

Industrial Energy Transformation Fund

Phase 3: Spring 2024 window

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www.ktn-uk.org



Department for
Energy Security
& Net Zero

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Housekeeping

- You will be muted during the event so please use the chat box in Youtube to ask questions about the competition process.
- Introduce yourselves on Youtube.
- The event is being recorded and you will be sent a link to the recording and the presentation slides after the event to share with colleagues.
- Book one to one discussions with DESNZ and Innovate UK KTN via Meeting Mojo. The meetings will take place from 13.00 – 15.00. They are 10minute discussions in confidence.

Register at <https://ietf-phase3.meeting-mojo.com/>



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Agenda

- 10.00 Welcome
- 10.05 IETF Competition: Scope, eligibility and application process
- 10.45 Q&A
- 11.00 Comfort break
- 11.10 Technology Pitches
- 11.40 IETF Competition: Application support service
- 11.50 Closing remarks

Networking platform

13.00 – 15.00 One to one discussions with the funders



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Overview

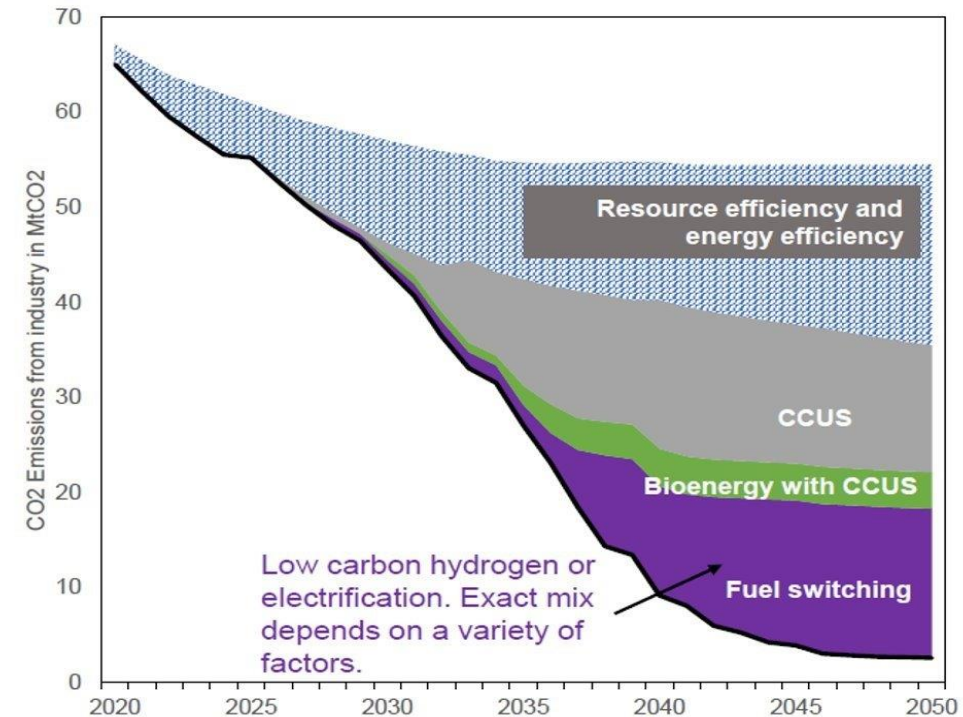
Context, IETF Successes, Objectives, Competition Window, Scope and Eligibility



Net Zero Industry

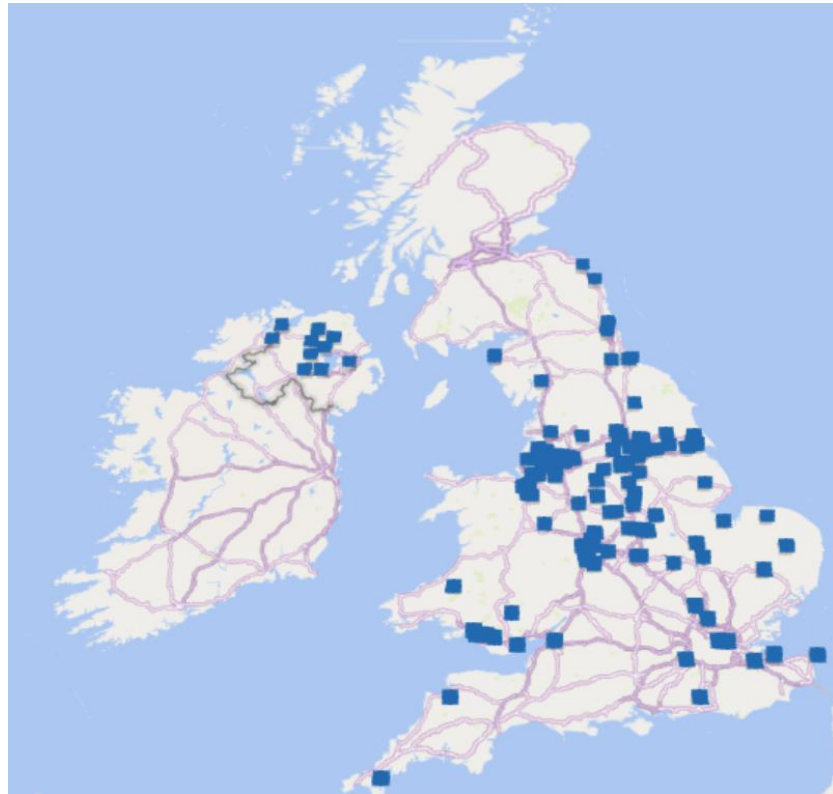
- Industrial emissions account for around 18% of UK emissions.
- To reach the Net Zero target in 2050 industrial emissions need to fall by around 90% from today's levels.
- The Powering up Britain publication sets out how the UK can have a thriving industrial sector aligned with the net zero target, without pushing emissions and business abroad.

Industrial Decarbonisation Pathway





IETF Successes



- So far we have allocated funding to **over 150 projects.**
- Winners come from across England, Wales, and Northern Ireland, both from within and outside industrial clusters.
- There is a good representation across eligible sectors, from small food processing companies to large chemical and metals manufacturers.
- Case studies of the past winners are published on [Gov.uk](https://www.gov.uk)



IETF Objectives

1. **Reduce industrial energy demand** so that less energy is used to perform the same tasks or produce the same results,
 2. **Reduce industrial emissions** supporting the delivery of carbon budgets 5 and 6, and
 3. Build and **de-risk the market for decarbonisation technologies** through supporting investment by **early movers**.
- The IETF is targeted at **industrial processes**





IETF Objectives- Delivery

By 2035, IETF funding is expected to deliver on these objectives by:

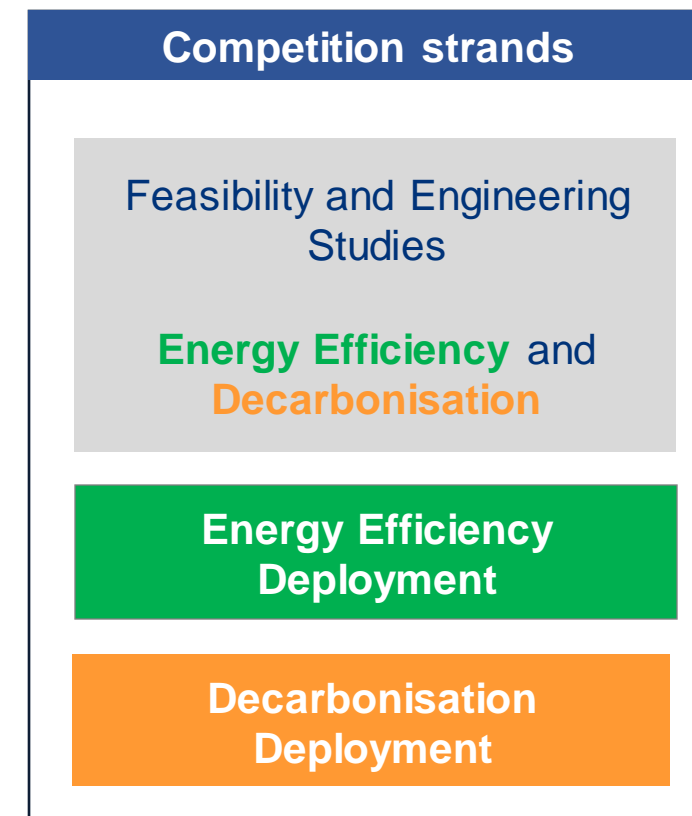
- Supporting industry to identify a pipeline of future projects by co-funding feasibility and engineering studies;
- Improving the energy efficiency of industrial processes by bringing the payback of projects within an investable range for companies;
- Incentivising early movers by making the low-carbon investment financially more attractive than the carbon-intensive option;
- Demonstrating the viability of a range of transformational technologies that can be replicated across UK industry and generating new industry and government knowledge of the costs, risks and benefits of these technologies.



IETF Funding and Competition Windows

Phase 3 of the IETF has a budget of up to £185m out to 2028, and two application windows to allocate funding.

Window	Open for Applications	Closed for Applications	Budget
Phase 3: Spring 2024	29 th January 2024	19 th April 2024	£185m
Phase 3: Summer 2024	Expected June/July 2024	Expected September 2024	





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- DESNZ will manage the application, assessment and award process for Phase 3
- Guidance and links to the application portal will be published on Gov.uk
- There is an IETF Enquiry email address (ietf@energysecurity.gov.uk) to answer questions on eligibility and the scheme not covered by guidance.



- The KTN can help you to partner with other businesses, access the Virtual Technology Marketplace, and will run events throughout the window.



- If you have a site in Scotland, please consider the range of support offered by the Scottish Government



Who is eligible to apply?

To lead an application, your organisation must be registered in **England, Wales, Scotland, or Northern Ireland**, and intend to carry out a study or project at a site in **England, Wales, or Northern Ireland**.

Eligible industrial processes	Standard Industrial Classification (SIC) codes
Mining and quarrying	07100 through to 08990; and 09900
Manufacturing	10000 through to 33200
Recovery and recycling of materials	38320
Data centres	63110
Industrial Laundries (New)	96010
Controlled Environment Horticulture (New)	1110, 1130, 1190, 1240, 1250, 1280, 1290, 1300, 1610





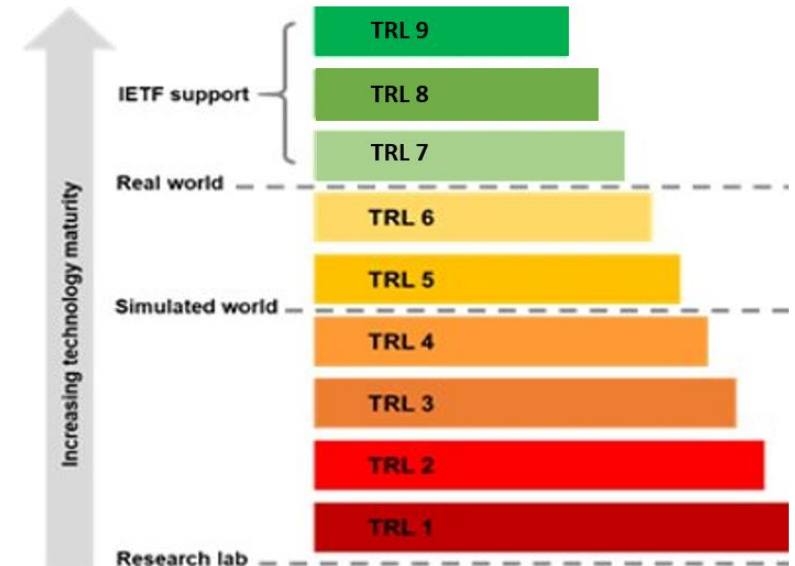
Changes to Phase 3 following consultation feedback

- Businesses registered in Scotland but with sites in England, Wales or Northern Ireland will be eligible to apply
- The minimum eligible grant threshold for deployment project for SMEs will be lowered to £75,000 from £100,000
- To safeguard the deliverability of projects, **applicants for deployment grants that exceed £5 million will be asked to provide a feasibility or Front-End Engineering Design study** in support of their application.
- The IETF will allow site relocations, subject to clearly defined constraints to ensure the basis upon which a grant award is given still holds through the relocation process.



Technology changes to Phase 3 following consultation feedback

- The eligible Technology Readiness Level threshold for energy efficiency technologies will be lowered to 7, matching the requirement for decarbonisation projects.
- Feasibility studies may include an investigation of offsite infrastructure requirements, subject to clearly defined battery (boundary) limits.
- Feasibility studies can now include **Options analysis**.
- Funding can support sites to investigate and deploy technologies that enable the use of recovered waste heat in heat networks and space heating in addition to a primary industrial use.





Collaboration

Lead applicants can collaborate with other organisations. As a **project partner** your organisation must:

- be a business of any size, a research organisation, a research and technology organisation, an academic institution, a charity or public sector organisation
- be registered in England, Wales, Scotland, or Northern Ireland
- carry out work in relation to the lead applicant's site located in England, Wales or Northern Ireland.

The maximum share of costs that research organisations may claim is 30%. This is the total across all research organisations on the project.

DESNZ will only have a legal relationship with, or pay money to, the lead applicant. The lead applicant and project partners will need to sign a **collaboration agreement**, before a Grant Funding Agreement can be signed with DESNZ.



Eligible costs for studies

The eligible costs for studies are the costs incurred in the process of producing the **final study report**. This will typically include resource costs such as consultancy or staff time.

In some instances, applicants may also need equipment to test or derive results necessary to the study.

- Costs associated with testing of products, processes and services are eligible provided they cannot be used, in any form, in industrial applications or commercially.
- Equipment cost claims should therefore reflect only the usage period relevant to the study based, for example, on depreciation or rental costs.

We have **expanded the scope of feasibility studies to allow for the inclusion of option analyses**, where a company may investigate more than one technology solution, provided these are intended to deliver the same outcomes.

The intention is to support studies necessary to **facilitate the permanent installation of technologies at industrial sites** rather than general research and development.

Costs for developing prototypes and pilots are not eligible.



Studies

Feasibility studies

Minimum threshold	Maximum threshold	Maximum subsidy intensity
£30k total eligible cost per study	£7m total grant funding per study	50% (large company) 60% (medium) 70% (small/micro)

Engineering studies

Minimum threshold	Maximum threshold	Maximum subsidy intensity*
£50k total eligible cost per study	£14m total grant funding per study	25% (large company) 35% (medium) 45% (small/micro)

*For an engineering study a further uplift of 15% in subsidy intensity is possible if it is an 'effective collaboration' between project partners- see IETF Phase 3 guidance.



Eligible costs for deployment projects

The IETF will provide grant funding towards the **up-front costs of deploying an energy efficiency or a decarbonisation technology. Ongoing operating costs are not covered by this competition.**

Examples of the type of costs that are eligible are capital and material costs, subcontractor costs, and direct labour costs for the installation of the measure.

You must be able to demonstrate that costs are additional and necessary to achieving the energy or emissions saving

- Where the costs of investing in energy efficiency or decarbonisation can be identified in the total investment cost as a separate investment, this cost will constitute the eligible costs.
- In all other cases, the costs of investing in energy efficiency or decarbonisation are identified by reference to a similar investment (for example, replacing equipment on a like for like basis) that would not achieve the desired outcome.



Energy Efficiency- Deployment

Energy efficiency proposals should **reduce the energy consumed by industrial processes at site level**, attributing benefits to both the bill savings (we anticipate most efficiency projects will have a positive payback) and any associated emissions savings.

Examples of eligible projects include:

- **Process optimisation:** industrial process control systems, individual controllable equipment
- **Equipment upgrades:** more efficient combustion equipment, driers, ovens, kilns, process heating/cooling.
- **Process heat and energy recovery systems and heat pumps**
- **Resource efficiency measures:** measures to reduce wastage and optimise use of raw materials that result in lower onsite energy consumption.

Minimum threshold	Maximum threshold	Maximum subsidy intensity*
£100k total grant funding per application (large company) £75k total grant funding per application (small and medium)	£14m total grant funding per project	30% (large company) 40% (medium) 50% (small/micro)

*Further subsidy uplifts of up to 15% are also possible if the business is based in an area of less economic advantage.



Decarbonisation- Deployment

Decarbonisation proposals should **reduce the emissions produced by industrial processes at site level**. While in some cases there may be an associated energy saving, this is not the key driver for the proposal and in many cases energy bills may in fact increase.

Examples of eligible projects include:

- **Fuel switching** – where the switch is to a lower carbon intensity fuel that is also not a higher carbon intensity than the gas grid, this includes:
 - Electrification of industrial processes
 - Retrofits and upgrades of industrial equipment to use hydrogen or hydrogen blend
 - Retrofits and upgrades of industrial equipment to use gas, biomass, biogas and waste fuels
- **Onsite carbon capture technology for utilisation or storage**

Minimum threshold	Maximum threshold	Maximum subsidy intensity*
£100k total grant funding per application (large company) £75k total grant funding per application (small and medium)	£30m per project	50% (large company) 60% (medium) 70% (small/micro)



Aggregation

Smaller deployment projects can be aggregated across proposals to meet the minimum grant threshold.

Since the minimum thresholds for studies are set at low values, we require individual studies to exceed the minimum.

You have the option to aggregate multiple proposals into one application, provided that:

- The proposals take place on sites owned by the lead applicant, and the proposals are undertaken with the same project team.
- The scope of the proposal meets the criteria of the strand of the competition you are applying for, such that:
 - Energy efficiency and decarbonisation projects cannot be aggregated together.
 - Studies and deployment projects cannot be aggregated together.
 - Studies cannot be aggregated together*

*Note- A single study can consider the same technology at up to 5 sites. Though that single study's costs would have to meet the minimum threshold.



Eligibility support services

The IETF Team can provide the following support in your creating your application:

- [Eligibility checks on your project before submission](#)
- Support via our inbox – ietf@energysecurity.gov.uk
- If further information required after support, 1-1 meetings with IETF team



Eligibility Check Questions

1. Please advise which competition you will be applying into:
 - Studies (please specify whether a feasibility or engineering study)
 - Energy efficiency deployment
 - Decarbonisation deployment
2. Please provide a short description of your company and the current industrial process taking place on the site of your proposal(s):
3. Please provide a short paragraph that briefly describes your proposal(s) and how you either:
 - Propose to save energy in your industrial process
 - OR decarbonise your industrial process
4. What is the estimated length of your proposal(s) and anticipated start and end date?
(projects can only start once grant offer letter is signed, this will mean projects will commence earliest Jan 2025, with the latest July 2025.
Project Must conclude by 31st March 2028)
5. What is the cost of your proposal(s) and (if known) how much grant are you seeking?
If not known, please advise what is the size of your organisation (small/medium/large).
6. Please advise who your proposed partners will be (if relevant)
7. Please advise where the project will take place (region and postcode)
8. Please advise the SIC code of your business and also the SIC code of where the project will take place (if different)
9. Please advise (if known) the Technology Readiness Level (TRL) of your proposed technology solution(s)



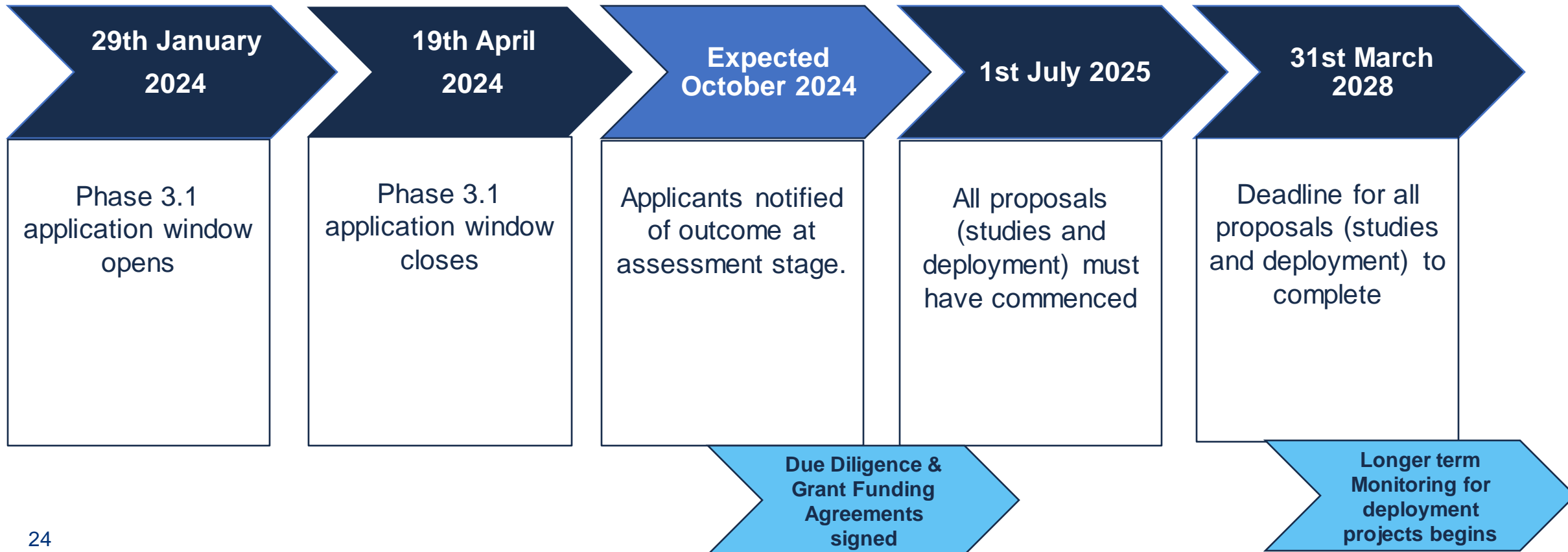
February 2024

Application Process

Timelines, dates, and how to apply



Timelines- Phase 3 Spring window





How to apply

- To begin your application, simply register your name and email using the link on our IETF Phase 3 website
- Or use this link <https://www.ietfspring24.energysecurity.gov.uk/s/ApplicantRegistration>
- Registration takes 10 seconds
- All application guidance is available in our Applicant Guidance document found on our website





Registration



IETF Phase 3 Applicant Registration

1. IETF Phase 3 Applicant Registration

To register for the IETF Phase 3: Spring 2024 competition, please complete and submit this Registration form. You will then receive an e-mail inviting you to apply to the IETF Phase 3: Spring 2024 competition.

1. Please enter your e-mail to register for the IETF Phase 3: Spring 2024 competition. - required

2. Please enter your name. - required



How to apply

- You will receive an email with a password and links to each password-protected application form (please check your spam!)
- Only the lead applicant should complete and submit all forms
- This year we are separating the application forms:
 1. Applicant Details (To be completed only once)
 2. Study Project (Feasibility or Engineering study)
 3. Energy Efficiency Deployment Project
 4. Decarbonisation Deployment Project





Navigating the 4 forms

- You can save and exit your application forms at any point. You cannot edit once you have submitted.
- You may submit as many proposal applications as you like.
- You may amalgamate deployment applications of a kind to reach the minimum threshold (£75k/£100k for SME/large)
- Each proposal application form is independent and submitted separately



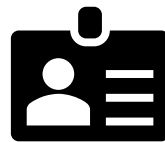


Identifying your forms

- Because each proposal is separate, we ask you to help us identify your proposal forms at the beginning of each form by providing:



Lead
applicant
email address



Lead
applicant
name



PDF of Applicant
Details responses

- Please therefore keep the same lead applicant email and name for all submitted forms



Example page

Decarbonisation Deployment Proposal Form Draft

Progress

24%

4. Part 2: Project Eligibility (2/5)

8. Is the Non-Road Mobile Machinery located within the boundary of your eligible site and will remain located at that site as part of your industrial process?

The machinery must be located within the boundary of the eligible site. - required

Yes

No

9. Please explain how the Non-Road Mobile Machinery elements of your proposal are necessary to, and a part of, your site's industrial process.

- required

Save and Continue Later

Previous Page

Next Page



What contributes to a good application?



Ensure your answers, especially if they include numbers, are accurate and consistent with other responses in your application.



Ensure that the grant amount requested is consistent between application forms, finance forms, and Project Benefits Calculator forms. If there are discrepancies and we cannot clarify the correct value with you, we will use the value in your application form.



Be specific, do not talk about wider site projects or plans unless specifically asked in the question.



Provide clear, relevant supporting evidence, where required or offered as an option. If you are unable to provide mandatory uploads, please contact us to discuss possible mitigations.



Where highly specific industry or engineering terms are used, please explain these so that they can be understood by a non-technical audience.



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February 2024

Assessment Process

A brief look



Assessment- Studies

- Applications for studies will be assessed and scored against weighted criteria.
- Applications will need to pass minimum thresholds.
- They will be ranked by score before being considered by the DESNZ Grant Award Panel.
- Applicants will need to provide a **project plan** and **risk register** as part of the application.

Criterion	Weighting
Study Overview	20%
Technical Feasibility	20%
Potential for Carbon and Energy Savings	25%
Study cost/ Value for Money (VfM)	10%
Added value	15%
Replicability	10%



Assessment – Energy Efficiency and Decarbonisation Deployment

- Energy Efficiency and Decarbonisation deployment projects won't be assessed against each other, but there are **similarities in the assessment process**.
- Applications will be assessed and scored against the following criteria. Projects will then be ranked before being considered by the DESNZ Grant Award Panel.

Criterion	Explanation
Economic assessment	<ul style="list-style-type: none">• Determines if your project represents good <u>value for money</u>.<ul style="list-style-type: none">• This considers the costs, benefits, the risks of the benefits not being achieved, and whether your project would have gone ahead without government support (<u>additionality</u>).• You will be asked to fill out and upload the project benefits calculator.
Transformational assessment	<ul style="list-style-type: none">• Determines compatibility with HMG's Net Zero commitments.• You will be asked to <u>justify your technology choice</u>, and demonstrate <u>replicability</u> and <u>scalability</u>, as well as <u>novelty</u> for Decarbonisation projects.
Deliverability assessment	<ul style="list-style-type: none">• You will be asked to explain how you will <u>successfully deliver</u> the project. This includes your proposed project plan, risk management, project team and justification of project costs.



Finance Form (all proposals)

- You will be required to complete and upload a finance form detailing:
 - Lead applicant and project partner costs (e.g. labour, overheads, materials, capital, subcontractor and travel and subsistence)
 - Eligible costs
 - Grant amount requested
 - Other sources of funding
- It is your responsibility to ensure these details are correct and in line with the relevant Subsidy Control rules and regulations. DESNZ expects applicants to present the minimum funding necessary for the project to go ahead.
- If you are applying for multiple projects, for example in an aggregated application, you must complete a separate form for each project.

The screenshot shows a spreadsheet interface for the 'IETP Phase 2 Deployment Project Expenditure Form'. The form is for 'Project 1 of a maximum of 5'. It is divided into three main sections: 1. Lead Applicant Project Expenditure (in current prices), 2. Partner Project Expenditure (if applicable in current prices), and 3. Total Project Eligible Costs. Each section contains a table with columns for Year 1, Year 2, and Total, and rows for various cost categories like Direct Labour, Overhead, Materials, Capital Equipment, Subcontractors, Travel & Subsistence, and Other. The spreadsheet also includes a 'Project Cost' section at the bottom.

Deployment project finance form screenshot



Benefits calculator (deployment only)

- Deployment projects must complete and submit a project benefits calculator, which can be downloaded from the IETF landing page.
- You are asked to provide information on annual energy consumption, production levels, and greenhouse gas emissions both before and after completion of the project.
- You will need to complete and upload the calculator in excel format as part of your online application.
- You will also need to outline the calculations, assumptions and sources underpinning your inputs to this calculator.
- If you are applying for multiple projects, for example in an aggregated application, you must complete and upload a separate calculator for each individual project.

The screenshot shows an Excel spreadsheet titled "1. Basic Project Information" with a "COMPLETED" status. A red warning message states: "All applicants must answer all of the below questions. Doing so will determine what subsequent sheets you need". The spreadsheet contains the following data:

Field	Value	Guidance Note
Project Name		IETF test
A) Asset lifetime of Deployed Technology (years)	22	Guidance note: Select the number of years project to be operational.
B) Total amount of IETF grant requested (£)	£1,100,000	Guidance note: The figure input here application finance form, to be uploaded.
C) Will your project use an interim fuel after the project has been completed before fully switching to a decarbonised fuel?	Yes	Guidance note: Interim fuels are fuels used from project completion date until a supply of decarbonised fuel is available.
D) Will any of the fuel you use either before or after completion of the project be generated onsite?	Yes	Guidance note: Onsite fuel generation is fuel generated at the project site.
E) Will your project lead to a change in the production output of the process impacted by your project?	Yes	Guidance note: Select yes if the production output of the project is being deployed.
F) Will your project generate any direct greenhouse gas emissions abatement at the site where the project is being delivered?	Yes	Guidance note: Direct emissions abatement is emissions abated through carbon capture.

The spreadsheet also shows a "Yes/No" dropdown menu for question F, with "Yes" selected. The bottom navigation bar includes: Guidance Overview: 1. Project Information 2. Energy Use 3. Interim Fuels 4. Onsite Fuel ...



Submitting your application

- The full application must be submitted online by the deadline at **3pm on the 19th April 2024**.
- All application documents must be submitted via the online application form.
- As well as completing the application form, each online application must include the following documents:
 - Completed **finance form**
 - Completed **projects benefits calculator** (for deployment projects only)
 - Uploaded **evidence to support responses to the economic assessment** questions (for deployment projects only)
 - Uploaded evidence to support responses to the **study costs & value for money** questions (for studies) and/or the **project costs questions** in the deliverability section (for deployment)
 - Completed **Gantt chart**
 - Completed **risk register** for the project
 - **Additional supporting information**, where possible and as appropriate.



After Submission

- **Eligibility checks** – to ensure your proposal meets all the relevant eligibility criteria as set out in this guidance and the technology is in scope, DESNZ may, at its sole discretion, contact applicants for clarification.
- **Assessment and award process:**
 1. Each application is marked by three assessors. Applications for the same competition strand are assessed against the same set of scoring criteria.
 2. Scores are then moderated, projects are ranked and considered by the DESNZ award panel before recommendations are made to Ministers.
 3. Successful projects will be required to pass all due diligence checks and accept the terms and conditions of DESNZ's Grant Funding Agreement before a final Grant Funding Award can be made.
- **Notification and feedback** – You will be notified by email whether your application has passed the initial assessment stage. Assessor feedback will be provided by email to all applicants.



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Please register!

**And complete application forms by
3pm on 19th April**



Time for Questions



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Comfort break

- Register for the networking platform to book a one to one chat with DESNZ
<https://ietf-phase3.meeting-mojo.com/>
- Companies who are pitching join us in Zoom now

Back at 11.10am



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Technology Pitches

- Stuart Speake, Soltropy
- Matthew Scherba, Konektio
- Michael Donnelly, DNV
- Andy Joynson, Caldera
- Mark Boardman, BEM Services
- Adam Goves, IES
- Matt Candy, Steamology
- Simon Crawley-Boevey, Aker Carbon Capture
- Fabio Giunta, Mechapres
- Eddie McGoldrick, The Electric Storage Company
- Simon Ighofose, Pyrogenesys
- Darren Bryant, Heatcatcher
- Steven Jackson, NFU Energy
- Steve Pakenham-Walsh, Secal TKS



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Soltropy Ltd

SME located in Glasgow, Scotland.



- We decarbonise heat.
- 3 times more efficient than “normal” electricity producing panels.
- Our solar thermal system can freeze and overheat without damage and doesn’t use antifreeze.
- Heat transfer fluid is water which doesn’t degrade if it overheats.
- Enables larger systems, ~ 10 times more effective than traditional solar thermal.

Please contact -

Stuart Speake

stuart.speake@soltropy.com

07505139922

www.soltropy.com

<p>What expertise do you have to offer?</p> <ul style="list-style-type: none">• Supply of innovative patented, modular, solar thermal heating solution.• Decarbonises HEAT.• Design and modelling services.• Developed with Innovate UK and Heriot-Watt University.	<p>What's innovative about it and where has it been deployed previously?</p> <ul style="list-style-type: none">• Scalable, modular, large systems with no interconnections, ~10 more effective.• 3 times more efficient than PV.• Can freeze and overheat without damage.• TRL9 – deployed in farming/holiday parks.
<p>Which IETF theme does your expertise relate to?</p> <ul style="list-style-type: none">• Deep Decarbonisation	<p>What partners are you looking for?</p> <p>Any partner where they need heat. E.g. Laundries, clean in place industries, agriculture, industrial decarbonization.</p>

Konektio Ltd

Konektio is a SaaS software business helping industrial and manufacturing companies to monitor, manage and optimize energy across water, air, gas, electricity and steam (WAGES).
Chesterfield, UK

We provide Software, sensing and services to collect real-time data and intelligence, optimising operational and business processes for ESG and Net Zero reporting.

Matthew Scherba
Matthew.Scherba@konektio.com

The logo for Konektio, featuring the word "konektio" in a bold, lowercase, sans-serif font. The letters "konektio" are dark blue, and the "io" is white, set against a solid orange rectangular background.

What expertise do you have to offer?

Industrial and sensing expertise combined with the capability to implement the latest AI/ML software for real-time digital asset connectivity to transform ESG. We help the industrial and manufacturing sector report on and achieve their net zero targets more rapidly, efficiently and cost-effectively, and UK companies to better compete globally.

What's innovative about it and where has it been deployed previously?

- Frictionless connectivity to existing equipment and systems
- AI/ML insights that makes recommendations to optimize production and energy consumption
- Across most industrial and manufacturing sectors

Which IETF theme does your expertise relate to?

- Energy Efficiency
- Deep Decarbonisation

What partners are you looking for?

OEM manufacturing and consultancy partners across the industrial and manufacturing sectors involved with improving energy efficiency with real-time data and intelligence.



The largest technical consultancy in the world for the renewables and oil and gas industries

Founded in 1864, DNV is a global assurance and risk management company. We have close to 13,000 employees and operate in more than 100 countries.

DNV is fully independent bringing uncompromising standards of quality and integrity wherever you meet us around the world.

We are a trusted expert on the global energy transition.

- ✓ The world's leading resource of independent energy experts and technical advisors
- ✓ Operate the world's first hydrogen full-scale testing facility at Spadeadam and 12 other testing facilities
- ✓ An independent technical advisor for DESNZ on hydrogen for heating
- ✓ 170 industry standards, guidelines and recommended practices
- ✓ 30 international Joint Industry Projects (JIPs) solving important industry challenges

For more information on our services, contact: michael.donnelly@dnv.com (Energy Strategy Advisory)



DNV provides support across the project lifecycle

michael.donnelly@dnv.com

What expertise do you have to offer?

DNV can provide consultancy services (including feasibility studies) and an Independent Technical Advisor Role (owners' engineering, project management, CDM principal designer, due diligence, carbon credit verification).

What's innovative about it and where has it been deployed previously?

DNV combine a local presence with access to a global talent pool. We have successfully delivered thousands of energy transformation projects and are a trusted partner in delivering public-sector funded projects (Hydrogen Supply Programme, CCUS Innovation, NZIP etc).

Which IETF theme does your expertise relate to?

DNV can provide support across all three stands of the IETF competition:

- **Feasibility and engineering studies**
- **Deployment of mature energy efficiency**
- **Deployment of deep decarbonisation**

What partners are you looking for?

DNV can serve as a core delivery partner. We are interested in working with technology providers, host sites, developers, investors and academia to realise decarbonisation opportunities for UK plc. We can utilise our considerable network to bring collaborators together.



Caldera Heat Batteries Limited



Zero Carbon Industrial Heat

Caldera is a thermal storage technology business with a mission to 'make clean heat the norm'.

We employ 25 people, and our head office and factory are co-located in Fareham, Hampshire.

We take renewable energy (eg solar / wind) and generate heat which we store in our patented technology. When the customer needs heat (intermittent or continuous) we provide hot water or steam, on demand.

Andy Joynson

Industrial Business Development Director

Caldera Heat Batteries Ltd, 7 Brunel Way, Segensworth East, Fareham, Hampshire PO15 5TX United Kingdom

phone: 07770 735018

email: andy.joynson@caldera.co.uk

www.caldera.co.uk

What do we offer?

- Caldera is a technology provider.
- Our customer manufacturers; from beer to jam, paper to synthetic medicines; need process heat.
- Today they use gas boilers for heat, with Caldera's technology they can switch to generate heat from renewables, store it, and release on demand.
- We by-pass grid connection issues and design the site network behind the meter.
- We take renewables direct into our system.
- Cutting carbon and energy bills.

An innovative thermal storage technology

- Caldera's solution is ready for industrial launch (@ TRL 7/8). A full-scale showcase system is under construction at Caldera's HQ and will complete in Q4 2024.
- Our patented technology delivers heat / steam up to 14bar/200°C.
- At the heart of our thermal battery is a solid-state, inert, and safe storage medium, with high responsiveness and high round trip efficiency.
- Low cost & recycled materials in the thermal battery leads to low cost/kWh heat for the customer.

Which IETF theme does your expertise relate to?

- Our product helps customers with '**Deep Decarbonisation**', typically replacing gas fired steam generation with heat from green energy sources.

What partners are you looking for?

- We are looking for early adopter companies who want to decarbonize the heat they use.
- We want to find customers with access to, or space and scope for, renewables eg solar.
- We are looking for projects to install in 2025.

BEM Services

Organisation details

Small Business

Nottingham

Electrical, Mechanical and Energy Consultants

www.bem-services.co.uk

mark@bem-services.co.uk

0115 7788227

07753 459729



What expertise do you have to offer?

Electrical and mechanical design services combined with energy consultancy.

Experienced in industrial and manufacturing sectors for clients such as Rolls-Royce and GSK.

What's innovative about it and where has it been deployed previously?

We combine our engineering skills with energy saving advice to provide a one-stop-shop that can take a project from feasibility studies through to detailed design.

Which IETF theme does your expertise relate to?

We reduce energy usage but monitoring existing usage and advising on energy saving options, which in turn reduces the carbon footprint of the facility.

What partners are you looking for?

Manufacturing companies looking to improve their profits by reducing their energy costs and carbon footprint.

About IES

IES is a global climate tech company delivering innovative digital twin technology and consultancy services to decarbonise the built environment.

How can we support?

- Create a dynamic digital twin of your facility to support feasibility studies, energy efficiency & deep decarbonisation projects
- Leverage data and physics-based simulation to run options analyses & de-risk investment decisions
- Detailed recommendations with associated energy, carbon and cost estimates
- Experienced team with experience in developing robust grant funding applications, alongside our innovative technology and consultancy services
- Monitoring & Verification (M&V) to support performance verification of interventions and reporting post-deployment

Contact

Adam Goves, Sector Lead - Manufacturing & Infrastructure

adam.goves@iesve.com

0141 945 8500



Who can we support?

- Industrial sites/data centres
- Supply chain partners, e.g. energy management providers
- ‘Lead Applicants’ for energy efficiency and deep decarbonisation projects, (i.e. with IES in the role of ‘Project Partner’)

What’s innovative about our approach?

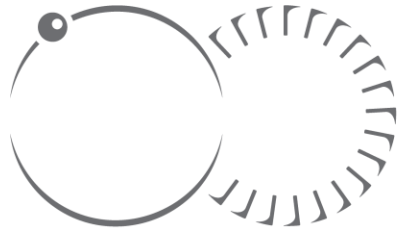
- Holistic, data-driven approach, encompassing production processes/equipment alongside facility buildings
- Engineering grade insights & ability to virtually test multiple scenarios to de-risk investment decisions
- Lifetime digital asset that can support ongoing M&V post-deployment of decarbonisation/energy efficiency upgrades
- Use on future capital projects and for ongoing sustainability & ESG reporting
- Trusted physics-enabled technology that has been deployed on a wide range of decarbonisation & energy efficiency projects



Find out more on our Free Webinar

<https://go.iesve.com/manufacturing-webinar/ietf-pitch>





STEAMOLOGY®
zero emission power solutions

Steamology

Zero Emission Steam, Heat and Power Technology Scale Up

SME - 9 FTE

The Boiler House
Unit 19 Dean Hill Park
West Dean, Salisbury SP5 1EZ

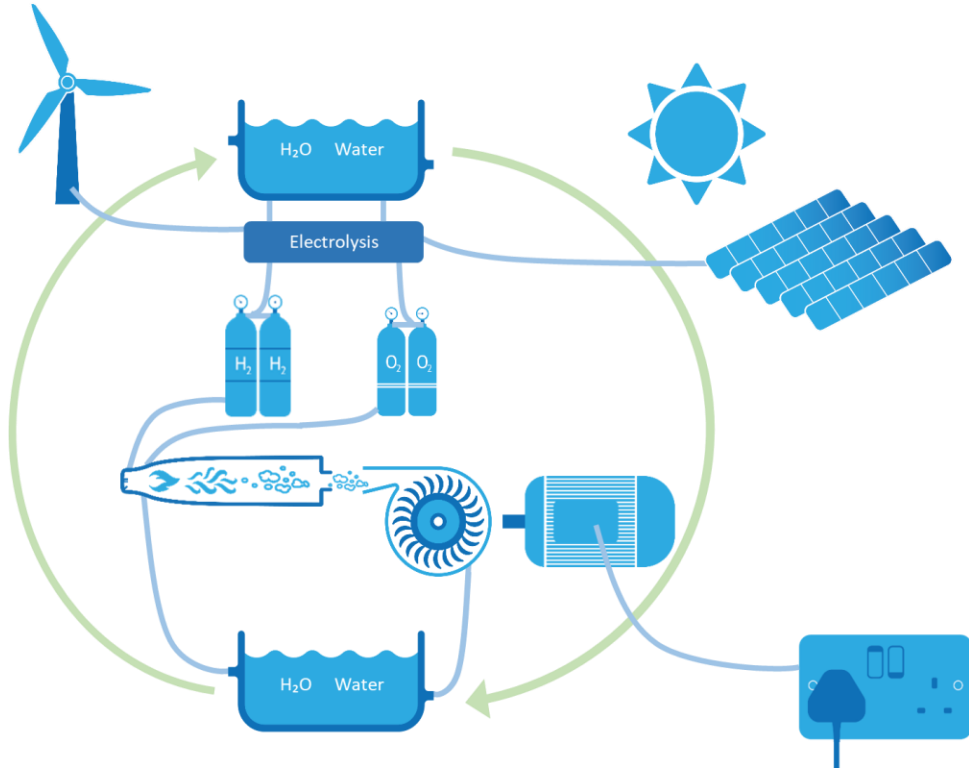
www.steamology.co.uk

matt.candy@steamology.co.uk

0 77 88 92 00 15



Steamology offers expertise in Zero Emission Steam, Heat and Power



Steamology delivers IETF Theme

Deep Decarbonisation

matt.candy@steamology.co.uk

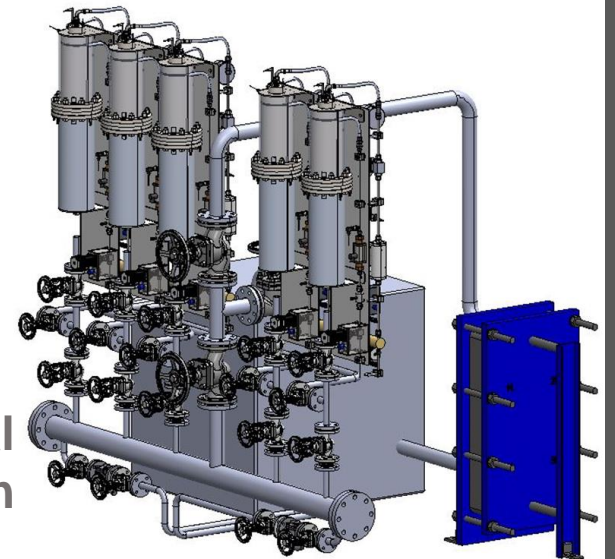
Steamology delivers innovation

- TRL 7
- Replacing industrial fossil fueled boilers:
 - Food & Beverage,
 - Industrial steam,
 - High temperature thermal oil
- Water retained for hydrogen production
- High turn down
- Response in seconds
- Scalable, Modular to MW scale
- 'Cradle-to-Cradle' meeting ESG targets

Steamology seeks industrial partners for:

- FEED studies
- Pilot scale deployment

Clean green steam for industrial heat and power decarbonisation

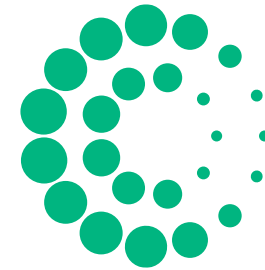


Aker Carbon Capture

150+ employees worldwide across 3 main offices

UK office in London / Head office in Oslo

Aker Carbon Capture is a pure-play carbon capture company with solutions, services and technologies serving a range of industries with carbon emissions, including the cement, bio and waste-to-energy, gas-to-power and blue hydrogen segments. Aker Carbon Capture's proprietary, carbon-capture technology offers a unique, environmentally friendly solution for removing CO2 emissions.



**AKER CARBON
CAPTURE**



Simon Crawley-Boevey

Study Manager

Tel: +44 7500 761356

Email: simon.crawley-boevey@akercarboncapture.com

What expertise do you have to offer?



Technology provider for Post-Combustion Carbon Capture

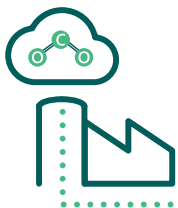
Engineering, Procurement, Construction (EPC) services for modular carbon capture plants

What's innovative about it and where has it been deployed previously?



Established technology at TRL 9
Ongoing EPC projects in the cement, waste-to-energy, and biowaste-to-energy industries

Which IETF theme does your expertise relate to?



Deep Decarbonisation

What partners are you looking for?



We are looking for industrial emitters meeting the IETF eligibility criteria that emit above 100 kTPA CO₂

MECHAPRES

Clean Heat For Industrial Processes



We develop **AFFORDABLE AND EASY TO INTEGRATE** heat pumping and waste heat recovery solutions

28 YEARS OF EXPERIENCE in Energy Efficiency Across the Team



Co-founder CEO

Anastasios Vasilopoulos MEng, Industrial energy efficiency advisor and project developer with 12+ years of experience



Co-founder CFO

Maria Ioanna Digka MSc, Economist 12+ years of experience in sustainable business models and energy performance contracts.



Co-founder CBDO

F. G. MSc MEng, 4+ years as business model consultant for early-stage ClimaTech start-ups. Background as R&D engineer on industrial heat pumps.

Supported By

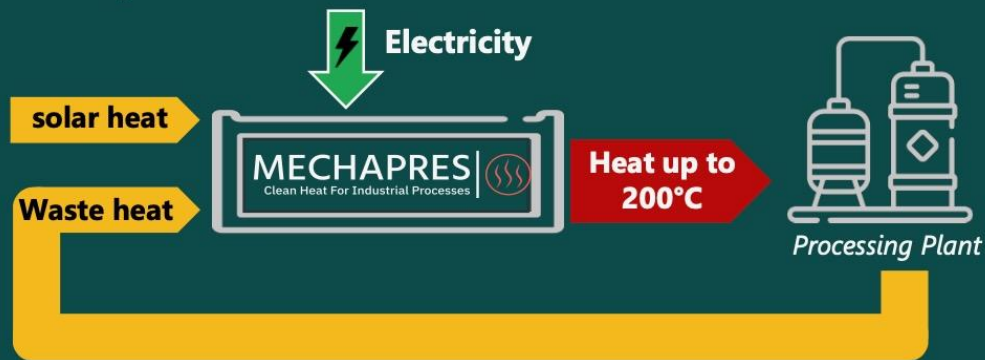


CBDO@energineering.co.uk
www.energineering.co.uk

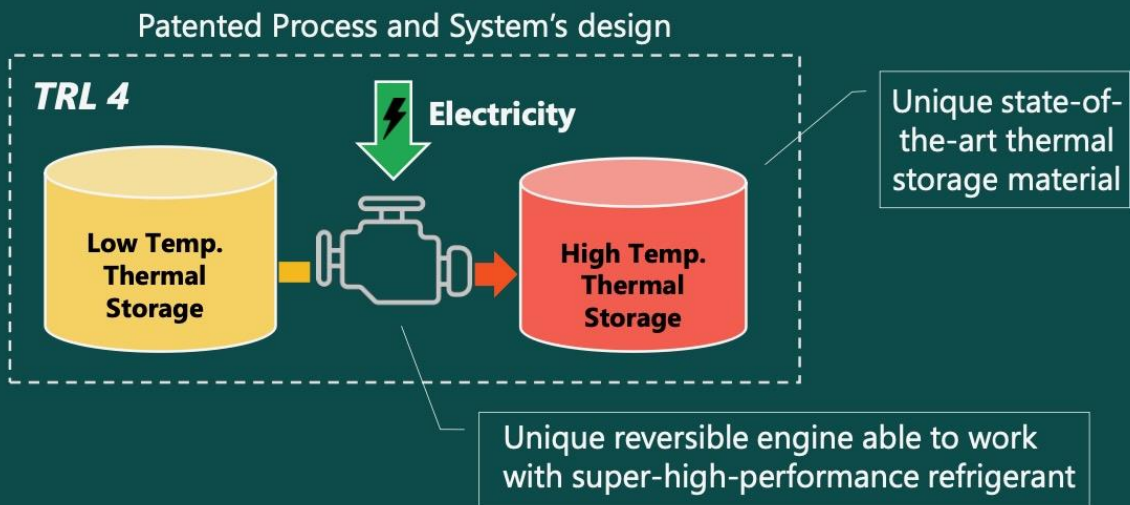
**8 Lonsdale, Linton, Cambridge, England,
CB21 4LT**

WHAT IS OUR TECHNOLOGY?

An integrated **HIGH-TEMPERATURE HEAT PUMP** and **THERMAL STORAGE** solution. MECHAPRES can **PRODUCE 5 TIMES MORE HEAT** than the electricity consumed (COP), thanks to the combination of the high efficiency of our natural refrigerant and positive displacement engine.



WHY IS IT UNIQUE?



WHO CAN BENEFIT ?

1) MANUFACTURERS OF INDUSTRIAL EQUIPMENT FOR PROCESS HEAT LOOKING TO UPGRADE THEIR CONVENTIONAL OFFERINGS

Solar



Steam



Heat Exchangers



2) INDUSTRIAL PROCESSING PLANTS LOOKING TO REDUCE THEIR PROCESS HEAT COSTS & EMISSIONS

Pulp & Paper



Food & Beverage



Raw Materials



WHAT TYPE OF PROJECT?

FEASIBILITY STUDY FOR A PILOT to integrate our system to upgrade an existing process

The Electric Storage Company (TESC)

PowerOn Technologies Limited is a limited company, trading as The Electric Storage Company registered on 12th January 2017 - NI 643146

30 people, 170 customers; NI,ROI,GB and Germany, £10m turnover f/cast
Based in Belfast, Northern Ireland.

TESC is enabling commercial customers to maximise value from their grid connection, renewable generation and demand using battery storage flexibility and the TESC AI software platform, PARIS.

Your contact details

Eddie McGoldrick

+447789746990

eddie@theelectricstoragecompany.com



<p>What expertise do you have to offer?</p> <ul style="list-style-type: none"> • Renewable Energy management platform (PARIS) • Grid connection expertise (HV; NI,GB and EU) • Battery & Renewables Optimisation SaaS • AI enabled grid services and market trading GB • ‘White Labelling’ of PARIS in EU markets • Data Analytics expertise 	<p>What’s innovative about it and where has it been deployed previously?</p> <ul style="list-style-type: none"> • TRL 7/8 • Industrial sector: Agri-food, Manufacturing; engineering, fabrication, Distribution, Retail, Large scale housing developments.
<p>Which IETF theme does your expertise relate to?</p> <ul style="list-style-type: none"> • Energy Efficiency – via Optimisation & Data Analytics • Deep Decarbonisation –via renewables generation adoption & optimisation 	<p>What partners are you looking for?</p> <p>Multi-site organizations; in sectors above in GB or EU</p> <p>Investment partner for GB and EU expansion (£5-10m)</p> <p>White Label clients in electricity retail markets</p>

PyroGenesis LTD

Organisation details:

Size: 13 Employees

Registered Office: Birmingham

IEEA Pilot Demonstrator: Shotts, Scotland

Contact Details:

CEO: Simon Ighofose Meng AMIChemE

Office: 0121 285 4404

Email: admin@PyroGenesis.com

Web: <http://www.PyroGenesis.com>



What does your organisation do?

- We decarbonize heating systems that produce either hot water, steam or both.
- For example, our patented Pyrochemistry pyrolysis system can convert 1kg of combustible waste to 20kg of superheated steam.

What expertise do you have to offer?

- Technology provider
- 50kg/h Pilot Pyrolysis Unit
- Water Heater/Steam Generator (10 barg)
- Biomass Dryer System
- Plant Operators/Maintenance Team
- 24hr Pilot Unit operation (Feedstock Trials)

What's innovative about it and where has it been deployed previously?

- **TRL7:** Operational Demonstrator in Scotland
- **Industrial sector:** Animal feed manufacturing
- Primary heat sustains pyrolysis
- Secondary heat for water heating
- Tertiary heat for Biomass drying

Which IETF theme does your expertise relate to?

- Deep Decarbonisation:
 - Emissions avoidance (Bioenergy)
 - Carbon dioxide removal (Biochar)

What partners are you looking for?

- Animal feed manufacturers
- Food manufacturers
- Forestry & wood processors
- Companies seeking to decarbonize heating



Designing & Delivering
Heat Decarbonisation Projects

Independent SME Company

Waste Heat Recovery
&
High Temperature Heat Pumps

Darren Bryant MIET MBA
darren.bryant@heatcatcher.com
www.heatcatcher.com
Tel : 01273 358520





Heatcatcher – Waste Heat Recovery Technology Integrators

Project Idea

- Waste Heat & Air Source Heat Pumps
- Switch hot water heating from fossil fuelled boilers to low carbon electric
- Hot water up to 90 °C

Our Services

- Feasibility Studies
- Detailed Design
- Project Delivery
- Grant funding application support

Innovation

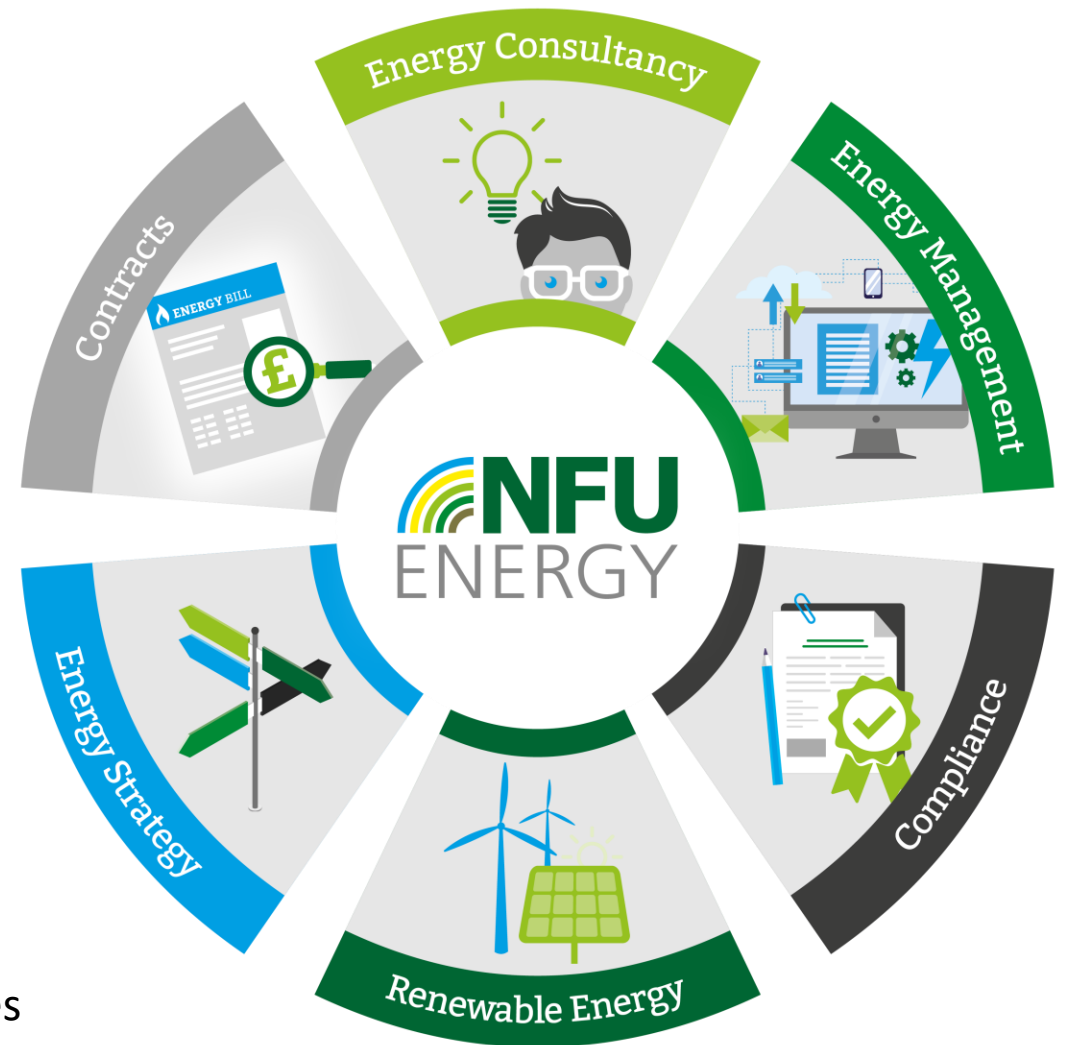
- Dual Input source – Waste Heat & Air Source for Heat Pumps
- Improves Coefficient of System Performance (COSP) Reduced electrical input power when electrifying heat

Seeking Industrial Partners

- Demand for process hot water
- Continuous flow of low temperature Waste Heat available for recovery

NFU Energy

- NFU Energy is one of the UK's leading and trusted providers of sustainable energy solutions.
- Part of the National Farmers' Union (NFU) group of companies, we are experts in providing practical energy efficiency and carbon reduction feasibility studies within agriculture and horticulture, as well as the wider farm to fork supply chain.



Contact: Steven Jackson, Head of Sales
024 7669 6512 | sales@nfuenergy.co.uk

Our Services

We offer practical advice and support using our extensive knowledge and experience of the farm to fork supply chain. We have the industry connections to be able to assist with the practical implementation of many energy saving and carbon reduction solutions.



Energy and Decarbonisation Feasibility Assessment

- ✓ On-site assessment
- ✓ Specialist equipment to pinpoint energy leaks, monitor internal environmental conditions such as temperature, pressure, flow and humidity.
- ✓ Advise how various technologies and solutions might fit with your particular operational processes and the likely scale of the installation required.
- ✓ Detailed written report, with recommended actions for improvement - including estimates of costs and payback.



Practical Deployment

- ✓ One-stop-shop access to our accredited list and strong network of contacts and partner organisations, who are able to offer all forms of renewable energy generation technologies, energy metering and monitoring technology solutions and energy efficiency technologies.
- ✓ Ongoing support throughout the entirety of your project.

Thermal Kinetic Energizer

Heat Transfer Technology (TKE-HTT) overview

- “Flame Less” Kinetic heat transfer emitter technology
- Direct retrofit with minimal process adaptation
- +50% reduction in gas consumption
- +50% faster processing times, vastly improving yield
- Proportional reductions in CO² output
- Negligible NO_x output due to lower operating temps.
- Zero Delta-T or thermal shock
- A major contribution toward mitigating “Net Carbon Zero”
- Suitable for application across the core foundation industries;
- metals, cement, ceramics, glass, chemicals and paper core heat processing industries
- “Future Proofed” in readiness of a “Hydrogen” transition



TKE Innovate funded UK trial

Ryobi Aluminium Castings (UK) Ltd – August 2023

Project overview

- Installation of 0.25Gj TKE emitter replacing 0.8Gj radiant heat burner on Ryobi's transfer ladle preheat station.
- Direct retrofit unit with minor fabrication amendments to the existing setup
- Installation of new control unit, skid and valve train

Project outcomes

- 75.51% gas saving
- 60.44% reduction in operating time

Additional benefits

- Increased productivity
- Reduced maintenance and associated labour costs
- Clean transfer ladles stripped of waste material due to kinetic molecular activity



"The installation was very professionally done and 30 days later, the unit is still running and servicing the needs of our production teams. The equipment has proved to be very reliable and we have not experienced any maintenance issues to date.

In terms of performance, the unit can preheat 850 kg production ladles in a third of the time of our previous unit whilst only using 25% of the gas from the data we have gathered."

Manufacturing Manager
Ryobi Aluminium Castings (UK) Ltd.

RYOBI

Application Support Service

Jenni McDonnell MBE

Jenni.McDonnell@iuk.ktn-uk.org

www.ktn-uk.org



Innovate UK
KTN

Services



- Help to understand the competition information
- Help with the application process
- Help to find partners
- Help to identify relevant technologies to deploy



Department for
Energy Security
& Net Zero

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UK

Help to understand the competition information

Competition Guidance

IETF Guidance: <https://www.gov.uk/government/publications/industrial-energy-transformation-fund-ietf-phase-3-spring-2024>

Eligibility Checks and Questions

We encourage you to contact the IETF support service at ietf@energysecurity.gov.uk if any help or clarification is needed as you work on your application.

You can contact the same address for guidance on whether your proposal is eligible before you start to write the application. Please include “**Eligibility screening**” in your email title to access this service.



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Help with the application process

Competition Clinics

Regular webinars to ask questions about the scope, eligibility rules and application process in an open forum with DESNZ and Innovate UK KTN.

Register:

<https://eur.cvent.me/W32D7>

20th February, 5th March, 19th March,
2nd April, 9th April, 16th April

They are available when you need them.



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UK

Help to find partners



IETF Networking platform

Register at <https://ietf-phase3.meeting-mojo.com/>

Complete your profile to improve usability and search for partners

The IETF networking platform will remain open until March 2025 to allow you to continue networking between competition windows

Book one to one meetings with DESNZ this afternoon



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UK

Help to identify relevant technologies

Technology Marketplace (now open to all)

An online platform which hosts videos from technology providers with energy efficiency and decarbonisation technologies that are eligible for the IETF and presentations from projects funded in Phase 1 & 2.

https://forms.office.com/pages/responsepage.aspx?id=xzcsPkBynkK-UnfP_K0CzT9JGUQKsypBkxvjZM440cdUOFdOME9KMIJKODQxUEo3Rkk5NDk1M1ZaSi4u

New: Podcast series

- Drinks sector: Heineken & Britvic
- Ceramics sector: Weinerberger & York Handmade bricks
- Chemical sector: Mitsubishi Chemicals & Esseco Group

New: Industrial site videos

- Glass sector: Saint Gobain Glass, Eggborough
- Metals sector: CNC Speedwell, Brownhills
- Paper sector: Sofidel, Swansea

<https://iuk.ktn-uk.org/news/industrial-energy-transformation-fund-2024-update/>

Help to identify relevant technologies

Technology Showcase 21st March

A live event showcasing funded projects from IETF Phase 1 & 2

- Hear from Industrial sites on their plans to reduce their energy demand and carbon emissions
- Learn about the development of innovative new technologies that are now eligible for the IETF
- Share your views on where future funding should be spent

Register <https://eur.cvent.me/RIOeW?locale=en>

Please only register if you truly intend to be there



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UK

Closing remarks

Following today's event you will receive

- A link to the competition guidance and application portal
- An email for the IETF support team who can answer your questions
- A link to register for the IETF competition clinics
- A link to register for the Technology Showcase event
- A link to register for the IETF networking platform
- A link to register for the Technology Marketplace
- A link to the IETF Podcasts and videos
- A link to the presentations and recording from the briefing event

We look forward to receiving your IETF applications



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Energy Security
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UK

Thank you

Jenni McDonnell MBE
Thermal energy systems
Innovate UK KTN

Jenni.McDonnell@iuk.ktn-uk.org



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