the equivalent amount of material is physically available. Transferring credits between materials is only allowed for one mass period and for products with similar physical characteristics;
- e. GoO must be obtained aligning with the mass balance period. A maximum of one rolled over is allowed;

- f. Renewable hydrogen approved under the RFAS must not be double counted through any other hydrogen certification scheme (e.g. EU CERTIFHY) the producer and/or supplier is associated with. Hydrogen certificates for batches of RFAS approved hydrogen must not be traded and should be cancelled. Evidence of cancelled hydrogen certification will be checked in the audit.

E.7 Hydrogen distribution:

- a. Hydrogen can be mixed in the transmission and distribution infrastructure (e.g. pipeline), provided that the infrastructure is interconnected. This means the same infrastructure can be used for renewable hydrogen and non-renewable hydrogen. However, the quantity and quality of the hydrogen fed into and taken out of the distribution infrastructure shall be monitored and shall be verifiable. At the end of the respective mass balancing period, the quantity of hydrogen taken out of distribution infrastructure shall not exceed the quantity of hydrogen fed into it;
- b. Documents issued by the respective distribution infrastructure authority providing evidence that the quantities have been monitored and verified must be made available to the auditor.

**Calculating hydrogen supply chain GHG emissions**

The formulae below shall be used to determine the greenhouse gas emissions performance of the hydrogen supply chain; each element of the production pathway being associated with a carbon intensity (gCO<sub>2</sub>e/MJ). The full calculation shall be provided by renewable fuel supplier.

GHG emissions intensity = production + storage + distribution + dispensing at refuelling station + fugitive H<sub>2</sub> emissions.

$$(E = E_{ec} + E_p + E_{td} + E_u - E_{ccs} + E_{fh})$$

Table E1: Elements of hydrogen life cycle GHG emissions calculation

|  |   |
|--|---|
| Production                                     | Relates to plant used to produce hydrogen (i.e. electrolyser) and purification.   |
| Storage - compression /liquefaction            | Hydrogen requires compression or liquefaction for bulk transport, this can be at various pressures. The total volume that can be stored compressed and transported on a tube trailer will vary from 350–1000 kg. For liquid hydrogen this rises to 3500kg.  |
| Distribution                                   | Entails transporting compressed or liquified hydrogen from point of production to the end customers. Typically undertaken using truck tube trailer. There may be situations when hydrogen is supplied from outside of the UK, arriving by ferry or ship, either as compressed or liquefied hydrogen. Compressed hydrogen can also be distributed by pipeline. Distance and volume of hydrogen transported is required, assuming return journey for road and sea transportation. |
| Dispensing at the refuelling station (350 bar) | This entails compression and cooling. Hydrogen can also be stored as liquid hydrogen, with compressed gas dispensing.   |
| Fugitive H <sub>2</sub> emissions              | Hydrogen losses can arise across the supply chain, a default factor of 1.4 gCO <sub>2</sub> e/MJ shall be used for fugitive H <sub>2</sub> emissions. A GWP of 5.8 is applied to hydrogen.  |

Hydrogen production, storage, distribution and dispensing H<sub>2</sub> have an energy requirement (kwh/kg H<sub>2</sub>) and an associated GHG emissions intensity. Energy consumption data should be provided alongside GHG emissions data sets. All values shall be associated with the lower heating value for hydrogen.

### GHG emissions factors for energy use and feedstocks

Zemo has defined various emissions factors which should be adopted for calculating GHG emissions associated with grid electricity, diesel, natural gas and biomethane – Table E2.

If hydrogen is produced outside of the UK, any use of grid electricity for the production plant, and compression or liquefaction units, shall adopt the electric grid GHG emissions factor of the country where this takes place. The grid electricity factor chosen, and its source, shall be disclosed. Any other source of primary energy shall be identified, with associated GHG emissions factors stated, for example compression or liquefaction equipment.

Table E2: Recommended GHG emissions factors

|                         |  |
|-------------------------|--|
| Grid Electricity        | DESNZ GHG Conversion Factors for Company Carbon Reporting 2023: generation and consumption, including WTT (primary fuel production emissions) and transmission and distribution losses – Scope 2 and 3 for UK production only. |
| Natural Gas /Biomethane | DESNZ GHG Conversion Factors for Company Carbon Reporting 2023: Scope 1 (combustion emissions) and Scope 3 (fuel production emissions) for UK production only.   |
| Diesel                  | DESNZ GHG Conversion Factors for Company Carbon Reporting 2023: Scope 1 (combustion emissions) and Scope 3 (fuel production emissions).  |
| Renewable Electricity   | Assumed to have a carbon intensity of zero.  |
| Nuclear electricity     | 3.8 gCO <sub>2e</sub> /MJ (JEC 2020 Well-To-Tank Report v5).   |

Additional assumptions and data sources:

- Fuel economy value for a diesel HGV trailer (44t) transporting hydrogen is: 33 L/100km.
- Ferry transportation: DESNZ Company Carbon Reporting (2023) for freighting goods by RoRo Ferry, Scope 3 emissions.

### Hydrogen as a by-product – allocation of production (EP) energy and GHG emissions

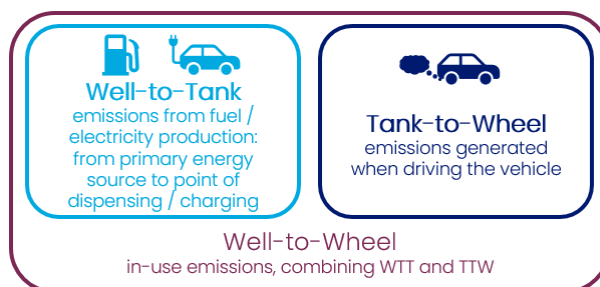
Low carbon hydrogen can be produced as a by-product from certain industrial processes such as chlor-alkali when using renewable electricity. RFAS will only approve industrial plants which derive a proportion, or all, of the electrolyser primary energy from renewable power. The carbon intensity must be calculated using the total energy consumption for the electrolyser – this may involve a combination of grid electricity and renewable electricity. The fraction of renewable electricity used to power the electrolyser shall be identified and distributed to all products produced equally.

The electrolyser energy demand, and GHG emissions, associated with the hydrogen by-product can be accounted for through an allocation procedure. This takes into consideration the environmental burden across all the end products. There are various approaches including mass (weighed average), economic, molecular and system expansion allocation methods. The renewable fuel supplier can choose an approach and provide calculations to demonstrate how the electrolyser energy use, and GHG emissions, have been allocated to each product. The calculation of GHG emissions shall account for the primary energy sources of the plant's electrolyser. The allocation method chosen cannot be changed, it must remain consistent throughout RFAS approval. The carbon intensity of electrolyser using both renewable and grey hydrogen shall be supplied in cases with mixed primary energy sources, the associated energy demand for the plant shall also be provided.

## Appendix F: RFAS GHG Emissions and Company Carbon Reporting

The RFAS Renewable Fuel Declarations provide the customer with GHG emissions intensity data for the fuel supplied in gCO<sub>2</sub>e/MJ. Zemo has produced a simple calculator to help fleet operators use this data to estimate their vehicle fleet Well-to-Wheel (WTW) GHG emissions in kgCO<sub>2</sub>e.

**Figure F1: Well-to-Tank, Tank-to-Wheel and Well-to Wheel**



The GHG emissions intensity of the renewable fuel, or blend, provided in the Renewable Fuel Declaration is based on a fuel lifecycle methodology. The methodology is aligned with the RTFO methodology, whereby all GHG emissions from the combustion of renewable fuels (or the renewable fuel component of a blend) are accepted as zero.

This differs slightly from the GHG Protocol methodology used in company carbon reporting, whereby the Scope 1 (vehicle in-use or Tank-to-Wheel) GHG emissions for biofuels are based on N<sub>2</sub>O and CH<sub>4</sub> emissions, while CO<sub>2</sub> emissions are set to zero. (CO<sub>2</sub> from combustion is offset by the CO<sub>2</sub> absorbed by the biomass feedstock during growth as per Figure 2.)

Thus, the renewable fuel specific carbon intensity found on the declarations could be used to calculate the supply chain specific Well-to-Tank emissions, in lieu of the Scope 3 (WTT) company reporting emissions factor. The Scope 1 (TTW) emissions factor can be sourced from DESNZ company reporting data, updated annually.

The calculator uses emissions factors and LHV (Lower Heating Value) data, sourced from the company GHG reporting conversion factors published annually by the UK Government Department for Energy Security and Net Zero (DESNZ, formerly BEIS) where available. The calculator displays three values for the WTW GHG emissions (kgCO<sub>2</sub>e) using:

1. RFAS declaration data only (as per RTFO methodology)
2. RFAS declaration and Scope 1 company reporting data
3. Scope 3 and Scope 1 company reporting data.

Please visit <https://www.zemo.org.uk/RFAS> to download the latest version of the calculator and user guide (Zemo plans to update the calculator in July each year, following the publication of the DESNZ company GHG reporting conversions factors).

Disclaimer: whilst every effort has been made to ensure the accuracy of this tool, Zemo Partnership take no responsibility or liability whatsoever for the results provided.

## Appendix G: Terms and Conditions

The RFS agrees to the following Terms of Reference:

- 1) Acknowledges and agrees with the general obligations and responsibilities for participation in the RFAS, as stipulated in the RFAS Technical Guidance Document including appendices. This includes annual payment of RFAS participation fee.
- 2) Agrees to conform to all applicable requirements and contractual obligations, corrective actions and related data requests within the RFAS scope.
- 3) Acknowledges and agrees to provide records as requested by the RFAS and the appointed auditor to demonstrate compliance with the scheme.
- 4) Commits to and agrees that the quantities of renewable fuel covered by the scheme have only been accounted for under one initiative scheme.
- 5) Acknowledges and agrees that the Zemo Partnership and RFAS names and logos will not be used:
  - In a way that could cause confusion, misinterpretation, or loss of credibility.
  - In a way that implies Zemo Partnership endorses, participates in, or is responsible for activities performed by the Company, outside the scope of RFAS.
- 6) Acknowledges and agrees that suspension of RFAS participation may occur if:
  - Renewable fuels covered and systems are not in compliance with the Renewable Fuel Performance Standard.
  - Evidence of misuse and/or fraudulent behaviour regarding RFAS requirements is detected.
  - It fails to provide the documents required for ongoing monitoring.

## Appendix H: Definitions

**Batch:** Specific amount of material with the same sustainability characteristics within a mass balance period.

**Feedstock:** Raw material used to produce renewable fuel. Approved feedstocks under this scheme are aligned with the RTFO.

**Mass balance:** Monitoring system to ensure renewable fuel quantities are controlled. Please refer to RTFO Guidance 2 Section 8 for a detailed explanation.

**Non-Road Mobile Machinery (NRMM):** Defined by the RTFO as any vehicle which falls within the scope of Regulation (EU) 2016/1628 and includes any mobile generator, machinery (including construction and loading vehicles), tractors, rail vehicle, inland waterways vessel (excluding ferries) or inshore pleasure craft (that does not need a maritime safety certificate) which makes use of an internal combustion engine. Mobile generators are only considered NRMM if they are truly mobile and are regularly moved (rather than simply “moveable”).

**Organisation:** The person or legal entity applying for compliance with RFAS.

**Renewable Diesel:** Renewable paraffinic fuels including HVO.

**Renewable Fuel:** A fuel from a source that is either inexhaustible or can be indefinitely replenished at the rate at which it is used. For the purposes of this document, it refers to biofuels, advanced fuels and renewable fuels from non-biological origin (RFNBOs).

**Renewable Fuels of Non-Biological Origin (RFNBOs):** A type of renewable fuel where all the energy of the fuel comes from the input process energy (with no feedstock energy), and all of this process energy is from renewable sources other than bioenergy. A partially renewable fuel is one where part of the energy content of the fuel is from renewable sources and part is from non-renewable sources. Wholly and partially renewable fuels can be either liquid or gaseous.

**Renewable Supplier Identifier:** This is a unique reference number linked to one operator, traceable to a validity status under a certification or a scheme.

**Renewable Transport Fuel Certificates (RTFC):** Obligated fuel suppliers under the RTFO are required to redeem a number of RTFCs in proportion to the volume of fossil fuel and unsustainable renewable fuels they supply. RTFCs may be earned by any company supplying sustainable renewable fuels. They may also be bought or sold on an open market.

**Renewable Transport Fuel Obligation (RTFO):** UK Government's low carbon fuel policy for reducing greenhouse gas (GHG) emissions from road transport.

**Site:** One geographical location with precise boundaries within which products can be mixed.

**Supplier:** An individual, company or other legal entity providing feedstocks or low carbon fuels to an organisation.