Faraday Institution High-Performance Transformational Challenge: HighPerCell

Call for Expressions of Interest: Project Creation and Planning Phase

The HighPerCell Challenge: The Opportunity

The Faraday Institution is in the process of establishing two Transformational Challenge programmes to add to its existing research portfolio. These Transformational Challenges will target energy storage application challenges that have extraordinary impact potential, and where there are currently only conceptional solutions or ideas at the very earliest stages of research and development.

The first of these Transformational Challenges, called Ultrastore, was launched in March 2025 and is aimed at technologies that can provide ultra-low cost long duration energy storage. The second is focusing on pushing technologies to deliver high-energy and/or high-power performance that are primarily focused on addressing aerospace use cases, but which will also be of interest and relevance to other markets such as, defence and motorsport. This transformational challenge will be called the HighPerCell (High Performance Cell) Challenge.

The Faraday Institution intends to fund up to two large research projects under the HighPerCell Challenge from Q4 2026. The Institution is now inviting expressions of interest from individuals and small teams to participate in the Co-creation and Planning of these research projects. Successful applicants will work closely with the Faraday Institution team as Research/Engineering Consultants during 2026 to identify potentially transformative technologies, and to design plans for the follow-on large research projects necessary to develop those technologies during 2027-2030.

The Faraday Institution is seeking radical ideas for projects that look beyond incremental improvement of existing storage technologies and instead consider new possibilities that have not yet been the subject of significant research, let alone commercial development. In other words, the organisation is looking for ideas that have the potential to be highly disruptive and which may displace existing markets or create entirely new ones.

Scope: All energy storage types (electrochemical, electrical, thermal, mechanical, chemical energy storage or other) are in scope, provided that the technology meets the Technology Specification. Applications are encouraged from as wide a field of disciplines as possible. However, sustainable aviation fuel and other combustion fuels, are out of scope.

Output: The output of this Co-creation and Planning phase will be a long-term research project roadmap, along with detailed 12-month work plans and high-level IP and commercialisation strategies.

How to apply: Applications should be submitted by 15.59, on 10th December 2025 via Flexigrant.

Expected Key Dates:

Applications open	Tuesday 4th November 2025
Webinar	18 November 2025, 14.00-15.00
Application deadline	10 December 2025, 15.59
Research Consultants selected / informed	By 26 Feb 2026
Co-creation and Planning phase starts	By 25 March 2026
Co-creation and Planning phase complete	By October 2026
Call for 3-year research projects open under the HighPerCell Challenge (subject to identifying at least one plausible solution and confirmation of funding)	Q4 2026

Dates may be amended

Registration for the online briefing and Q&A on 18th November 14.00-15.00:

https://us06web.zoom.us/webinar/register/WN_mvh0H7BvT6uE5CgYQJGBqg

The Faraday Institution's funding for this call is expected to be provided via the Battery Innovation Programme.

Please read the full call document for guidance before submitting your proposal.

Contacts: The Faraday Institution Commercialisation Team can be contacted at HighPerCell@faraday.ac.uk

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1. Background & Introduction

The Faraday Institution is the UK's independent institute for electrochemical energy storage research, skills development, market analysis, and early-stage commercialisation. It brings together research scientists and industry partners on projects with commercial potential. Since its foundation in 2018, the Faraday Institution has funded over £200m of battery research in the UK.

In March 2025, the Faraday Institution launched the first of two new Transformational Challenges, called UltraStore, aimed at developing technologies that can provide ultra-low cost long duration energy storage. The second is focusing on pushing technologies to deliver high-energy and/or high-power performance for aerospace, defence and other high-performance industries. This Transformational Challenge is the **HighPerCell (High Performance Cell) Challenge**.

The Faraday Institution analysis indicates that:

- development of ultra-high energy / high power battery solutions is necessary to tackle the UK's Net Zero targets in hard-to-decarbonise sectors such as aerospace, a sector that directly employs over 100,000 people in the UK[1];
- the potential global market for ultra-high energy / ultra-high power battery solutions for aerospace, whilst limited in volume terms compared to automotive, is significant in value (>$330m pa in 2035) and the technologies developed may also have spill over application in sectors such as defence; but
- to deliver these transformational effects, battery solutions will need to provide both high energy density (1,000 Wh/kg) and high peak power density (>1,500 W/kg); and
- at present, there are no developed energy storge technologies able to deliver such ultra-high performance or even able to offer the prospect of doing so in the medium term.

The Faraday Institution therefore intends to commission a research programme under the HighPerCell Challenge in Q4 2026. The organisation is now inviting expressions of interest from individuals and small teams to participate in the Co-creation and Planning of future projects. Successful applicants will work closely with the Faraday Institution team during 2026 as Research/Engineering Consultants to identify potentially transformative technologies, and to design plans for the research projects required to develop those technologies during 2027-2030.

Tackling hard-to-decarbonise sectors

Transport accounts for the single biggest contribution (26%) to domestic greenhouse gas emissions (DESNZ, 2023). Some of the challenges in decarbonising various sectors, including aerospace (Faraday Insight 19) and maritime (Faraday Insight 22), are discussed in Faraday Insights, but they all come with challenges unique to their industries, as well as broad limitations concerning the use of current generation lithium-ion batteries.

In 2022, the UK's domestic and international flights produced 29.6 million tonnes of CO_2 equivalent emissions (MtCO2e), accounting for around 7% of total UK greenhouse gas emissions (House of Commons Library, 2025). The independent Climate Change Committee (CCC) projects that aviation's proportion of UK greenhouse gas emissions will increase from 7% in 2022 to 9% in 2025, 11% in 2030 and 16% in 2035. Domestic aviation emissions already count towards the overall UK net zero target,

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[1] 2025 Aerospace Sector, UK Outlook, ADS Group

and with international aviation emissions set to be included within the scope of the UK net zero target from the sixth carbon budget (2033) onwards, there is a greater emphasis on the need to decarbonise aviation to meet the UK's emissions targets. Battery electric propulsion offers the opportunity to achieve zero emission flights with no contrail formation and reduced noise. New aircraft types that can fully exploit the benefits of battery electric have been proposed, offering new markets, applications and business cases.

Synthetic aviation fuel (SAF) and hydrogen (both in fuel cells or via direct combustion) have hitherto been the primary focus within the aviation industry for reducing emissions, particularly for long-haul flights. However, techno-economic considerations, as well as availability, accessibility, production, processing and storage challenges have limited their use[2]. With the vast amount of expertise, investment and experience in battery manufacturing from the automotive sector, opportunities now exist for electrochemical energy storage solutions to play an increasingly important role in the aviation sector.

A sector with uncompromising performance needs

The automotive sector has driven, and will continue to drive, the global demand for lithium-ion battery volumes, with research and development primarily now focused on cost reduction, safety and energy density increases. This incremental development is increasingly enabling lithium-ion batteries to be used within a specific set of aviation applications.

There are consequently numerous start-ups across the globe working in the battery-propulsion aerospace sector — all using lithium-ion batteries, and all limited to sub-regional range with limited cargo. These include demonstrators such as the Spirit of Innovation, the two-seater Pipistrel Velis Electro and small aircraft from Heart Aerospace and Eviation. Lithium-ion batteries are also being used for urban air mobility vehicles, such as eVTOLs (electric vertical take-off and landing aircraft), for intra-city passenger transportation, and for air-taxis. UK companies operating in these markets include Vertical Aerospace and Sora Aviation.

Faraday Institution analysis has concluded that a pack energy density of 1,000 Wh/kg and a power density above 1,500 W/kg could hugely expand the scope for battery-powered flight. This transformational level of performance would give battery-powered regional and single-aisle conventional take-off and landing (CTOL) aircraft sufficient performance improvements to take off and sufficient range to serve the entire UK domestic market (21% of all UK flights) as well as the market for short-haul journeys into and within the European continent.

It is clear, however, that this performance requirement of 1,000 Wh/kg and 1,500 W/kg will not be met by conventional lithium-ion batteries, even with continuous incremental development. Current battery technologies will not, therefore, be suitable to provide fully electric flight for regional and single-aisle CTOL commercial aviation. Adopting hybrid-electric propulsion solutions may be a feasible method of enabling such CTOL aircraft to make some use of incrementally developed lithium-ion batteries in order to address the regional and single-aisle markets. But even in such hybrid systems, and even with incremental improvements in performance, the energy density and power of lithium-ion batteries will still be a key constraint.

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[2] The Royal Society, Net Zero Aviation Fuels: resource requirements and environmental impacts, Policy Briefing, Feb 2023

Various public and private research and innovation programmes are seeking to address the transformational increase in energy density and power required for fully electric single-aisle CTOL flight. At a component technology level, the PROPEL 1-K ARPA-E programme and research from Argonne National Laboratory in the US are two such interventions. Whilst these programmes have a similarly high ambition, they differ in scope to HighPerCell and also look to address US-based opportunities in the rail and maritime sectors. Meanwhile, at the vehicle level, research is also underway to re-imagine aircraft design to maximise the potential for battery propulsion — through programmes such as the EXACT[3] project by DLR (German Aerospace Centre) and the Elysian aircraft from the Netherlands.

Whilst the aerospace sector is by far the largest potential market for high-performance cells, the development of high-performance energy storage technologies could also benefit adjacent industries, including defence and high-performance motorsport. Accordingly, the HighPerCell Challenge aims to develop technological breakthroughs which, though primarily focused on addressing the regional and single-aisle CTOL aviation market, are relevant also to these other markets.

High performance battery targets – energy, power, safety and cost

Energy density, how much charge can be stored for a given weight or volume, has been, and continues to be, the primary performance metric of electrochemical cells.

A **gravimetric energy density that approaches 1,000 Wh/kg** at pack level represents a transformational improvement in current energy density (where 300 Wh/kg is currently the maximum for commercially available lithium-ion packs) that could enable the use of batteries within future regional and single-aisle CTOL airframe designs without compromising range or payload.

In a flight, there are various power demands, for example, during take-off and landing, top of climb, transient assist[4] and during cruising. A **peak power density of > 1.5 kW/kg** (over 180 seconds) and a **continuous power density of > 0.5 kW/kg** represents the sort of performance targets necessary to enable pure electric flight at the regional level and to provide hybrid electric propulsion solutions in the single aisle, short haul market. When exploring transformational technologies, there will be trade-offs between energy density and power; achieving both is key to opening the aviation market to battery-electric solutions.

The aerospace sector also demands the highest possible safety standards, involving rigorous safety testing and an extensive certification process to ensure that energy sources have a proven track record and minimised probability of failure. Within the overall safety framework of the CS-25 / FAR Part-25 regulations for large passenger aircraft, the DO-311A critical safety standard sets the Minimum Operational Performance Standards (MOPS) for rechargeable lithium-ion batteries and battery systems permanently installed on aircraft. It ensures these batteries can operate safely under the extreme conditions encountered in aviation, including: high and low temperatures extremes,

[3] EXACT Project, DLR
[4] Gas turbine hybrid system for short periods (<10 seconds) of electrical assist to provide shaft accelerations supporting operability. This system includes in-flight recharging.

vibration and shock, pressure changes and protection against electrical faults like short circuits or overcharging.

Any future new energy sources must similarly be uncompromising in their level of safety and, as a minimum, comply with DO311A safety standards and their future evolution. Future technologies should aspire to be able to demonstrate no thermal runaway reactions or develop other prevention or mitigation strategies; for example, utilising built-in characterisation and shut-down mechanisms.

Whilst not wishing to constrain radical new approaches it is sensible to set an upper bound on cost per kWh at a pack level by comparing a levelised cost of energy storage for batteries with the levelised cost of storage for sustainable aviation fuels. For a sensible set of assumptions (including the energy density target of 1,000 kWh/kg above) a **maximum levelised cost of storage of $0.30 per kWh at the pack level** would achieve operational cost parity against sustainable aviation fuels for a single aisle aircraft flying a regional flight segment.

The ambition and scope

By way of illustration, Faraday Institution modelling has indicated that a pack with a 1,000 Wh/kg energy density (sufficient to provide a 1,000+ km range on a 30-passenger regional aircraft) would, if used in a car, give a range of over 1,400 km on a single charge.

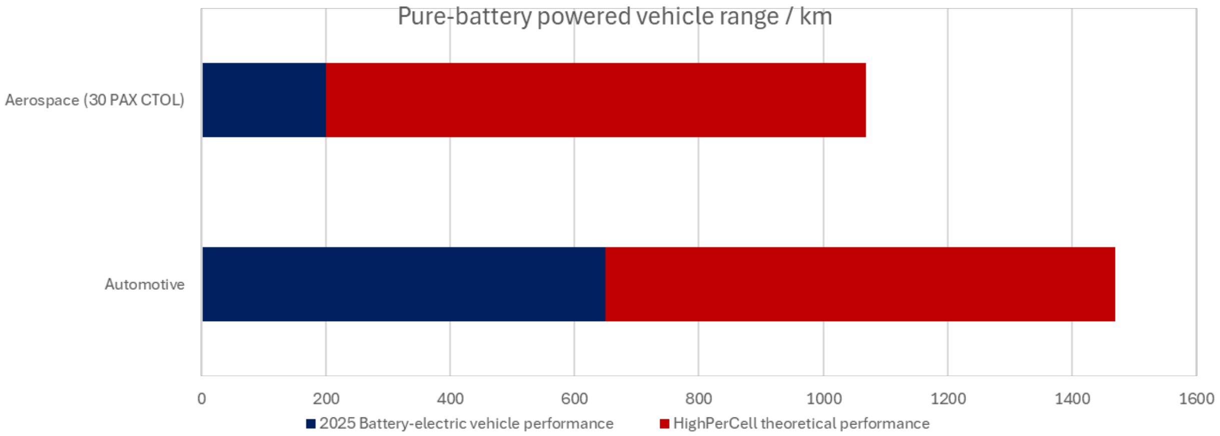

Figure 1. Faraday Institution modelling of vehicle range of a 30-passenger regional electric plane and an automotive vehicle using existing cells (blue) and with a 1,000 Wh/kg HighPerCell cell (red).

This represents a more than threefold increase compared to commercially available best-in-class lithium-ion cells. We recognise that this will require fundamentally new technology, rather than an incremental improvement or extension to a well-researched and developed technology.

Time is on our side. The lead time from a clean-sheet design to entry into service (EIS) for aviation is extensive, especially for future airframe designs that may have to be designed around future propulsion architecture. Given the additional requirement for certification and to demonstrate flight heritage, any transformational technology emerging from HighPerCell would be targeting vehicle EIS around 2045-2050, thus requiring the underlying cell technology to demonstrate TRL6 in the latter half of the 2030s.

To succeed, a breakthrough technology will require innovations not only in fundamental science, but also in engineering design, integration within a system and manufacturing process (Figure 2). Developing next-generation interventions across all these themes, and integrating them, is required to achieve the long-term aspiration of the HighPerCell Challenge. We therefore welcome applications from parties with expertise across the three themes of: fundamental energy storage science, novel integration and sub-system design engineering and manufacturing that can demonstrate solutions towards 1,000 Wh/kg and 1,500 W/kg to be safely achieved at a pack level.

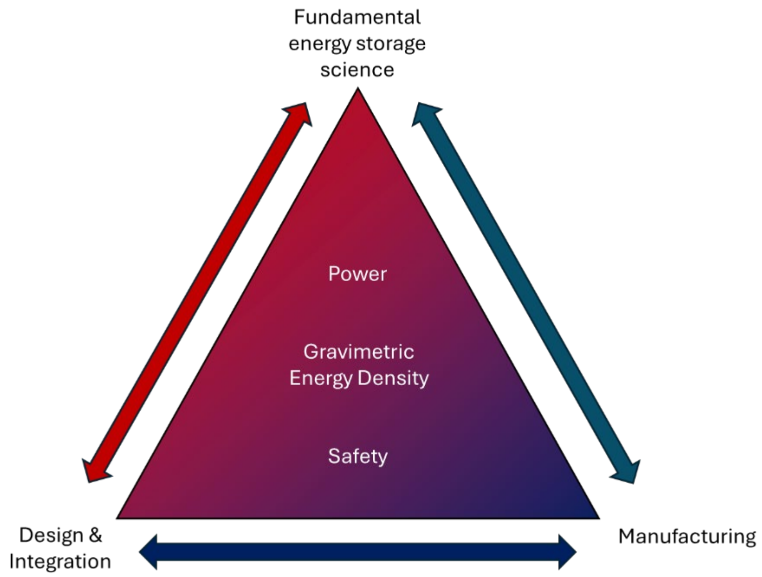

Figure 2. The interdependence of fundamental science, integration and manufacturing disciplines and how they require successful innovation to realise the ambition of HighPerCell.

HighPerCell is soliciting proposals that target generation-after-next technologies, which are likely currently at a TRL (technology readiness level) of 1-3. To push the art of the possible, as broad a range of technologies as possible will be considered. For example, in addition to electrochemical energy, other non-electrochemical technologies (for example electrical, thermal, mechanical, chemical energy storage or other) will be considered. However, two non-electrochemical technologies, sustainable aviation fuel and other combustion fuels, are out of scope due to the fact they are funded under different existing mechanisms.

Throughout 2025, the Faraday Institution has been actively collaborating with the Aerospace Technology Institute (ATI) to help identify and inform the near- and long-term opportunities for batteries within the aerospace domain. Engaging with stakeholders across academia, industry and research, ongoing collaborative efforts have highlighted various battery use cases in civil aerospace and helped shape their broad range of challenging performance requirements. Some of the longer-term, more demanding use cases align with the ambition and scope of HighPerCell. Indeed, this engagement with the ATI has helped inform the HighPerCell programme scope, aligning it with commercially attractive end-user requirements and exploitation routes.

The Faraday Institution recognises that any novel technologies that may eventually provide an affordable solution to this difficult problem are likely to face multiple technical challenges that will be overcome only through a significant amount of conceptualisation, research, development and innovation.

The Faraday Institution is therefore launching a Co-creation and Planning phase of work, in early 2026, to identify novel approaches, methodologies or concepts that have the potential to make a meaningful contribution to the development of a high-performance energy storage solution, and to develop these into plans for major research and development projects for this Transformational Challenge in the years 2027-2030.

2. The Approach

The initial Co-creation and Planning phase of HighPerCell, to be completed by October 2026, will aim to identify approaches, methodologies and concepts with the potential to make a meaningful contribution to the development of high-performance cell technologies, and carry out intensive research planning, with the aim of there being up to two plausible large scale (£1-2m pa), 3-year research projects ready to start in November 2026.

The Faraday Institution is seeking novel ideas for projects that look beyond incremental improvement of existing storage technologies and instead consider new possibilities that have not yet been the subject of significant research, let alone commercial development. Applications are encouraged from as wide a field of disciplines as possible including specialists in the fields of energy storage and beyond, such as advanced engineering or physics.

For the initial Co-creation and Planning phase, the Faraday Institution is inviting applications for two parallel tracks:

> A) from individuals, or teams, to work closely as **Research Consultants** with the Institution to formulate and develop novel methods, new approaches and radical concepts and ideas.
>
> B) as **Engineering Consultants** to provide expertise to the successful candidates from track A, leveraging pack design, integration and manufacturing expertise to assist and develop higher-length scale considerations at an early stage in the development process.

For both groups, the output of this phase of work will be plans for fundable research and development projects in 2026.

2.1. Research Consultants

The Institution aims to recruit up to six individuals or groups of inventors, researchers, scientists, engineers, technicians and entrepreneurs as Research Consultants.

During the Co-Creation and Planning phase, each (individual or group) of the Research Consultants will work with the Faraday Institution to develop a long-term research project roadmap for their approaches, methodologies or concepts along with a 12-month work plan and high-level IP and a commercialisation strategy. Work is expected to be desk-based and proposals will need to demonstrate consideration of the following:

- **Technological Concept:**
    - Concept generation and analysis
    - Identification of fundamental challenges
    - How is it novel? How will it generate impact?
    - Technical feasibility analysis, constraints and metrics definition including safety and sustainability

- **Project Management:**
    - Research project creation and definition including an agile / fail-fast work plan comprised of detailed research, modelling, experimentation or demonstration work packages to demonstrate concepts, approaches and processes and test boundaries
    - Identification of work package goals, milestones and timelines
    - Identification of work package requirements including capability, teams, facilities, equipment and costs
    - Identification of risks, barriers and contingencies
- **Cost Analysis:**
    - Techno-economic analysis, manufacturing potential, deployment potential, business needs and case, bill-of-materials projections
- **IP:**
    - Status of prior art/ background IP
    - Potential and freedom-to-operate
- **Route-to-Market:**
    - Any identified research/ industry partners
    - Sourcing and supply chain analysis

2.2. Engineering Consultants

Maximising electrochemical advances requires incorporating new technologies into the airframe platforms as early as possible. Given the complementary nature of integrating a nascent energy storage solution into an unknown design and form factor, the co-creation phase will be an iterative approach, bringing in relevant cell-to-pack design, systems integration, engineering, manufacturing and supply chain expertise as necessary.

The intention is not to immediately onboard Engineering Consultants, but rather to flexibly engage with relevant expertise and experience, as needed, once initial proposals from Research Consultants have been screened.

Additional resourcing

The Co-Creation and Planning phase will include access to additional support via the Faraday Institution, which may include:

- Access to specialist skills and knowledge – connecting with individuals or organisations who can bring specialist technical knowledge to help progress planning
- Access to specialist capabilities and resources – connecting with organisations that have lab, equipment, materials, funding or modelling capabilities
- Introductions to potential partners
- High level IP strategy – including identifying potential opportunities for IP generation and protection as well as understanding freedom to operate challenges and constraints
- High level commercialisation strategy – including identifying plausible pathways to market (e.g., licensing or start-up), supply chain requirements, potential partners and investors
- Project manager and mentor support – working with experienced project managers who will help to identify and overcome roadblocks during the project
- Commercial and legal advice

- Employment of external experts to provide specific types of support. For example, it may be necessary to employ a third party to perform techno-economic analysis
- Invitations to participate in innovation workshops / sandpits to build larger projects and ventures and encourage co-creation
- Access to an Advisory Board of senior, accomplished experts with expertise and connections related to the projects. The Faraday Institution will separately convene the Advisory Board during the Co-creation and Planning phase and will draw on it to provide a critique of the emerging ideas and plans.

The Co-creation and Planning phase is open to any approach, methodology or concept that Research Consultant applicants feel can meet the HighPerCell Challenge requirements and are within the Technology Specification (see Section 3). The Faraday Institution therefore expects applications to be diverse and potentially to require quite different approaches and support. It is therefore likely that once the successful Research Consultants have been selected there will be an initial period during which they will work with the Faraday Institution to shape a tailored plan for delivery during the Co-creation and Planning phase.

Research/Engineering Consultants will be paid a day rate, on a part-time consultancy basis, for the time they are contracted to spend on this project. The day rate and number of days will be agreed with each Consultant or team individually, and evidence of commercial day rates will be taken into consideration.

The overall amount of time that an individual Research Consultant is involved in the Co-creation and Planning phase may differ significantly. Some Research Consultants may be involved over many months, such that they work closely with the Faraday Institution during the process of developing approaches, methodologies and concepts into plausible research project roadmaps and delivery plans. Other Research/Engineering Consultants may only wish to participate for a small number of days, perhaps to introduce an idea or concept for consideration and inclusion in a research project plan. It is also possible that Research/Engineering Consultant contracts may be terminated during the Co-creation and Planning phase if it becomes clear that the concepts being developed are not going to meet the technology specification and will be unsuitable to take forward as a potential Faraday Institution-funded research project in 2026.

As a guideline, the Faraday Institution expects individual Research Consultants to work for no more than 1.5 days a week (on average) on Co-creation and Planning and expects to pay each individual Research Consultant no more than £30,000 ex VAT for the total time they spend on the Co-creation and Planning work. For Engineering Consultants, a similar duration is expected, but the total number of days may vary depending upon level of involvement when collaborating with Research Consultants and whether any previous considerations on integration and manufacturing have been given.

Participation of Research/Engineering Consultants in major HighPerCell research projects after the Co-Creation and Planning phase

Any major HighPerCell Challenge research projects commissioned by the Faraday Institution following the initial Co-Creation and Planning Phase will be subject to a separate commissioning and application process.

As this separate commissioning process will involve transparent and independent assessment by suitably qualified reviewers, the Faraday Institution cannot guarantee that the consultants who have helped to shape a given project during the initial Co-Creation and Planning Phase will necessarily play a particular role in that project once it is commissioned.

However, the Faraday Institution can confirm that, during the commissioning process, the criteria for selecting the team to carry out the research project will give due weight to the presence within that team of consultants who have participated in the design of that research project, on the grounds that such consultants will have in-depth understanding of the origins and design of the project.

If you wish to discuss this further before applying, please email HighPerCell@faraday.ac.uk.

Timeline

Applications open	4 November 2025
Webinar	18 November 2025, 14.00-15.00
Application deadline	10 December 2025, 15.59
Research Consultants selected and informed	By 26 Feb 2026
Co-creation and Planning phase starts	By 25 March 2026
Co-creation and Planning phase complete	By October 2026
Call for 3-year research projects open under the HighPerCell Challenge	Q4 2026

Dates may change

3. Technology Specification

Projects being scoped in the initial Co-creation and Planning phase are expected to contribute to the following outcomes of the HighPerCell Challenge:

- Enable the adoption of hybrid and/or pure electric CTOL flight in aerospace markets
- Enable novel dual-use energy storage applications in markets such as defence
- Contribute towards the UK Net Zero targets for aviation and transport
- Place the UK at the forefront of generation-after-next battery technologies
- Create UK economic impact and growth opportunities

Energy storage solutions including electrochemical, electrical, thermal, mechanical, chemical energy storage or other are in scope for this Challenge. However, sustainable aviation fuel and other combustion fuels, are out of scope.

Any proposed technology must conform with the requirements set out in (a)-(g) below. The technologies in scope for the HighPerCell Challenge will be assessed on whether the applicant's proposed approach, methodology or concept has the potential to make a meaningful contribution to the ultimate development of a high-performance solution or device that meets the following requirements:

a) **Gravimetric energy density** that approaches 1,000 Wh/kg at pack level
b) **Peak power** of >1.5 kW/kg (sustainable for 180 seconds over a range of states of charge)
c) **Continuous power** of > 0.5 kW/kg
d) Compliance with CS-25 / DO-311A **safety** standards

e) **Levelised cost of storage** <$0.30 / kWh
f) Potential to scale to >1 MWh systems
g) Interoperability with existing and future aviation infrastructure and operations
h) Potential to deliver UK economic growth and impact via a UK supply chain

4. Scope of Application

Applications for Research Consultants in the Co-Creation and Planning phase could include, but are not limited to:

- proposals of approaches, methods or processes to assess a group of novel concepts, ideas, technologies, components, chemistries or systems with the goal of identifying and/or ruling out areas worthy of further investigation or research;
- proposals to investigate specific novel technology, which could be a new or improved energy storage system, structure, mechanism, component, chemistry or other new approach; or
- another proposed, innovative way to address the challenge posed by the HighPerCell Challenge.

Applications for Engineering Consultants in the Co-Creation and Planning phase could include, but are not limited to:

- expertise in cell-to-module/pack, cell integration, structural battery systems that can be paired with an identified Research Consultant to iterate their proposal with holistic design thinking and provide insight into how it could be implemented within a vehicle;
- proposals of approaches, methodologies, analysis tools or processes to assess fundamental concepts from Research Consultants with the goal of identifying and/or ruling out areas worthy of further investigation or research; or
- techno-economic, bill-of-materials, systems engineering modelling capability to inform manufacturability

5. Eligibility Criteria / Conditions of Applying

Applications from both within and beyond the electrochemical energy storage research community are encouraged. For example, individual or team applications from inventors or entrepreneurs, or from people working in industry, academic institutions, engineering firms, or other professional occupations are welcome — regardless of whether the people concerned already work in fields such as physics, chemistry, materials science, engineering or any other relevant field.

Although track record will be a consideration when applications are assessed, applicants of all levels of experience are encouraged to apply. Applications from individuals with genuinely creative ideas who are at any stage of their career will be seriously considered.

The Faraday Institution fully recognises that the selected Research/Engineering Consultants are likely to have other commitments beyond this work. Accordingly, applications are invited from individuals and teams who will provide research/engineering consultancy on a part-time basis.

Applicants must be:

- Able to accept and comply with specific terms and conditions that will accompany the Faraday Institution's Research Consultancy Agreement.

- Prepared to work collaboratively with the Faraday Institution.
- Eligible to work in the UK.

6. How to Apply

Applications should be submitted by 15.59pm on 10th December 2025, via the Faraday Institution Flexigrant portal. Mandatory sections are marked. Applications that are insufficiently complete will be rejected.

There will be an **online briefing and Q&A** at 14.00-15.00, 18th November 2025. Register for the briefing.

7. Intellectual Property

It is desirable for the success of the HighPerCell Challenge that the Faraday Institution has access to all relevant foreground and background intellectual property ('IP'). This will enable the development of an overarching IP strategy, to support commercialisation of the technology with a goal of maximising the economic impact for the UK.

Therefore, subject to agreement to the contrary, any foreground IP arising from work for which the Faraday Institution pays the Research/Engineering Consultant during the Co-creation and Planning phase will be the property of the Faraday Institution; and the Faraday Institution will be free, at its sole discretion, to decide whether (and if so, how) to develop any of the IP produced during this Co-creation and Planning phase in any subsequent research programme.

If appropriate, this foreground IP will be available for license to the Research/Engineering Consultants and their institutions to help facilitate further research and commercialisation. Further, in the event that the Faraday Institution decides not to develop an aspect of the IP produced during the Co-creation and Planning phase, on agreement of terms with the Faraday Institution, protection may be sought by the Research/Engineering Consultant or their institution.

As described in preceding sections of this Call for Expressions of Interest, it is the hope and intention of the Faraday Institution to use the Co-creation and Planning phase as the basis for designing one or more successor research projects with the ultimate aim of producing a commercially viable high-performance energy-storage device. Any foreground IP developed during the Co-creation and Planning phase may be crucial to the success of the successor research projects.

It is the intention of the Faraday Institution that any such successor research project will specify the IP strategy to be adopted for protecting any IP arising from that research programme — with the specific aim of maximising the participation of UK manufacturing industry in the eventual exploitation of the technology developed. The IP ownership and licensing models for the successor research projects will be developed with this overarching aim in mind, and it is the Faraday Institution's intention that as part of this strategy:

- *if* any such successor research project does eventually result in the production of patents or other valuable IP that to a greater or lesser extent draw on the ideas put forward by the Research/Engineering Consultant during the Co-creation and Planning phase,

- *then* the Faraday Institution will enter into good faith discussions with the Research/Engineering Consultant to devise a royalty structure within which the contribution made by the Research Consultant to the eventual resulting patent or other valuable IP is fairly recognised,
- *and* this recognition of value will apply to contributions to the eventual resulting patent or other valuable IP made both:
    - by any background IP brought by the Research/Engineering Consultant into the Co-creation and Planning phase, and
    - by the work done by the Research/Engineering Consultant during the Co-creation and Planning phase itself.

Meanwhile, a Research/Engineering Consultant who takes part in the Co-creation and Planning phase is free to negotiate with the management of any institution of which they are a part the terms, if any, upon which they will share between themselves and that institution (a) payments for research consultancy work undertaken during the Co-creation and Planning phase itself and (b) any revenue subsequently arising for the Research/Engineering Consultant from patents or other valuable IP developed in a successor research project out of, or partly out of either the background IP brought to the Co-creation and Planning phase by the Research/Engineering Consultant or any foreground IP arising or partly arising from the Research/Engineering Consultant's work during the Co-creation and Planning phase.

For the avoidance of doubt, the Faraday Institution will not, at the time when the initial Co-creation and Planning phase research consultancy contract is executed, enter into any discussion or negotiation either with the Research/Engineering Consultant or with any institution of which the Research/Engineering Consultant is a part in relation to the eventual sharing of any IP revenue between the Faraday Institution and the Research Consultant.

8. Assessment Process

Proposals will be measured against the Assessment Criteria listed below.

The Faraday Institution will use suitably qualified independent assessors to assess the quality of the applications received, composed of individuals from both industry and academia.

- The role of the assessors will be to review and provide recommendations to the Faraday Institution executive team for final funding approval.
- Upon submission of applications, the Faraday Institution will undertake an initial review of applications against the eight technology criteria outlined in the document to confirm their potential feasibility. Those applications that appear potentially feasible will then be distributed to independent assessors.
- A chair from the Faraday Institution will be appointed to convene and facilitate a review meeting, to impartially lead the discussions and to consider reviewer feedback. The final decision on projects to be funded will be made by the Faraday Institution, which will consider the review recommendations and assessment criteria (below) and apply the context of achieving a broad portfolio of projects across areas of interest.

All applications will be treated as commercially sensitive and confidential.

The Faraday Institution may contact applicants at any stage during the review process to clarify aspects of their applications.

The Faraday Institution reserves the right to take a portfolio approach to its selection of successful Research and Engineering Consultants such that it can select a balanced set of capabilities, approaches, methodologies and concepts for the Co-creation and Planning phase of work.

The Faraday Institution reserves the right to reject proposals that it deems to be outside of the scope of the HighPerCell Challenge.

Assessment criteria

Applications to participate in the Co-creation and Planning phase will be assessed according to:

- **Technical specification:** whether the applicant's proposed approach, methodology or concept has the potential to make a meaningful contribution to the ultimate development of a high-performance energy storage solution or device which meets the specifications given in Section 3.

  Due to the wide-reaching nature of this call, and the anticipated early stage of proposed solutions, the Faraday Institution understands that some applications may be unable to fully demonstrate their proposal's ability to meet all the Technical Specification criteria. For example, this could be the case where an application primarily proposes a methodology for novel materials discovery. However, applicants are encouraged to provide at a minimum a high-level consideration of whether or how their proposal could be shown to meet each of the criteria.

- **Expertise of the applicant(s):**
  - The relevance of the applicant's expertise to the research area proposed.
  - The likelihood that the applicant(s) could contribute in a meaningful way to a step-change in knowledge and understanding of the topic.
  - The potential of the applicant(s) to participate in a collaborative approach.
  - The value for money of the applicant's proposal.

9. Equality, Diversity and Inclusion

- The Faraday Institution aspires to create a truly inclusive environment where all its researchers and consultants can thrive and feel a sense of belonging whilst empowering everyone to have a voice. We celebrate individuality and know that combining the skills and talents of a dynamic and diverse community brings great strength. The Equality, Diversity and Inclusion Working Group is looking at positive ways to ensure these values are lived out throughout our community.
- The Faraday Institution is committed to promoting gender balance in science, technology and engineering.
- The Faraday Institution expects that equality and diversity is embedded at all levels as set out in our EDI charter and in all aspects of research and innovation practice.

10. Confidentiality and Privacy

- The Faraday Institution Privacy Policy describes how we manage personal data.
- The Faraday Institution assesses all call applications through a review process and such applications are sent to reviewers for comment.

- Applications are treated confidentially and only supplied to reviewers who have previously signed confidentiality agreements with the Faraday Institution.
- Reviewing panel members are asked not to share or discuss reviewer comments/identities outside of the Faraday Institution management.
- The content of applications, proposals and feedback are all kept confidential. If reviewers have any paperwork or have any additional notes, they are required to keep these secure and delete them as soon as the information is no longer required.
- Whilst we ask within their submissions that applicants describe their proposed project in sufficient detail for reviewers to assess the application, potentially patentable results should not be included in a proposal until after a patent application has been filed.
- Under no circumstances should any applicant contact individual panel members. Reviewers are required to notify us immediately if any applicant contacts them directly.
- Under no circumstances should any Review Panel member contact applicants.

11. Conflicts of Interest

- The Faraday Institution is committed to maintaining the highest standards of impartiality, transparency and fairness in all aspects of its work. From time to time a situation can arise where there is a conflict of interest. This is particularly the case where the Faraday Institution requires expert advice and those best placed to provide the required expertise may be actively involved in the field. These situations will be managed by adopting a clear policy for dealing with potential conflicts.
- The Faraday Institution requires all individuals involved in such activities to agree to act according to our policy on conflicts of interest.
- Reviewers should declare any potential conflict of interest and panel members will not be present during any discussions of proposals in which they are conflicted.
- Below are a set of guidelines that all reviewers (be they academics, from industry, individuals or Faraday Institution management) will be expected to comply with:
  - A conflict of interest will be defined as any personal, business, research or academic interest that may, or may be perceived by a reasonable member of the public to influence their judgement in performing their functions and obligations as part of existing Faraday Institution research commitments.
  - It is expected that reviewers inform the Faraday Institution in advance of any new appointments that may give rise to a conflict of interest as described above and affect the performance of their functions and obligations as regard the continuation of the Faraday Institution research areas.
  - Where a conflict of interest becomes apparent during the application review process, they are required to inform the Faraday Institution and other parties at the earliest opportunity.
  - Reviewers are required to withdraw from any discussions where they have any interests that may, or maybe perceived to, influence their judgement or give rise to a personal, business or academic gain of detriment to other parties.
  - All information on potential conflicts of interest will be held by the Faraday Institution and could be disclosed to stakeholders and funders of the activities of the Faraday Institution (and potentially also the public).