



Advanced Fuels Fund

Guidance document for applicants

Version 1.1

This guidance document provides information on applying to the Department for Transport's Advanced Fuels Fund. This document should be read in advance of submitting any application and should be referred to throughout the process.

Following a commitment laid out in the UK Government's October 2021 [Net Zero Strategy](#), the Advanced Fuels Fund was launched on 19 July 2022 by the Department for Transport (DfT). The fund aims to support the UK's emerging advanced fuels sector, with the **key objective of the Advanced Fuels Fund** being to:

Support the UK advanced fuels sector in development and commercial deployment of innovative fuel production technologies that are capable of significantly reducing near-term UK aviation emissions, strengthening the UK project pipeline, and broadening technology options.

To achieve this objective, the Advanced Fuels Fund will competitively allocate up to £165 million in grant funding to support UK advanced fuel projects until 31 March 2025.

The Advanced Fuels Fund will look to prioritise first-of-a-kind (FOAK) commercial scale sustainable aviation fuel plants that require additional support to become ready for investment and construction. It will also be open to support earlier stage projects during feasibility and design stages, demonstration scale projects, and those projects not yet targeting aviation fuels but with future plans and the ability to do so – see Section B for a full explanation of the competition scope. A sub-pot of £22 million will also be available specifically to support projects that use CO₂ (point source or direct air capture) as their main carbon source in fuel production.

The Advanced Fuels Fund will be administered and managed on behalf of DfT by delivery partners Ricardo Energy & Environment and E4tech (part of ERM Group).

Window 1 of the Advanced Fuels Fund is open to applications until 14 September 2022. Application documents are available on the [fund website](#). Further dates for the Advanced Fuels Fund are available in Table 1, Section C.

Those interested in the Advanced Fuels Fund should register interest by emailing AFF@ricardo.com to ensure you are kept up-to-date as the scheme progresses.

This guidance document has three sections (it is vital to read and understand all sections ahead of an application):

- **Section A** - The fund background.
- **Section B** - Fund objectives and eligibility criteria.
- **Section C** - Guidance for applicants.

Please see the [fund website](#) for supplementary information, such as anonymised questions and responses that will be published on a regularly updated FAQ page. If applicants have any questions about these guidelines, they should send these to AFF@ricardo.com.

SECTION A: THE FUND BACKGROUND

This section sets out the background to the Advanced Fuels Fund, and the rationale for this new initiative.

Background

The UK has challenging goals for reducing greenhouse gas (GHG) emissions. In transport, the electrification of vehicles will have a key role, but the aviation sector currently has few alternatives to using liquid fossil fuels. Biofuels derived from wastes and residues, fuels made from renewable or nuclear electricity and waste-based fossil fuels could deliver significant GHG savings. However, other than commercially mature hydrotreating routes using segregated waste oils and fats, these conversion routes are yet to be commercialised and face high upfront capital costs and investment barriers which are challenging to overcome without government intervention.

In the UK, DfT have encouraged the deployment of waste/residue-derived biofuels and renewable fuels of non-biological origin through double counting under the Renewable Transport Fuel Obligation (RTFO), and inclusion of aviation fuels within the RTFO 'development fuels' sub-target. DfT have also provided previous grant funding to industry projects via the £25 million [Advanced Biofuel Demonstration Competition](#) (ABDC), the £20 million [Future Fuels for Flight and Freight Competition](#) (F4C) and the £15 million [Green Fuels, Green Skies \(GFGS\) Competition](#). Whilst these demand-side and supply-side policy approaches have been successful at helping build innovative biofuel demonstration projects and designing a number of SAF projects, there is still an ongoing need to support the development of the emerging UK advanced fuel sector as it scales up to commercial production.

The Advanced Fuels Fund will provide £165 million of grant funding to help accelerate the development and deployment of advanced fuel plants in the UK. The fund will also aim to leverage private investment, both by supporting projects to reach an "investor ready" status and by prioritising projects that have secured match¹ funding. The design of the Advanced Fuels Fund was supported by an [industry survey](#) conducted in Q1 2022.

To ensure the Advanced Fuels Fund achieves its stated objectives, it is necessary to clearly define the scope of the fund and provide the criteria used to assess the eligibility of proposed projects. This is discussed in Section B.

¹ Match funding means any funding that covers the costs incurred on the project which are not funded by the Advanced Fuels Fund.

SECTION B: FUND OBJECTIVES AND ELIGIBILITY CRITERIA

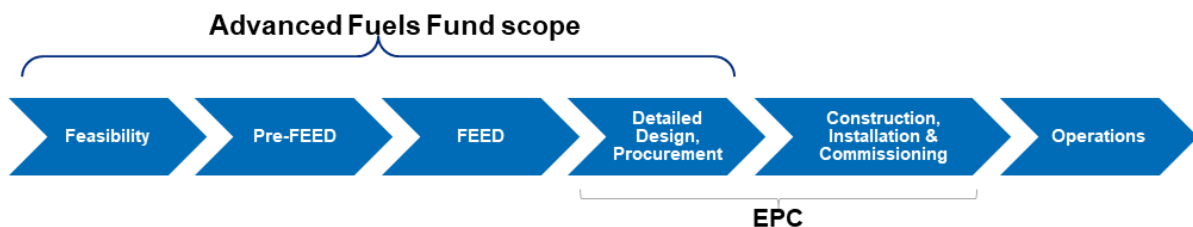
This section provides an outline of the Advanced Fuels Fund, its objectives and eligibility criteria.

Overview

The purpose of the fund is to support the development of the emerging UK advanced fuel sector as it scales up to commercial production. To achieve this, the Advanced Fuels Fund will provide funding to FOAK commercial and demonstration-scale projects in the UK at all development stages up to construction starting, including “Feasibility”, “Pre-Front End Engineering Design (Pre-FEED)”, “Front End Engineering Design (FEED)” and the “Detailed Design” and “Procurement of Main Equipment” stages within “Engineering, Procurement & Construction (EPC)” (definitions provided in Appendix C). In total, up to £165 million in grant funding will be provided to winning projects for work during the Funding Period.

The first application window for the Advanced Fuels Fund will run over summer 2022, and a second application window is expected to open in summer 2023 (See Section C: Overview and Timetable).

Figure 1. Project lifecycle stages and the Advanced Fuels Fund scope



Objectives

The **key objectives of the Advanced Fuels Fund** are to:

- Support the UK advanced fuels sector with the commercial deployment of innovative fuel production technologies that are capable of significantly reducing near-term UK aviation emissions.
- Broaden and strengthen the UK project pipeline, getting as many UK projects as possible to an "investment ready" state.
- Support the advancement of a diverse range of technology routes to SAF and other advanced fuels.

The **objectives for projects** receiving financial support are:

- **Technology demonstration:** material progress towards commercial scale production of an eligible fuel, with high process reliability and performance.

- **Fuel production:** develop a project with the capability to produce commercially significant volumes of eligible fuel, including for the purposes of attaining certification.
- **Commercial potential:** develop a strategy for commercialising the technology and the products from the project, evidencing the potential for value to the UK.
- **Emissions reduction:** demonstrate the potential for the produced fuel to achieve low lifecycle GHG emissions.
- **Project execution:** bring together a team with the necessary expertise and experience to deliver the project according to its objectives
- **Investor confidence:** catalyse private investment or attract new investors into the project and reduce investment risks.

The fund will also allocate a sub-pot of up to £22 million out of the total £165 million, specifically to support projects that use CO₂ (point source or direct air capture) as their main carbon source in fuel production. This sub-pot is in recognition of both the longer-term potential of these pathways but also nearer-term challenges in sourcing CO₂ and low carbon hydrogen and will help to ensure the Advanced Fuels Fund supports a diverse range of technologies that utilise a range of sustainable feedstocks.

Eligibility Criteria

In order to be eligible to apply to the Advanced Fuels Fund, a project must comply with the following minimum requirements:

Category	Eligibility Criteria
Main fuel output	<p>One of the main fuel outputs of the project (comprising at least 45% of the total fuel output by Lower Heating Value (LHV) energy content¹) must show the ability or future potential to be blended with jet A-1:</p> <ul style="list-style-type: none"> i. Ideally the fuel would already meet ASTM D1655/D7566 or DEF STAN 91-091 fuel specifications and could be used immediately; or ii. The pathway is currently engaged with the ASTM D4054 evaluation process; or iii. The pathway is yet to enter the ASTM evaluation process but there is clear evidence of the fuel's future potential to be blended with jet A-1. <p>Alternatively, one of the following cases must hold²:</p> <ul style="list-style-type: none"> iv. First-of-a-kind commercial project where the main fuel output (>45% of total fuel) is avgas, evidencing ASTM D910 or DEF STAN 91-090 could be met, with evidence also provided of the technical potential and commercial strategy to retrofit the project to produce >45% jet A-1; or

¹ Co-products such as electricity, heat, biochar and other solid co-products are not counted as fuel outputs. Liquid and gaseous co-products are counted as fuel outputs (e.g. naphtha, heavy fuel oil, hydrogen, methane, LPG, isobutene). Fuel outputs of the project are taken to mean outputs from the funded plant and any downstream upgrading facilities (e.g. refineries) that form part of the pathway.

² Some examples are provided here for illustrative purposes only, assuming any main fuel output meets the relevant specifications.

A FOAK commercial plant producing 50% jet A-1 and 50% naphtha would be eligible.

A FOAK commercial plant producing 20% jet A-1 and 80% methane would not be eligible.

A FOAK commercial plant producing 60% diesel and 40% naphtha could be eligible if it can be retrofitted to produce >45% jet A-1.

A demonstration plant producing 60% diesel and 40% naphtha could be eligible if future plants can be shown to be able to produce >45% jet A-1.

A demonstration plant producing 30% avgas and 70% petrol would not be eligible.

	<ul style="list-style-type: none"> v. First-of-a-kind commercial project where the main fuel output (>45% of total fuel) is a drop-in liquid fuel for road transport, evidencing BS EN: 590 for diesel could be met when blended at 25% or above by LHV energy content, with evidence also provided of the technical potential and commercial strategy to retrofit the project to produce >45% jet A-1; or vi. Demonstration project where the main fuel output (>45% of total fuel) is avgas, evidencing ASTM D910 or DEF STAN 91-090 could be met, with evidence also provided of the technical potential and commercial strategy to modify the technology to produce >45% jet A-1 in future facilities (retrofit of the demonstration plant is not required); or vii. Demonstration project where the main fuel output (>45% of total fuel) is a drop-in liquid fuel for road transport, evidencing BS EN: 590 for diesel could be met when blended at 25% or above by LHV energy content, with evidence also provided of the technical potential and commercial strategy to modify the technology to produce >45% jet A-1 in future facilities (retrofit of the demonstration plant is not required).
TRL	<p>The proposed plant must achieve Technology Readiness Level¹ 6-8 (small demonstration, large demonstration or FOAK commercial scale) once operational. The proposed technology must already be at least TRL 5 (pilot plant) today.</p>
Feedstocks	<p>Eligibility rules vary according to the feedstock type used:</p> <ul style="list-style-type: none"> • Biomass feedstocks (including the original feedstocks used to derive any intermediate fuels) should have the potential to qualify as a ‘development fuel’ feedstock under the RTFO – i.e. be a double-counting, sustainable biomass waste or residue (excluding segregated oils/fats)². Waste biomass feedstocks, such as the biogenic fraction of Refuse Derived Fuel (RDF)³, must demonstrate compliance with the definition of a waste⁴, and with the waste hierarchy⁵. • The following Recycled carbon fuel (RCF) feedstocks are permitted: the fossil fraction of RDF and waste industrial fossil gases. These feedstocks must also demonstrate compliance with the definition of a waste, and with the waste hierarchy. • Hydrogen production as part of the funded project, or where hydrogen purchases exceed 5% (by LHV energy content) of the total fuel output, must evidence how this hydrogen is likely to meet the requirements of the UK Low Carbon Hydrogen Standard, using annual average or BEIS default data. Hydrogen production or hydrogen purchases derived from fossil natural gas, coal or oil cannot

¹ Technology Readiness Level (TRL) is a relative measure of the maturity of evolving technologies on a scale of 1 to 9. Full TRL definitions are given in Appendix B, with current TRLs for a large number of technologies given in the [GFGS Feasibility Study](#). The fund will not support fully commercialised pathways (TRL 9), nor will it support pilot plant (TRL 5) activities.

² The current status of many feedstocks can be found in RTFO list [here](#). Please note that all single counting feedstocks, used cooking oil, tallow other segregated fats/oils and dedicated energy crops are not eligible feedstocks for producing development fuels. Applicants that are uncertain of the eligibility of their feedstocks should direct questions to AFF@ricardo.com by 14 September 2022.

³ Or Municipal Solid Waste or Commercial & Industrial waste that is converted into RDF onsite, before fuel production

⁴ If the feedstock is claimed to be a waste, evidence is provided that this is a material which the holder discards, intends to discard, or is required to discard, and has not been purposefully mixed with other materials in order to become a waste, nor have any existing processes been modified to generate more of the feedstock.

⁵ i.e. not taking feedstock supplies from existing more environmentally beneficial uses. This requires consideration of how the waste material could not have been prevented, re-used or recycled, and hence the only alternatives available are energy recovery or disposal.

	<p>exceed 5% (by LHV energy content) of the total fuel output of the project.¹</p> <ul style="list-style-type: none"> • Renewable fuels of non-biological origin (RFNBOs) must follow the current RTFO guidance on CO2 sourcing. • Nuclear electricity or heat is permitted as a feedstock, provided any intermediate hydrogen produced meets the requirements above, and the RTFO guidance on CO2 sourcing (for RFNBOs) is followed. <p>These feedstock eligibility requirements and the list of eligible feedstocks may change for the second application window. The Advanced Fuels Fund is not specifying any additional requirements for renewable or nuclear energy for this first application window.</p>
Greenhouse Gas emissions	<p>FOAK commercial scale plants must demonstrate they will deliver a fuel output with lifecycle GHG emissions not exceeding 31 gCO₂e/MJ LHV during their first full year of operation. Demonstration plants do not have to meet this threshold but must demonstrate how a future FOAK commercial plant will meet this threshold in its first full year of operations.²</p> <ul style="list-style-type: none"> • For nuclear energy pathways, the same GHG methodology as for RFNBOs under the RTFO should be followed. • For recycled carbon fuels, the GHG methodology should follow Appendix E of this document. The maximum lifecycle GHG emissions permitted for any RCF consignment of a FOAK commercial plant is also set out in Appendix E. <p>To claim a carbon capture utilisation/storage benefit in any GHG emissions calculation, captured CO₂ must either be geologically stored or utilised in applications that can evidence their permanence (no rapid release of CO₂).</p>
Location	The proposed plant must be located in the UK.
Project Lead	The project lead must be a UK registered company or charity. The project lead must supply a UK company registration number.
T&Cs	Applicants must accept the grant offer letter terms and conditions in full at the application stage. Further negotiation is not possible. ³
Project lifecycle stage	Activities proposed within Feasibility, Pre-FEED, FEED, Detailed Design and Procurement of Main Equipment stages are eligible. Ineligible activities include Construction, Installation, Commissioning, Start-up and Operations. The project must not have already commenced Construction.
Eligible costs and grant intensity	Funding cannot be used for previously funded activities or to replace private sector investment. ⁴ The maximum grant funding intensity is 100% of total eligible costs during Feasibility, Pre-FEED and FEED stages, and 50% at 'Detailed Design' and 'Procurement of Main Equipment' stages.
Timescales	Funding is only available for eligible project work completed during the Funding Period (to 31 March 2025). ⁵

¹ Some examples are provided here for illustrative purposes only. An electrolyser as part of the funded project for onsite hydrogen production will have to show it is likely to meet the Low Carbon Hydrogen Standard (LCHS). If a project produces 2,000 TJ/year of fuels, then purchase of 50 TJ/year of hydrogen does not have to show it is likely to meet the LCHS, whereas purchase of 200 TJ/year would have to. For this same project, consumption of hydrogen from natural gas reforming with CCS of 101 TJ/year would not be permitted (even if it likely met the LCHS).

² Project activities focused on demonstration-scale plants that do not achieve the GHG emissions threshold will have to evidence a clear and credible path to achieving the GHG emissions threshold for their future FOAK commercial-scale plants

³ An example grant offer letter is available via the [fund website](#).

⁴ Please refer to "Interaction with other funding schemes" in Section C of the guidance document for further information.

⁵ Please refer to "Fund scope and Funding Period" in Section C of the guidance document for further information.

Questions and points of clarification

Questions and points of clarification about the Advanced Fuels Fund should be emailed to AFF@ricardo.com. Anonymised questions and responses will be published on a regularly updated FAQ page, available on the [website](#).

Eligibility queries will be responded to promptly, but the final decision as to eligibility of a project resides with the DfT Fund Board and can only be confirmed upon submission of a full application and completion of the assessment process set out in Section C below. Note that a project being deemed eligible for the Advanced Fuels Fund is no guarantee of eligibility for the RTFO or any future UK SAF mandate, nor is it a guarantee that any hydrogen used will meet the UK's Low Carbon Hydrogen Standard once facilities are operational.

SECTION C: GUIDANCE FOR APPLICANTS

This section sets out the processes and actions for applicants.

Overview and Timetable

The following figure and table outline the fund process and prospective dates for its key stages.

Figure 2: Advanced Fuels Fund process

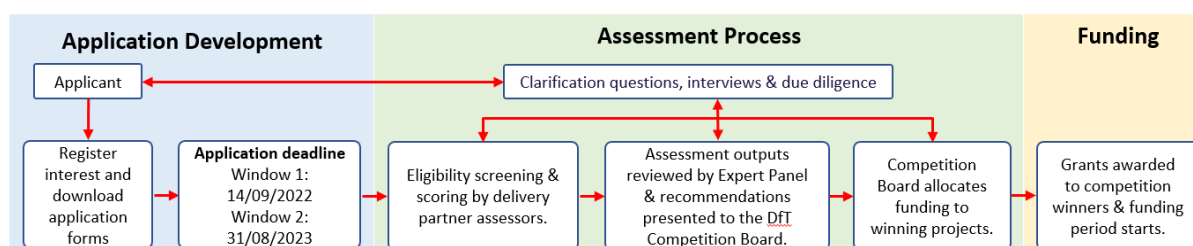


Table 1: Prospective dates for the Advanced Fuels Fund

Date	Stage
19 July 2022	Fund launched, Window 1 open for applications.
16:00 BST 14 September 2022	Window 1 Application deadline .
November 2022	Announcement of winners and the start of Funding Period for Window 1 projects.
12 June 2023	Window 2 open for applications (provided funds left after Window 1).
31 August 2023	Window 2 Application deadline .
November 2023	Announcement of winners and the start of Funding Period for Window 2 projects.
31 March 2025	End of Funding Period for all winning projects.

Who is managing the Advanced Fuels Fund?

The Advanced Fuels Fund will be administered and managed on behalf of DfT by the delivery partners Ricardo Energy & Environment and E4tech (part of ERM Group). DfT retains overall responsibility for the execution, eligibility and award decisions, contract terms and payments throughout.

Who can apply for funding?

Applications are expected primarily from private sector commercial organisations, with a range of project partners permissible, including SMEs¹ and academic institutions. Applications can be made by a single organisation or via a consortium/partnership with a project lead organisation that receives funds and signs up to the grant conditions. The lead applicant

¹ An SME is any organisation that has fewer than 250 employees and a turnover of less than €50 million or a balance sheet total less than €43 million. <https://www.gov.uk/government/publications/fcdo-small-to-medium-sized-enterprise-sme-action-plan/small-to-medium-sized-enterprise-sme-action-plan#what-is-an-sme>

organisation must be registered in the UK, and the project itself must be located in the UK (see eligibility criteria in Section B).

Those interested in the Advanced Fuels Fund should register interest by emailing AFF@ricardo.com to ensure you are kept up to date as the scheme progresses. Application documents will be made available on the [fund website](#) on 19 July 2022.

Scope and Funding Period

Project funding will be available for work completed during the “Funding Period”. This will begin following the assessment process in Autumn 2022 and runs until 31 March 2025. Applications will only be accepted to support eligible project work for First-Of-A-Kind (FOAK) commercial and demonstration plants at the following project development stages (see Appendix C for definitions):

- “Detailed Design” and “Procurement of Main Equipment” within “Engineering, Procurement and Construction (EPC)”
- “Front End Engineering Design (FEED)”
- “Pre-FEED” and
- “Feasibility Study”

The Funding Period for winning projects will begin after the finalisation of project specific grant conditions and all relevant grant agreement paperwork. Due to this, the Funding Period start dates may vary between winning projects. However, for the purpose of their applications, projects may assume their Funding Period begins on 1 November 2022.

Projects should not commit themselves to any expenditure on which grant funding may be sought until after a decision has been made on your application. If a grant offer letter is sent to you, you should sign and return it before incurring costs. DfT will not give grant funding to cover incurred costs that have started before a grant offer letter has been signed.

Funding Years

It is expected that project work may extend across multiple financial years and even beyond March 2025. However, DfT funding is only available for work that has been agreed and demonstrated to be completed by the end of each respective Funding Year on 31 March 2023 (the end of Funding Year 1), 31 March 2024 (the end of Funding Year 2) and 31 March 2025 (the end of Funding Year 3), in line with the grant awards for each of these Funding Years. The project work in each Funding Year that is tied to your grant requests must therefore be feasible to deliver by each of these deadlines.

Applicants must demonstrate how funds requested will be appropriately used by 31 March 2023, 31 March 2024 and 31 March 2025 within their application. Only work completed by the end of each Funding Year will be eligible for reimbursement. If there are delays in an earlier Funding Year that mean your project under-claims grants in one Funding Year, you will not be able to increase your grant award in the following Funding Year.

Eligible activities and costs

Please see Appendix D of this guide for a full list of eligible and ineligible costs. The fund will provide up to 100% grant funding for Feasibility, Pre-FEED and FEED stages, and up to 50% grant funding for Detailed Engineering and Procurement of Main Equipment stages. The fund will not provide funding for construction, installation, commissioning, start-up and operational costs.

Please contact the delivery partner if you have any questions regarding the eligibility of your project: AFF@ricardo.com. Anonymised questions and responses will be published on a regularly updated FAQ page, available on the [website](#).

What documentation is required for an application?

Applications must be completed using the application form available at <https://ee.ricardo.com/aff>. We will not consider applications submitted in any other format.

Please ensure that you follow the guidance within the application form regarding formatting and number of words per section. When doing so, please refer to this guidance document where necessary and ensure that you have complied with all the scheme requirements.

You may also be required to complete and submit the following documentation and supplementary evidence as part or in support of your application:

- Letters from all proposed partners confirming that they have agreed to be part of the consortium/alliance/partnership that will implement this project.
- Evidence to support the choice of technology including:
 - Detailed technical specifications and project schematics for the proposed plant.
 - Further evidence of pilots/previous plants.
- A summary of the overall work plan including governance plan of any consortium
- A detailed project budget for the grant funded activities (template provided)
- A projected cash-flow model for the future commercial plant (template provided)
- Details of match funding from project financiers (where relevant)
- An outline project risk assessment (template provided)
- A GHG emissions estimate for your project (template provided) with supporting evidence for assumptions used.
- Relevant documents to demonstrate the project's current development status. These may include financial agreements, planning permission, permits, fuel off-take agreements, feedstock supply agreements, engagement with key equipment suppliers and engineering contractors, process safety assessments etc.
- Relevant documentation to enable the completion of due diligence on the applicant(s).

All completed application forms and required attachments must be submitted electronically to AFF@ricardo.com by 16:00 BST on Wednesday 14 September 2022.

Applications will be logged and an acknowledgement email will be issued providing a unique reference number for your application within two days of the application date. This reference number should be used in all communications with the delivery partner about your application.

Please note that during the assessment period, you must be able to provide (within 5 working days) on request further evidence and clarifications materially connected to your application's assessment or needed to support due diligence undertaken by DfT. Please ensure that this information is readily available to avoid delay to grant award and enable commencement of

funded activities. The funding period will not be extended should there be delays to this process.

Assessment of applications

Applications received in time will be screened against the eligibility criteria provided in Section B. Applications that pass the eligibility criteria screening will then be passed to the scoring process where they will be assessed by at least 2 experts from the delivery partners against the scoring criteria provided below; these assessments will be submitted to an independent external Expert Panel for review before being passed to the DfT Fund Board. Due diligence of projects may also be commenced during this period. Projects may be asked to provide clarifications and/or may be invited to an interview regarding their application during this period.

All applications are subject to assessment and the assessment of applications will be based only on the information which is explicitly contained within your application and supporting documentation, or that is provided during clarification rounds or interview. You must not assume that the assessment team has any prior knowledge of your organisation or its work.

Scoring of applications

The total score awarded to an application in the scoring process will be calculated by applying a weighting to each of the scoring criterion given in Table 2 below. These scoring criteria will be assessed using the information you provide in your application form (primarily sections 2.3, 3, 4 & 5) and your appendices. The information in section 2.2 of your application form will be used to assess the eligibility of your project.

In order to be eligible for consideration for funding, projects that have met the eligibility criteria must score a minimum total weighted score of 50% in the scoring process. Where insufficient number of projects clear this threshold to appropriately award the £165 million in funding, the DfT Fund Board may lower this threshold or consider not awarding the full available funding accordingly.

It is expected that projects that are currently **closest to the commercial scale construction** of advanced fuel plants in the UK will be best placed to achieve the fund's objectives. The assessment process has therefore been designed to prioritise selecting and supporting activities related to FOAK commercial advanced fuel plants that require additional support to become "investor ready" and ready to start construction. To achieve this, the largest and most developed projects will be marked preferentially for some scoring criteria during the assessment process. However, other eligible projects that are able to demonstrate a clear alignment with the fund's objectives are expected to remain competitive within the scoring and assessment process.

In addition, projects that provide **match funding** will also be prioritised during the assessment process; with higher marks available to projects able to offer evidence of higher proportions of match funding secured during the Funding Period. However, DfT reserves the right to fund projects at up to 100% of total costs of eligible work where appropriate and where compliant with subsidy control requirements.

Table 2: Scoring criteria

Category	Scoring criteria
Project relevance (5%)	1. Clarity of the project objectives and relevance to the fund objectives
Technical approach (30%)	2. Credibility of the technological approach, clarity of the project data and justification with relevant pilot/demo plant data
	3. Level of innovation and progress as a result of the proposed plant
	4. Level of progression of the fuel pathway through ASTM certification process
	5. Level and evidence of fuel GHG emissions from the proposed plant (and expected fuel GHG emissions at commercial scale if different)
Commercial approach (20%)	6. Level of progression towards construction of a FOAK commercial plant as a result of the funded activities
	7. Potential and case for economic benefits of the proposed plant during construction and operation, including costs, revenues and jobs created
	8. Potential and case for benefits of future deployment of the technology within the UK, and benefits from export markets
Project Implementation (45%)	9. Credibility of current status of the project and readiness to proceed with funded activities
	10. Confidence in skills and experience of the project team
	11. Appropriateness of project management and governance structure and partners roles
	12. Appropriateness and credibility of the project work plan
	13. Detailed understanding of the project risks and their management
	14. Credibility of detailed project costing for the funded activities
	15. Strength of case for DfT funding, including level of match funding leveraged and status of securing funding

Funding allocation

Following the scoring of applications, the Expert Panel and then the DfT Fund Board will review those projects that have passed the minimum 50% score threshold. The DfT Fund Board will employ a portfolio approach for allocation of any funding, which will consider scores received through the scoring process, including the scores received in respect of individual scoring criteria, and the breadth of technology pathways represented by the applications that meet the quality threshold. This approach means that a project that achieves a lower overall score may still be selected for funding over higher scoring projects that use a production pathway for which one or more higher scoring applications have already been selected for funding.

The value of grant offers allocated to winning projects will also be at the discretion of the DfT Fund Board and will also be subject to this portfolio approach. This may result in projects receiving grant offers at less than their original request where the DfT Fund Board view is that projects may satisfactorily achieve some objectives with a lower funding offer, and/or where a reduced funding offer would enable a wider portfolio of projects to be supported by the fund.

The £165 million of total grant funding available is split across three Funding Years:

- Funding Year 1 = until 31 March 2023. Up to £47 million grant funding available
- Funding Year 2 = 1 April 2023 – 31 March 2024. Up to £59 million grant funding available
- Funding Year 3 = 1 April 2024 – 31 March 2025. Up to £59 million grant funding available

Project funding awards will therefore be allocated across these three specific Funding Years. Each successful project will have to stay within the bounds of their allocated funding awards for each Funding Year. An under-utilised funding award from one Funding Year cannot be carried forward to be added to any funding award in the next Funding Year.

The split of available funding across three Funding Years means that some projects might request support in e.g. both “FEED” and “Detailed Design” stages but only get awarded “FEED” support. Similarly, some projects might request support across all three Funding Years of the fund but are only awarded funds during one or two years, due to greater competition between successful projects in a particular Funding Year.

Applicants should note that nothing in this guidance document commits DfT to award any applicant a grant offer either at all or of any particular amount or on any particular terms. DfT reserves the right not to award any grant offers, in particular if DfT is not satisfied by the quality of proposals received or if the funding assigned to the scheme is reallocated to other purposes. DfT will not, under any circumstances, make any contribution to the costs of preparing proposals and applicants accept the risk that they may not be awarded any funding, or the amount of funding requested.

The DfT Fund Board will provide a letter with brief reasons for its decisions to any applicant that it decides not to fund or to provide only part of the funds sought. All decisions made by DfT are final.

CO2 use sub-pot

Funding of £22 million has been allocated to a sub-pot to prioritise UK projects (across Feasibility, pre-FEED, FEED, EPC (Detailed Design and Procurement of Main Equipment only) that will source the majority of their fuel carbon from CO₂ (point source or direct air capture). This sub-pot has £5 million available in Year 1, £7 million in Year 2 and £10 million in Year 3. The fund eligibility criteria still apply in full, including regarding low carbon hydrogen sources, lifecycle GHG emissions and CO₂ sourcing requirements. Projects using CO₂ will only be considered for support under this sub-pot if their application is sufficiently high quality to pass the minimum 50% score threshold.

Any unallocated budget from this sub-pot will be reallocated to the main funding pot. If there are more eligible projects using CO₂ than the sub-pot budget available, then once the sub-pot budget has been awarded to the highest scoring projects using CO₂, any further lower scoring projects using CO₂ will still be considered as part of the main funding pot. The total amount of support provided to projects using CO₂ may therefore exceed £22 million if there are enough high-quality projects using CO₂. Note that the DfT Fund Board will be considering the overall portfolio of projects when awarding funds under the main funding pot.

Second application window

It is expected that there will be a second application window in summer 2023 for this fund. DfT may also decide not to operate a second application window in the event that it has selected sufficient numbers of outstanding applicants in the first application window and awarded all the available funding. DfT may also decide not to allocate funds in the second window assessment process if the quality of the best applications from window 2 are significantly lower than successful window 1 applications. A project that has been rejected in the first application window can apply again during the second application window. A project that has been

awarded funding in the first application window can apply in the second application window for funding support for new eligible activities not covered by their first grant offer letter.

Maximum funding intensity

DfT has set the maximum grant funding intensity at 100% of total eligible costs during Feasibility, Pre-FEED and FEED stages, and at a maximum of 50%¹ of total eligible costs at 'Detailed Design' and 'Procurement of Main Equipment' stages within EPC. Eligible costs are set out in detail in Appendix D. Proposals that include match funding will be scored preferentially, with increased match funding able to score higher marks. The DfT Fund Board may rely on funding intensity to decide funding allocations in marginal cases. All applications for funding are subject to assessment and there is no guarantee that successful applicants will be offered the full amount they have applied for.

Maximum and minimum awards

While there is no maximum award limit per project, the total grant funding available is £165 million (split into a maximum of £47 million in Year 1, £59 million in Year 2 and £59 million in Year 3). There is also no guarantee that the full £165 million will be awarded. There is no minimum award threshold per project.

Interaction with other funding schemes

Grant schemes: It is possible to apply or to have applied for other grant scheme funding so long as Subsidy Control rules are not breached. This may mean a single eligible project applies for grants from two or more schemes up to the maximum subsidy control intensity, or that grants are applied to different elements of a project (e.g. electrolysis, CO2 capture), so long as the base eligible costs do not overlap. In particular, projects previously or currently being supported under the Green Fuels Green Skies (GFGS), Future Fuels for Flight and Freight Fund (F4C) or the Advanced Biofuels Demonstration Fund (ABDC) are required to demonstrate how funding through this fund will directly support different work even if for the same plant development project.

Loan schemes: Applicants that have received loans from other schemes remain eligible for Advanced Fuels Fund as long as the loans received were provided on a commercial basis (i.e. including an appropriate rate of interest).

Please contact the fund delivery partner if you have any questions regarding the eligibility of your project and interactions with other schemes: AFF@ricardo.com. Anonymised questions and responses will be published on a regularly updated FAQ page, available on the [website](#).

Due Diligence

For all valid applications, the applicants and each partner in any consortium may be subject to due diligence and must provide all information required in the fund application form to facilitate this process, plus any additional information requested during the assessment period. Due diligence may also be carried out on sources of match funding (where appropriate). Applications from any organisation failing these tests (including failure to provide requested

¹ This limit on Detailed Design and Procurement of Main Equipment stage funding is more relevant for demonstration scale projects – it is expected that DfT grants will provide very significantly less than 50% of the funding required for FOAK commercial plants at these Detailed Design and Procurement of Main Equipment stages.

information within the time frame requested) or involving a consortium that includes any organisation failing these tests, may be ruled ineligible.

Approval of applications

If your application for funding is successful, you will receive a grant offer letter. This offer may be subject to conditions that need to be met. The grant offer letter, including the terms and conditions of grant, form the agreement between your organisation and DfT. You must sign the offer letter and return it to establish the agreement. Applicants should review the example grant offer letter, as this will set out the terms and conditions that DfT will require successful applicants to sign up to.

Grant payments

The grant offer letter sets out all terms of the funding and the duties and responsibilities of both parties. DfT will only release milestone-based funds after signing of the grant offer letter. Grantees must follow the conditions in their agreements on release and use of funds. Applicants must also satisfy the due diligence, financial and organisational checks required prior to receiving public funds.

DfT recognises the importance of remaining flexible and pragmatic throughout project implementation and will consider changes to ensure the most effective use of funds. DfT should be requested to approve any changes to the overall impact and outcome of projects and any significant changes in outputs. Requesting a significant change may necessitate a re-examination of project purpose or implementation. DfT must approve any changes that require the movement of more than 10% of the total budget between budget lines. An updated work plan and budget may also be needed when requesting changes.

No extensions to the project timescales are expected given that funding is tied to delivery within each of the three Funding Years. Where circumstances outside the control of grantees occur that impact on delivery of the expected outputs in a given funding year, grantees must inform their delivery partner Monitoring Officer as soon as possible.

Funds should be claimed in arrears against evidence of expenditure which will usually take the form of a receipted invoice accompanied by evidence or copies of work undertaken towards the relevant payment milestone. Should this not be possible, on exception you may submit evidence of lack of funds and the payment may be able to be made in advance with DfT's written agreement. In the event of an advanced payment, any unspent funds must be repaid in full. A claim form will be issued with your grant offer letter. After each stage of work is completed, you will be expected to complete and submit a claim form. You will also need to provide a reasonable assurance report of the project expenditure from an independent accountant, as per the grant offer letter. Claims are submitted to the Fund delivery partner for processing. Claims will be processed within 21 working days of any claim being received by the Fund delivery partner. Finance is released against work carried out rather than a lump sum on approval.

Reporting

Each winning project will be provided a Monitoring Officer from the Advanced Fuels Fund delivery partner team. The grantee must maintain regular communication with their nominated Monitoring Officer.

The winning projects will be required to provide updates on the project progress including:

- A monthly report (due by the 15th of the following month). This is expected to take the form of a written update and a call with the Monitoring Officer.
- Additional information will be requested for stage gate approval (e.g. moving from FEED to Detailed Design within EPC)
- A monthly spend forecast.
- Additional details at key stages, quarterly and/or annually.
- A final financial and narrative report within 15 days of the end of the project.

Ricardo Energy & Environment and E4tech, who manage the Advanced Fuels Fund on behalf of DfT, will review all reports and will address any issues in these and contact grantees accordingly. They will be the first point of contact between grantees for any project reporting.

Reporting beyond project completion

It is expected that projects awarded a grant may be subject to future independent evaluation of their project as part of a wider Advanced Fuels Fund evaluation. This may be carried out by a third party on behalf of DfT and the grantees will be required to participate.

Intellectual property rights

IP developed within the project remains the property of the applicant/consortium. Any information provided to DfT may be subject to the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or other legislation. DfT will work with applicants to ensure that no commercially sensitive information is disclosed as far as possible under the law.

APPENDIX A: Currently certified ASTM SAF pathways, and those in the qualification process

Note that not all these pathways will be eligible for the Advanced Fuels Fund – feedstock, GHG emissions and other eligibility requirements apply. Additional pathways could also be considered.

ASTM Abbreviation	ASTM Description	Certification Status
FT-SPK	Fischer-Tropsch - Synthetic paraffinic kerosene	Certified
FT-SPK/A	Fischer-Tropsch - Synthetic paraffinic kerosene with added aromatics	Certified
HEFA-SPK	Hydroprocessed Esters & Fatty Acids - Synthetic paraffinic kerosene	Certified
HFS-SIP	Hydroprocessing of Fermented Sugars - Synthetic Iso-Paraffinic fuels	Certified
ATJ-SPK	Alcohol-to-Jet Synthetic Paraffinic Kerosene	Certified
CHJ	Catalytic Hydrothermolysis Synthesized Kerosene	Certified
HC-HEFA-SPK	Hydrocarbon-hydroprocessed Esters and Fatty acids	Certified
	Co-processing of up to 5 vol% FT waxes from MSW	Certified
	Co-processing of up to 5 vol% oils and fats in a refinery to produce kerosene	Certified
HDO-SAK	Hydro-deoxygenation Synthetic Aromatic Kerosene	Assessment
HFP HEFA-SK	High Freeze Point Hydroprocessed Esters and Fatty Acids Synthetic Kerosene	Assessment
IH ²	Integrated Hydropyrolysis and Hydroconversion	Assessment
ATJ-SKA	Alcohol-to-Jet Synthetic Kerosene with Aromatics	Assessment
ATJ	Alcohol-to-Jet	Assessment

Source: http://www.caafi.org/focus_areas/fuel_qualification.html

APPENDIX B: TRL definitions and Pilot vs. Demo vs Commercial scale definitions

TRL	Type of plant	Description
1	-	Basic principle observed
2	-	Technology concept formulated
3	Lab	Experimental proof of concept
4	Lab	Technology validated in lab
5	Pilot	Technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)
6	(Small) Demonstration	Technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
7	(Large) Demonstration	System prototype demonstration in operational environment
8	First-Of-A-Kind (FOAK) Commercial	System complete and qualified
9	Nth-Of-A-Kind (NOAK) Commercial	Actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies)

Source: Innovate UK <https://catapult.org.uk/wp-content/uploads/2020/12/EU-Catapult-Report-2015.pdf>

APPENDIX C: Project Lifecycle Stage Definitions

Note that the below table is intended to help a project clearly identify which stage of the project lifecycle they are at. It is not intended to give a complete breakdown of all outputs and outcomes expected at each stage – for example, outputs relating to planning permission, financing activities, supply and offtake agreements would also be expected in addition to the engineering outputs defined below, developed to a degree commensurate with the project’s lifecycle stage.

Lifecycle stage	Typical engineering outputs at this stage	Typical outcomes at this stage
Feasibility (Also known as FEL-1)	<ul style="list-style-type: none"> Options appraisal Heat & Mass Balance Project charter Order of magnitude CAPEX and OPEX assessment (between -20 to -50% and +30 to +80%) 	Determine the design options available and the feasibility of each design option. Several possible locations for the plant will have been evaluated at high level. Feasibility studies should enable the development of an AACE (Association for the Advancement of Cost Engineering) Class 5 Cost Estimate.
Pre-FEED (Also known as FEL-2)	<ul style="list-style-type: none"> Preliminary equipment design License cost (if needed) Preliminary layout Preliminary project schedule Preliminary CAPEX/OPEX estimates (between -15 to -30% and +20 to +50%) 	Identifying, defining and selecting the optimum business design/solution for a project’s development. A specific location for the plant will have been identified. Pre-FEED usually contains sufficient elements to perform a Class 4 or advanced 4 AACE cost estimate.
FEED (Also known as FEL-3)	<ul style="list-style-type: none"> Purchase-ready major equipment specifications Definitive CAPEX and OPEX estimate (between -10 to -20% and +10 to +30%) Project execution plan Preliminary 3-D model and advanced layout Process Flow Diagram (PFD) and Piping & Instrument Diagram (P&ID) Lists (i.e. electrical, civil, mechanical, instrumentation, piping) Preliminary Hazard Assessment on design (i.e. HAZOP) Process philosophies Safety assessment 	The outcome of this stage is used to take a Final Investment Decision (FID), triggering bidding for Execution Phase Contracts (EPC, EPCI, etc). A specific location for the plant will have been evaluated. FEED allows a Class 3 AACE cost estimate.
Detailed Design and Procurement of Main Equipment stages only (as part of EPC)	<ul style="list-style-type: none"> Definitive CAPEX and OPEX estimate (between -5 to -15% and +5 to +20%) Project execution plan 30% Plant Model Review Process flow diagrams (PFDs) Piping & Instrument Diagram (P&ID) Hazard Assessment on final design (i.e. HAZOP, SIL) Process, Control and Electrical philosophies. 	Detailed Design allows a Class 2 or Class 1 AACE cost estimate. The outcome of this stage is that major equipment orders will have been placed, and the detailed design forms the basis for the construction stage to be able to begin.

	<ul style="list-style-type: none">• Fluid data list• Logic and interlock diagrams.• Pressure relief devices• Functional safety philosophy.• Drawings (i.e. electrical, civil, mechanical, instrumentation, piping, layout elevation)• Safety Assessments (e.g. hazardous area classification, quantitative risk assessments, fire analysis, explosion analysis, fire detection studies, fire protection studies etc.)• Material Take Off (MTO)• Manual for Operations, Pre-Commissioning, Commissioning, Start Up and troubleshooting	
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APPENDIX D: Eligible and Ineligible Project Work

DfT can fund up to 100% of eligible project costs within the Feasibility, Pre-FEED and FEED project lifecycle stages, although with prioritised scoring for projects that can evidence match funding. DfT will not fund more than 50% of eligible project costs during Detailed Design and Procurement of Main Equipment during EPC stages. DfT will not fund construction, installation, commissioning, start-up or operational stages.

Eligible activities and costs

- Technical reviews, in-depth research and feasibility studies
- Strategy work and option appraisals
- Plant site identification and review
- Permitting and planning application work
- Feedstock availability assessments
- Economic assessments (including detailed revenue and cost modelling)
- Process Flow Diagram (PFD) and Process and Instrumentation Diagrams (P&IDs) development up to Approved for Construction revision.
- Hazard and Operability (HAZOP) and Hazard Identification (HAZID) Workshop
- Process and Mechanical specifications and data sheets
- Safety, Mechanical, Civil, Structural, Architecture, Electrical, Instrument's lists, drawings and studies
- Plant layout design and plant modelling work
- Material Take Off (MTO)
- Developing detailed GHG emissions projections for plants
- Developing detailed project execution plans, risk assessments, and detailed budgets
- Tendering, bidding, visiting vendor and subcontractor's site
- Procurement of main equipment for the project. The equipment eligible for grant support is the conversion and fuel upgrading technology, any onsite feedstock pre-processing equipment, CO2 capture equipment.
- Own labour costs, including agreed overheads and project management cost, but not profit. These costs should be directly linked to the design, and evaluation of the equipment contained in the project and auditable as such. In this context "own costs" include applicant's own costs and eligible costs incurred by consortium members and eligible costs incurred by companies connected to any of these
- Hosting meetings with potential consortia members
- Formalising a consortium or partnership arrangement
- Hosting meetings between applicant consortia and others necessary to further the development of the project
- Securing private sector funding
- Addressing legal issues

Ineligible activities and costs

- Any costs incurred before a grant offer letter has been signed with DfT
- Any cost incurred for construction or installation of the plant. This includes own or subcontractor labour, overhead and operating costs
- Any cost incurred in commissioning, start up, operations and maintenance

- Any bulk material costs including pipework
- Any building works
- Purchase or lease cost of any land on which the project is built
- Input VAT (except where it cannot be reclaimed by grantees)
- Interest charges, bad debts
- Hire purchase interest and any associated service charges
- Loan repayments
- Mark up and profits
- Profit earned by a subsidiary or by an associate undertaking work sub-contracted under the project
- Notional costs (e.g. opportunity costs)
- Audit fee for certification of claims by an independent accountant
- Grants that contribute directly to a company's distributed profits
- Endowments
- Funds to build up a reserve or surplus
- Retrospective funding
- Any costs that are already being funded by another grant source, or are to be funded by another grant source in the future
- Advertising, marketing, sales activities, entertaining

APPENDIX E: GHG emissions for Recycled Carbon Fuels

GHG emissions calculation methodology

For the purposes of the Advanced Fuels Fund, the GHG emissions associated with RCFs should be calculated following the methodology outlined in Box 1. This methodology does not indicate any confirmed policy position as to RCF GHG emissions under either the RTFO or SAF mandate.

Box 1: RCFs GHG emissions methodology

Under the counterfactual methodology, the GHG emissions from the production and use of RCFs, E , is calculated as:

$$E = E_{\text{prod}} + E_{\text{td}} + E_{\text{disp}} - E_{\text{CCS}}$$

Where:

E = total emissions from the use of the fuel (gCO₂e/MJ LHV)

E_{prod} = emissions from production and processing (gCO₂e/MJ LHV)

E_{td} = emissions from transport and distribution (gCO₂e/MJ LHV)

E_{disp} = emissions from displaced energy use (gCO₂e/MJ LHV)

E_{CCS} = emission saving from carbon capture and geological storage (gCO₂e/MJ LHV)

And

$$E_{\text{disp}} = \frac{E_{\text{e}} \times E_{\text{e}}}{E_{\text{RCF}}}$$

Where:

E_{e} = Efficiency of conversion in counterfactual use (%)

E_{e} = Emission factor of the displaced energy in counterfactual (gCO₂e/MJ LHV)

E_{RCF} = Efficiency of conversion to RCF (%)

Further details on how to follow the GHG methodology are as follows:

1. Emissions from production and processing, E_{prod} , include emissions from the production and processing itself; from waste and leakages; and from the production of chemicals or products used in processing.
2. Emissions from transport and distribution, E_{td} , includes emissions from the transport and storage of raw and semi-finished materials, wastes and leakages, and from the storage and distribution of finished materials.
3. Emission saving from carbon capture and geological storage, E_{CCS} , that have not already been accounted for in E_{prod} , shall be limited to emissions avoided through the

capture and sequestration of emitted CO₂ directly related to the transport, processing and distribution of fuel. The capture of any CO₂ at the start of the fuel chain, i.e. the collection of raw materials used to manufacture the assessed fuel, cannot be included within this E_{CCS} emission saving – nor can any recycling of captured CO₂ within the fuel chain – as these are not sequestration activities.

4. Emissions from displaced energy use, E_{disp}, shall be assumed to be from an EfW (electricity only) plant where E_{f_e} is assumed to be 22%. E_e should be taken to be the relevant average grid intensity figure for the country and year in question (forecast UK grid intensities are given below). E_{f_{RCF}} should be determined from the yield of fuel per unit of feedstock calculated on an energy basis. Suppliers of RCFs produced from industrial gases are required to demonstrate that heat generation is not displaced by the production of RCFs. If there is evidence that increased heating requirements arise due to the production of RCFs then heat generation is considered to be the counterfactual use.
5. Where an RCF production plant produces multiple coproducts (including excess heat or electricity that is exported and utilised), allocation by energy content should be undertaken, consistent with the current RTFO GHG methodology for biofuels. The factors to be allocated would be E_{disp} and those fractions of E_{prod}, E_{td} and E_{CCS} that take place up to and including the process step at which a co-product is produced.

UK grid intensity figures

The following forecast GHG emissions trajectory is from the Treasury Green Book, offset by 3 years to reflect the delay in updating official BEIS figures (since a plant starting full operations in January 2027 would be using data corresponding to the 2024 UK grid factor). If UK grid electricity is the displaced energy in the RCF counterfactual, then the data in this table is to be used directly to derive the E_e factor – e.g. if your plant is due to start full operations in 2027, read off the 2027 value for E_e.

First full year of operations	UK grid electricity intensity used for reporting in that year (gCO ₂ e/MJ _e)
2024	40.54
2025	37.88
2026	36.33
2027	39.64
2028	33.53
2029	24.72
2030	20.46
2031	18.92
2032	17.71
2033	14.06
2034	11.13
2035	9.62
2036	8.36
2037	7.59
2038	6.77

GHG emissions threshold

Based on the first full year of operations given in your application, the corresponding GHG emission threshold value in the table below is to be used to calculate whether the recycled carbon fuel (RCF) consignments produced from a FOAK commercial scale plant will be eligible under the Advanced Fuels Fund.

These values do not indicate any confirmed policy position as to RCF GHG emissions thresholds for either the RTFO or SAF mandate. Furthermore, eligibility for the Advanced Fuels Fund does not determine eligibility for the RTFO or SAF mandate, in either the first year of operations or any other given year, given operational emissions can vary from projected designs and can vary across years.

First full year of operations for FOAK commercial plant	RCF lifecycle GHG emissions threshold (gCO _{2e} /MJ _{LHV})
2024	41.3
2025	40.2
2026	39.5
2027	40.9
2028	38.3
2029	34.4
2030	32.5
2031	31.8
2032	31.3
2033	29.7
2034	28.4
2035	27.7
2036	27.2
2037	26.8
2038	26.5

These threshold values do not apply to biofuel, RFNBO or nuclear consignments produced from FOAK commercial plants, which are being assessed under the Advanced Fuels Fund against a fixed threshold of 31 gCO_{2e}/MJ_{LHV}.