



SEAI National Energy Research, Development & Demonstration (RD&D) Funding Programme

2023 Call Document

Call for Submission of Applications

Key Dates	
Call Open Date	31 March 2023
Deadline for Application Submission	3pm (Irish Standard Time) Monday 29 May 2023

It is the responsibility of each applicant to SEAI's National Energy Research Development and Demonstration (RD&D) Funding Programme Call to ensure that they have read and fully understand all Documentation associated with this Call before making a submission, including: this Call Document (pdf); [Privacy Notice](#); Application Form Template (word doc); SEAI RD&D Budget Policy (pdf); and the SEAI RD&D Budget Template (xls).

SEAI is funded by the Government of Ireland through the Department of the Environment, Climate and Communications. SEAI is pleased to announce that the 2023 SEAI National Energy RD&D Call involves co-funding partnerships on particular topics, with the following organisations: the Department of Transport (1 Topic) and the Department of Agriculture, Food and the Marine (3 Topics).

SEAI National Energy RD&D Funding Programme

2023 Call Document

31 March 2023

Sustainable Energy Authority of Ireland

SEAI is Ireland's national energy authority investing in, and delivering, appropriate, effective and sustainable solutions to help Ireland's transition to a clean energy future. We work with the public, businesses, communities and the Government to achieve this, through expertise, funding, educational programmes, policy advice, research and the development of new technologies.

SEAI is funded by the Government of Ireland through the Department of the Environment, Climate and Communications.

© Sustainable Energy Authority of Ireland

Contents

Call for Submission of Applications	2
1. Programme Description and Objectives	4
2. Who Can Avail of the Programme	5
3. Definition of Project Roles.....	5
4. Levels of Funding Available – Project Scale/Type	6
5. Funding Rate.....	7
6. What Projects are Eligible	8
7. Submitting your application	11
8. Evaluation process and criteria.....	11
9. Award Management	13
Annex 1: Topic Strand	15
Annex 2: Application Form Template Instructions.....	39
Section 1: Project Details	39
Section 2: Excellence and Innovation (max 8 pages)	40
Section 3: Relevance and Impact (Max 8 pages)	41
Section 4: Workplan (Max 10 pages)	45
Section 5: Budget	46
Section 6: Letters of Support	48
Annex 3: Application Checklists	50
Annex 4: Budget template Instructions	51
Annex 5: General Terms and Conditions	51

1. Programme Description and Objectives

SEAI will be central to bringing about a low carbon economy through measures and activities focused on the transition to a smarter and more sustainable energy future. To achieve this mission, SEAI will continue to build an environment for positive change through our analysis, modelling, and support for policymaking. SEAI will catalyse direct action through our design and delivery of grant and incentive programmes and through our capacity-building processes with citizens, communities, and private and public sector organisations.

The overarching objectives of the SEAI National Energy Research Development and Demonstration (RD&D) Funding Programme are as follows:

- Accelerate the development and deployment in the Irish marketplace of competitive energy-related products, processes and systems;
- Support solutions that enable technical and other barriers to energy market uptake to be overcome;
- Grow Ireland's national capacity to access, develop and apply international class energy RD&D;
- Provide guidance and support to policy makers and public bodies through results, outcomes and learning from supported projects.

SEAI's National Energy RD&D Funding Programme supports innovative and targeted actions which assist in delivery of the [Climate Action Plan](#), the [Programme for Government](#), the [2030 Climate and Energy Framework](#), [Project 2040 Ireland](#), [Impact 2030: Ireland's Ireland Research and Innovation Strategy](#), [Project Ireland 2040](#), [the 2015 Department of the Environment, Climate and Communications Energy White Paper](#), [Ireland's National Energy & Climate Plan \(NECP\)](#), and [the Climate Action and Low Carbon Development Bill](#) (2021) such as it pertains to SEAI's remit.

Accelerating transformative research to deliver Ireland's clean energy and climate ambitions will require enhanced collaboration across a wide range of stakeholders and actors. Diverse approaches and engaged research methods will be required. The SEAI National Energy RD&D Funding Programme welcomes research proposals from all research disciplines, as well as collaborative projects involving multiple organisations, and multidisciplinary, transdisciplinary or interdisciplinary approaches, subject to alignment with the overall programme objectives.

The programme provides the opportunity for applicants to submit proposals to either an Open Strand or a Topic Strand (see Annex 1) of this Call Document for further details). The Open Strand provides an opportunity for applicants to pitch ideas for research proposals that are within SEAI's remit and that meet the above outlined programme objectives. The Topic Strand (Annex 1) includes 22 Topic areas which have been identified as priority areas for research. Applications to both the Topic and Open Strand compete with each other for funding.

2. Who Can Avail of the Programme

The SEAI National Energy RD&D Funding Programme is open to public and private sector organisations based in the Republic of Ireland (including Irish subsidiaries of overseas companies) who wish to carry out projects in Ireland. Applications will be accepted from companies, 3rd level educational bodies, public sector bodies and semi-state bodies who are based in the Republic of Ireland. The aforementioned organisations may apply to the Programme individually or as part of a consortium. Proposals from individuals applying in their own right will not be accepted.

In some circumstances, the programme may support Irish entities/researchers to carry out work undertaken in other jurisdictions, where this is necessary for the completion of the project. Researchers based in other jurisdictions will not be funded by the programme and should partake in proposals in the role of (non-funded) collaborators.

In exceptional cases, funding of work in other jurisdictions (e.g., where it is not possible for a component of work to be carried out in Ireland) may be supported where there is a demonstrable contribution to resolving issues directly relevant to Irish requirements.

3. Definition of Project Roles

Lead Applicant: The Lead Applicant is a budget holder and will hold responsibility and accountability for management of the proposed project. They will be responsible for the technical direction, progress monitoring, budgeting, reporting, dissemination and other management duties associated with the proposed project in-line with SEAI policies. The Lead Applicant is responsible for ensuring that all project partners and stakeholders are kept fully informed on all matters relating to the project. The Lead Applicant will act as the primary contact point for SEAI. Each application may list only one Lead Applicant. The Lead Applicant must hold a contract covering at least the duration of the proposed project or agreement from their employer that their employment will be extended to cover at least the period of the proposed project.

Please note, for 3rd level Educational Bodies, the named Lead Applicant must be a core funded member of academic staff or a member of academic staff with a fixed-term contract and is therefore ineligible to receive salary funding through the SEAI National Energy RD&D Funding Programme. Postdoctoral Researchers or Research Fellows may not be listed as the Lead Applicant (except for Fellowship applications).

Partner Applicant(s): Partner Applicants may form part of the proposed funded project team, along with the Lead Applicant and are responsible for supporting the Lead Applicant in order to achieve the goals of the proposed project. The role of the Partner Applicant(s) should be well-defined within the application.

Collaborators: Collaborators are organisations who are committed to providing a valuable intellectual, technical or financial contribution to the proposed project. Collaborators are not funded by SEAI in a proposed project.

End-Users: A research end-user is defined as an individual, community, or organisation, that will directly use or directly benefit from the output, outcome or results of the proposed research.

4. Levels of Funding Available – Project Scale/Type

The SEAI National Energy RD&D Funding Programme provides funding under the following five categories. Details of the typical duration and typical maximum SEAI funding associated with each scale/type are provided in the table below:

Scale/Type	Typical Duration	Maximum SEAI Funding Available*
Small scale projects	Up to 12 months	Up to €200,000
Medium scale projects	12 to 36 months	Up to €650,000
Large scale projects	36 to 48 months	Up to €1,000,000
Academic fellowships	12 to 36 months	Up to €300,000

**Inclusive of Overheads, please see SEAI RD&D Budget Policy for further details*

Classification of a small, medium, or large-scale project is based on the duration of the proposed project. Please refer to Annex 1 for details of the Project Scale/Type defined for each thematic Topic. Note that for some particular Topics, the maximum funding amount may differ from the figures in the above table – please refer to each Topic description (Annex 1) for details of Topic-related maximum funding amounts available.

Academic Fellowships:

Applications are welcome to the 'Academic Fellowship' category from postdoctoral researchers applying to Topics or the Open Strand, with support from a host 3rd level educational body (see section above). Academic fellows can request up to a maximum of €300k in support over a maximum of three years' duration. It may be possible for PhD students to apply when in the latter PhD stages, however award of a Fellowship is contingent upon PhD completion. Where applicable, applicants should clearly detail expected PhD completion and graduation dates within their application.

The Academic Fellowship category aims to build capacity in the energy sector, providing opportunities for early-stage postdoctoral researchers to lead projects in support of Ireland's clean energy transition.

Fellowship applications must be submitted by the individual intending to take up the proposed Fellowship. Fellowship applications will be accepted from 3rd level educational bodies only, based in the Republic of Ireland. A mentor/supervisor should be identified as part of the project team and should be listed as a Partner Applicant. Please note that the mentor/supervisor is not eligible for funding, please see the SEAI RD&D Budget Policy for further details.

Academic Fellowship applications should include an additional Letter of Motivation, uploaded as a supporting document along with the application. The Letter of Motivation should include a statement to demonstrate the Fellowship applicant's interest in and suitability for the proposed Fellowship. This may include an outline of their professional experience, how the Fellowship will enhance their career development and personal motivation for the submitted Fellowship proposal.

Academic fellowship applications should include the following Letters of Support: (1) Lead Applicant (confirming that the information provided in the application is correct to the best of their knowledge and that the proposed projects has not been/is not the subject of grant aid from any other source); (2) Partner Applicant (mentor/supervisor); (3) An authorised staff member in the lead institution (e.g. the Vice President for Research or equivalent); (4) Letter of Motivation – Fellowship.

5. Funding Rate

EU state aid rules stipulate what types of research activities are eligible for support, which costs relating to these activities may be covered in part or in full (ranging from 25% up to 100%), and the maximum aid intensity that may be granted for the various activities. Applicants should refer to the SEAI RD&D Budget Policy for additional information in relation to which category their project falls under.

The Categories below represent the maximum level of support that are available within the 2023 SEAI National Energy RD&D Call. Additional information is provided in the SEAI RD&D Budget Policy.

RD&D activities subject to EU State Aid Regulations					
Research Category	Base Level	Type of Company		Effective Collaboration	Maximum Support
		Small Enterprise	Medium Enterprise		
Industrial Research	50% of approved itemised eligible costs	+20%	+10%	+15%	80%
Experimental Development	25% of approved itemised eligible costs	+20%	+10%	+15%	60%
RD&D activities not subject to State Aid Regulations					
Non-economic Public Good Research					100%

6. What Projects are Eligible

Eligible project proposals include projects that address the overarching programme objectives (see Section 1), that are submitted by eligible organisations (see Section 2), with full complete applications (see Checklist in Annex 3), submitted in advance the call deadline of **3pm Monday 29 May 2023**. The 2023 SEAI National Energy RD&D Funding Programme provides the opportunity for applicants to submit proposals to either a topic strand or an open strand.

Open Strand - The open strand of the call provides an opportunity for applicants to propose projects within SEAI's remit which directly address the aims and objectives of the SEAI National Energy RD&D Funding Programme Call.

Topic Strand - The topic strand of the call provides an opportunity for applicants to submit proposals that address the requirements of the topics outlined in Annex 1. These topics have been developed by SEAI and relevant stakeholder organisations. In some cases, successful proposals to the topic strand of the call will be partially funded by co-funding partners. The table below provides an overview of the topics which form part of this call. Please refer to Annex 1 of this document for full topic details.



Each topic description in Annex 1 outlines suggested project objectives and expected outputs. Please note that proposals submitted to these topics are not necessarily expected to address every objective and output listed in all cases. Applicants should clearly outline which of the suggested objectives and expected outputs they intend to address/deliver as part of their proposed project and may propose additional objectives/outputs. All proposals should build upon existing research and information available.

No.	Title
Small Scale Topics	
1	Research to support enhanced uptake of energy efficiency upgrades of rental, multi-owner and multi-use properties
2	Support the delivery of low-cost finance and loans for energy efficiency upgrades of dwellings in Ireland
3	Sustainable mobility innovations including the development of Mobility as a Service (MaaS) in Ireland (Co-funded by Dept. of Transport)
4	Engagement levels of the farming sector in renewable energy and bioeconomy projects (Co-funded by Dept. of Agriculture, Food and the Marine)
5	Demonstration of smart inverters in the Irish electricity system
6	Targeted interventions to empower communities and active energy citizens
Small / Medium Scale / Academic Fellowship Topics	
7	Assessment of models for collaboration between Renewable Energy Communities (RECs) and larger renewable energy developers
8	National car fleet and consumer decision-making modelling
9	Demand Flexibility – Research to explore achieving Ireland's Climate Action Plan demand flexibility targets
10	The potential role of Thermal Storage (including thermal batteries) in meeting the Climate Action Plan targets across a range of uses
11	Electrified industrial heat storage (EHS)

12	Geothermal Energy Economic Evaluation (District Heating and Industry)
13	Impact of energy price rises on energy poverty
	Medium Scale Topics
14	Barriers to uptake of low carbon heating technologies in industry
15	Development of an analysis framework for the use of bioresources in different sectors (heat, transport, and bioeconomy) in Ireland (Co-funded by Dept. of Agriculture, Food and the Marine)
16	Performance gap in dwellings and non-domestic buildings
17	Potential for optimising and standardising smart connections within the home, including vehicle to house connections, heat pumps and solar PV
18	Developing electrolyzers for offshore deployment
19	Innovation in dynamic cables for offshore renewable energy
	Medium / Large Scale Topics
20	Monitoring and Field Trials Examining Energy Consumption in Ireland
	Large Scale Topics
21	High temperature heat pumps for industrial use
22	PyCCS- Pyrogenic Carbon Capture and Storage (Co-funded by Dept. of Agriculture, Food and the Marine)

Co-funding Partner Profiles

SEAI is pleased to announce that the 2023 SEAI National Energy RD&D Funding Programme Call involves co-funding partnerships with the organisations outlined below:

<p>Department of Agriculture, Food and the Marine (DAFM) DAFM's mission is to serve the government and people of Ireland by leading, developing and regulating the agri-food sector, protecting public health and optimising social, economic and environmental benefits.</p> <p>Strategic Goals:</p> <ul style="list-style-type: none"> to promote and safeguard public, animal and plant health and animal welfare for the benefit of consumers producers and wider society provide income and market supports to underpin the rural economy and the environment provide the optimum policy framework for the sustainable development of the agri-food sector deliver a sustainable, growth driven sector focused on competitiveness and innovation driven by a skilled workforce delivering value added products in line with market demands maintain and develop strategic, operational, regulatory and technical capacity to achieve operational excellence <p>DAFM operates 'public good' competitive research funding programmes for agriculture, food and forestry to support innovation and economic success across the bioeconomy. DAFM also provides support for Irish involvement in the EU Horizon 2020 research funding programme.</p>	 <p>An Roinn Talmhaíochta, Bia agus Mara Department of Agriculture, Food and the Marine</p>
<p>Department of Transport As a central Government Department, serving the Government and the people of Ireland, the mission of the Department of Transport is to shape the safe and sustainable development of transport, to support economic growth and social progress. In 2021, in recognising the challenge the Department faces in addressing climate change a Climate Pillar consisting of five divisions was established. The Department will play a significant role in the national objective to reduce emissions and in achieving a cost-effective reduction pathway to a low carbon and resilient transport system by 2050. In this role, the Department will encourage and support transport networks and services that are environmentally, economically and socially sustainable. The Department will also be responsible for supporting the necessary adaptation of our critical transport infrastructure and services in response to Ireland's changing climate.</p>	 <p>An Roinn Iompair Department of Transport</p>

SEAI may enter further co-funding arrangements with other funders, who may have an interest in certain Call topics. If deemed appropriate, SEAI may approach other potential funders, at any stage during the Call process, up to and including during the contract negotiation stage.

7. Submitting your application

Applications to the 2023 SEAI National Energy RD&D Funding Programme should be made through SEAI's online application platform, PEP (Project Evaluation Platform).

The PEP Application Portal is available at the following link: <https://pepportal.seai.ie/>

Further detailed PEP application guidance can be found within the PEP Application Guidelines Document available to download at:

<https://www.seai.ie/grants/research-funding/research-development-and-demonstration-fund/>

8. Evaluation process and criteria

Only fully complete applications received prior to the application deadline will be considered for evaluation. The evaluation consists of a two-stage process:

Stage 1 – Eligibility Assessment: Applications will be assessed to ensure administrative compliance with programme requirements and objectives. Please remember that **incomplete applications will not proceed to Stage 2.** Prior to submitting your application, please ensure to refer to the Application Checklist outlined in Annex 3 to ensure all required application details and supporting documentation are included and submitted in advance of the call deadline.

Stage 2 – Technical Evaluation: Applications passing the eligibility assessment will be technically evaluated under the evaluation criteria outlined below.

Following the above evaluation process, highly evaluated proposals will be recommended for funding, subject to budget availability. A Reserve List of highly evaluated proposals may also be formed. Reserve List projects may be funded at a later stage, should sufficient additional budget become available.

Projects selected for funding will be issued with a Grant Agreement which will detail the approved itemised eligible costs. SEAI may require applicants to clarify aspects of their proposal prior to issuing a Grant Agreement.

The evaluation criteria under which applications will be assessed, and the proportion of marks awarded to each criterion are provided below:

Excellence and Innovation (35%)

- The validity and reliability of the prospective technology/concept and approach – including transdisciplinary considerations, where relevant.
- Quality of the innovation and ambition related to state of the art in Ireland and beyond.
- Familiarity with relevant RD&D activities/knowledge of the area.
- Track record of participation or potential to perform in previous/future RD&D activities.
- Qualifications of the key personnel/organisations.

Relevance and Impact (35%)

- Relevance to the needs of the Irish energy sector, with particular reference to national policy including: Ireland's Climate Action Plan 2023, Programme for Government, Ireland's National Energy & Climate Plan (NECP), and the Climate Action and Low Carbon Development Bill (2021) such as it pertains to SEAI's remit.
- Stimulates & accelerates the development & deployment of energy related products, processes & systems in the Irish marketplace and/or facilitates guidance to policy makers on practical, regulatory, technological and/or market opportunities.
- Builds and/or maintains national capacity, capability and critical mass to carry out internationally leading RD&D activities underpinning the energy sector.
- Capacity of the project to strengthen the competitiveness and development of their relevant industrial sectors.
- Relevance of enterprise, scientific, policy and social impacts of project outputs.
- Strength of communication/dissemination and exploitation plans (including management of data).
- Replicability of the project outputs/case study across Ireland and at an international level.
- Evidence of the added value of transdisciplinary collaboration and/or the active engagement and involvement of key relevant stakeholders, including, for example, end-users and industry.

Quality and Efficiency of Implementation (including value for money) (30%)**(i) Project Delivery & Management (20%)**

- Coherence and effectiveness of the project work plan.
- Quality of project framework, clarity of deliverables and milestones with a credible breakdown of activities and associated budget allocation.
- Credibility of timing-related project management factors, including project scheduling, dependency identification/monitoring and calculation of critical paths with a particular focus on realistic timelines, availability of data, concession, permits and regulatory approvals (where relevant). Data acquisition requirements should be identified in advance and appropriate agreements should be in place with third parties.
- Strength of the management and oversight arrangements including risk management and gender equality.

(ii) Budget & Value for Money (10%)

- Economic (spending less) – are the appropriate quantity and quality of resources/costs requested at the lowest cost possible to support project delivery?
- Efficiency (spending well) – is the requested budget maximising value for money and delivering project objectives as efficiently as possible.
- Effectiveness (spending wisely) – are the requested resources maximising the potential impact of the project outputs?
- Is the overall budget appropriate to a project of this size?

Note:

For applications to be considered eligible for funding, proposals must achieve a minimum average score of 60% in each evaluation criteria.

When differentiating between projects that are scored equally, the availability of sufficient budget will be the first criterion considered. The second criterion considered will be the close alignment of the proposed research with national policy ambitions and targets.

An intensifier may be applied to Fellowship applications, to further support leadership and career development opportunities, providing enhanced capacity to the energy sector.

9. Award Management

All SEAI RD&D grantees are required to report on outputs and impacts arising from their research at regular reporting periods throughout their research projects. Grantees are required to submit Annual Technical Report(s) as well as a Final Technical Report upon completion of their project. Annual and Final Technical Reports are used to monitor the progress of each project against the overall objectives of the SEAI National Energy RDD Funding Programme and associated Key Performance Indicators (KPIs). Each of the SEAI RDD Programme objectives is discussed below:

Objective: Accelerate the development and deployment in the Irish marketplace of competitive energy-related products, processes and systems;

Expected outcomes: The capacity of funded research to accelerate the development and deployment of new competitive energy-related products, processes and systems, will be assessed through the reporting of key outcomes including: the number of spin-off companies created or planned as a direct result of the project; new technology license agreements; EI commercialisation awards; along with the number of patent applications developed or submitted. Awardees are asked to update on these outcomes at annual and final reporting stage.

Objective: Support solutions that enable technical and other barriers to energy market uptake to be overcome;

Expected outcomes: Projects supported under the SEAI National Energy RDD Funding Programme may enable technical or other barriers to energy market uptake to be overcome, such as social, environmental, political or economic factors. This capacity will be assessed through the reporting of key project achievements at annual and final reporting stage, clearly highlighting how the project has furthered current state-of-the-art, current knowledge or current practice to overcome identified barriers, along with highlighting the degree of novelty, innovation and collaboration demonstrated.

Objective: Grow Ireland's national capacity to access, develop and apply international class energy RD&D;

Expected outcomes: National research capacity will be assessed through the reporting of the number of team members involved in each project, as well as the associated level of training received and research outputs of each team member. SEAI's expectation is that SEAI RDD awards will provide support necessary for awardees to build capacity, expertise, networks and relationships to a point where they can compete successfully for funding in Europe and to engage with international networks and collaborations including the International Energy Agency Technology Collaboration Programmes (TCPs). Equality, Diversity and inclusion considerations, including any gender dimensions within research projects, will form an important part of the reporting process. In their final report, awardees are asked to report on funding opportunities that they have pursued and won.

Objective: Provide guidance and support to policy makers and public bodies through results, outcomes and learning from supported projects.

Expected outcomes: Dissemination of research outcomes and results will be assessed through the reporting of all project-related dissemination activities at annual and final reporting stage. This includes reporting on all scientific publications as well as all other dissemination activities including publications, conferences, workshops, websites/applications, press releases etc. Engagement with policy makers and civil society will also be assessed. Awardees are asked to respond to an engagement questionnaire, to provide details of the levels of engagement throughout the research project with a range of stakeholders, including government, public bodies or policy makers, citizens or organised societal groups, and societal actors beyond the research and industrial community. Awardees are also asked to clearly outline if the project outputs could be used by policy makers, and if so, at what level, for example at local, national, European or international level.

Project Reviews:

All SEAI National Energy RDD Funding Programme Awards of more than three years' duration will be subject to a progress review in the form of an online or in-person site visit. Project reviews can be conducted internally (exclusively by SEAI staff) or can be conducted with participation of national or international expert reviewers and/or representatives from co-funding partner organisations. These project reviews are typically held at the midway point on the award. The outcome of any type of review may be taken into consideration in the assessment of future applications made to SEAI. As further clarified within the SEAI RD&D Grant Agreement Terms and Conditions, SEAI reserves the right to terminate a grant if, in the reasonable opinion of SEAI, progress is not deemed to be satisfactory. Further clarity on this is outlined in the Grant Agreement.

Annex 1: Topic Strand

Topic 1	Research to support enhanced uptake of energy efficiency upgrades of rental, multi-owner and multi-use properties
Indicative Duration	Up to max 12 months
Project Scale	Small Scale
Indicative Funding	Up to max €200k

Background

In the residential rental sector, incentives to invest in energy efficiency upgrades are misaligned between landlords and tenants, which can negatively impact upon the energy performance of the sector. [The Housing for All](#) strategy commits the Government to acting in this area.

Research is needed to investigate how to encourage energy efficient upgrades of such homes and address the following areas, including:

- The split incentive - how to support greater take-up of home energy upgrades by landlords
- Addressing multi-ownership buildings (e.g., apartment blocks)
- Mixed use developments (e.g., home over the shop)

Please note this is not an exhaustive list.

Topic Objectives and Outputs

Project(s) proposed under this topic could consider addressing the following objectives:

- Review of international best practice and explore what can be learned from other countries
- Review of the national market and what supports currently exist
- Engage with landlord groups in Ireland (e.g., survey or focus groups) and identify concerns/challenges
- Explore what supports could be developed (including financial or otherwise, e.g., tax breaks, ACA, or other)
- Identify different types of landlords (commercial or otherwise)
- Identify different types of apartment block ownership structures and how they could be supported

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 2	Support the delivery of low-cost finance and loans for energy efficiency upgrades of dwellings in Ireland
Indicative Duration	Up to max 12 months
Project Scale	Small Scale
Indicative Funding	Up to max €200k

Background

[CAP23 – Action BE/23/12](#) aims to 'Support the delivery of low-cost finance for home retrofit to consumers'. Private finance plays a critical role in addressing climate change in Ireland and globally. There is a significant funding gap between what is currently committed and what is necessary to achieve our climate objectives. Challenges associated with incentivising homeowners to retrofit their homes include long payback periods associated with residential retrofits and the differing financial circumstances and life-stages of homeowners. Current uptake of home retrofit offerings is often limited by affordability, and low cost and innovative finance mechanisms are required to allow homeowners to carry out works when they wish to do so.

Challenges facing financial institutions in funding retrofits include uncertainty over the long-term cost effectiveness of investments and the difficulty in aggregating multiple small-scale investments. While several 'green' loan products are available in the Irish market, there is no evidence of substantial discounting of interest rates when compared to other products. Improving our understanding of the risk profile of "green" vs "brown" assets should help financial institutions to direct funding towards green and sustainable investments.

Various innovative concepts are being put forward internationally as potential solutions to the current challenges. Further research is required to establish the suitability of these instruments in an Irish context and assess what enabling factors may be required to stimulate market activity in this area.

Topic Objectives and Outputs

Project(s) proposed under this topic could consider addressing some of the following objectives:

- Assess the link between the energy efficiency of buildings/or energy costs and the credit risk of borrowers
 - Examine how this relationship has changed due to recent energy prices rises
- Desk-based research on international models and practices for financing retrofits (including EEMI, ERL, insurance/performance guarantee-based, PACE schemes, Net Zero Neighbourhoods) and their suitability for the Irish market
- Gap analysis of home retrofit financing and recommendations of suitable financial products to meet the needs of various cohorts (based on demographics, dwelling characteristics etc.)
- Surveys and consultation with lenders, One-Stop Shops & other professional groupings on the suitability and appetite for various models for the Irish market
- Assessment of enabling legal, regulatory and funding factors
- An overview of the landscape of green finance options in Ireland

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 3	Sustainable mobility innovations including the development of Mobility as a Service (MaaS) in Ireland
Indicative Duration	Maximum duration of 6 months
Project Scale	Small Scale
Indicative Funding	Up to max €100k
Co-funding	Department of Transport

Background

The Sustainable Mobility Policy (SMP) Research Network, consisting of agencies and bodies who carry out and support transport related research, including SEAI, have identified 8 key research priorities in 2022. Research Priority 8 – “Research to promote and integrate innovative technologies to promote sustainable mobility including micromobility, Mobility as a Service (MaaS) and shared transport solutions” was identified as a clear data gap.

Mobility as a Service is a fast-evolving policy area which may have significant implications for the decarbonisation and digitalisation of mobility in Ireland. Mobility as a Service integrates various forms of transport into a single, comprehensive, and on-demand mobility service. It allows transport users to access mobility through a single application and a single payment channel (instead of multiple ticketing and payment operations). Optimised occupancy of transport modes with shared mobility leads to fewer inefficient one-person-one-car scenarios, reduced energy usage and in turn CO₂ emissions. This will contribute to CAP23 targets of a 20% reduction in total vehicle kilometres and a 50% reduction in transport emissions by 2030.

Goal 10 of the SMP commits to “promote smart and integrated mobility through innovative technologies and development of appropriate regulation”. Action 82 of the SMP Action Plan commits to “define a governance framework for the implementation and operation of MaaS to encompass all transport modes nationally”. In order to support this Action, a clear and robust evidence base is required to define the best approach for data sharing and governance to be adopted in an Irish context and create a repository of data sources.

Topic Objectives and Outputs

Project(s) proposed to this topic could aim to address the following two primary objectives:

1. Develop an evidence base for Data Sharing Framework and Governance Arrangements

- International review of best practice for the establishment of data sharing infrastructure and governance systems to enable innovations such as MaaS including any facilitating legislation applicable.
- Review of the Irish landscape, noting the key holders of transport data and opportunities/challenges associated with pursuing different models of data sharing, particularly the integration of services provided by public transport operators (as defined in the Dublin Transport Authority (DTA) Act 2008) with non-public transport operators, i.e., mobility providers that fall outside of the definition of public transport operator in the DTA Act.
- Review of all potential data sources that may be required and investigate options to create a repository of data sources and required data points to enable MaaS and potentially form the repository.
- Make recommendations on the optimal approaches to enable MaaS in an Irish context, taking into account business, end-users, technology and policy objectives and identifying potential barriers to implementation.
- Recommendations should take account of existing statutory responsibilities across relevant stakeholders, identify the most appropriate governance and regulatory frameworks for the holding and sharing of transport data, while ensuring sustainable transport policy objectives can be achieved, particularly those identified under the SMP and Climate Action Plan. Models should facilitate a strong public governance model (as opposed to commercial-led solutions).
- Recommendations should consider the strategic objectives of the European Digital Strategy and associated proposals of developing sectoral specific Data Spaces, including a Mobility Data Space. Review potential market effects, identifying any that may be construed as affecting, or may directly affect, markets and competitiveness.
- Where possible, data collected during the project should be made available publicly in a GDPR compliant format.

2. Identify highest-priority areas for data sharing across transport to accelerate transport-related emissions reduction

Service delivery across the transport system could be enhanced through the sharing and integration of data, beyond the narrower lens of shared mobility, and public transport as part of MaaS. Cross sectoral collaboration on shared challenges and opportunities would be beneficial, with potential for greater efficiency in approach and associated costs.

- Identify areas within the transport sector where return-on-investment for greater integration and for reduced emissions could be highest, including, amongst other areas: MaaS, EV Charging Ecosystem, First-mile Last-mile Freight Delivery Solutions, Demand Response Transit, Parking and Road-User Charging, Mobility Hubs, etc.

A project advisory group will be formed by the Project Team, comprising the successful research team, SEAI, Department of Transport and other relevant stakeholders such as the NTA.

Topic 4	Engagement levels of the farming sector in renewable energy and bioeconomy projects
Indicative Duration	Up to 1 year
Project Scale	Small Scale
Indicative Funding	Up to max €200k
Co-funding	Department of Agriculture, Food and the Marine

Background

Engagement levels of the farming sector in renewable energy and bioeconomy projects have not been high to date with most farms remaining outside of the RES-E, RES-H or RES-T sectors. One possible barrier is the seasonality both of farm operations, i.e., the load, and the resource from wind and/or solar. Electricity and heat are difficult to store on an inter-seasonal basis. Therefore, the heat and electrical loads on farms should be prioritised for carbon reduction, with low-cost interventions. Biomass resources could be used to deliver some energy and biobased products needs through anaerobic digestion, or biomass combustion and advanced technologies such as biorefining.

Topic Objectives and Outputs

Project(s) proposed under this topic could consider addressing the following objectives:

- Analysis of current engagement levels of the farming sector with renewable energy and bioeconomy considering various farming systems including dairy, beef, tillage, horticulture etc.
- Identification of barriers and gaps to further engagement.
- Propose schemes/trust levels/educational skills/training/supports/demonstrators.
- Link to existing training or skills initiatives or demonstrators.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI, Department of Agriculture, Food and the Marine, other relevant Public Bodies, relevant research groups and industry stakeholders.

Topic 5	Demonstration of smart inverters in the Irish electricity system
Indicative Duration	Up to 1 year
Project Scale	Small Scale
Indicative Funding	Up to max €200k

Background

The Climate Action Plan 2021 outlines that microgeneration should play an important role in shaping the decarbonisation of homes and businesses. In this regard, ESB Networks has introduced a Microgeneration Support Scheme (MSS) to support the deployment of microgeneration rated up to 6 kVA single phase or 11 kVA three phases. Most generators that fall into this category are inverter-based and mainly domestic rooftop solar panels with/without battery storage systems. The smartness of the inverter will define the capabilities of the microgenerators to react to disturbances and compensate for them. Thus, smart inverters can react to the real-status conditions of the grid by enhancing the default capabilities of passive inverters. From a power system point of view, smart inverters can not only mitigate the negative effects of high penetration of inverter-based generators but can also contribute to additional benefits for grid operators. Moreover, smart inverters can significantly increase the feeder's remaining hosting capacity by mitigating voltage-related issues such as voltage sags. Smart inverters can reach this goal by applying i) Power factor control, ii) Volt-Var control and iii) Volt-Watt control strategies.

Key research gaps include the lack of demonstration of smart inverter technology in the Irish power sector in terms of compliance with the applicable technical standards (e.g., I.S. EN 50549-1) and a lack of a comprehensive exploitation study.

Topic Objectives and Outputs

Project(s) proposed under this topic could consider addressing the following objectives:

- Investigate in detail and demonstrate the uptake of smart inverters for the purpose of microgeneration connection to the distribution network. Demonstration should be in compliance and in line with the microgeneration support scheme (MSS) published by ESB Networks.
- Review and research the most up-to-date available standards in smart inverter technologies and ensure alignment to future smart grid architecture that will enable its participation in future flexibility markets and system services.
- The smart inverter, communication gateway, and associated equipment shall fully comply with the ESB Networks' proposed standards, established in "[Microgeneration & Smart Battery Energy Storage Guidance](#)."
- A potential output of this demonstration could be to establish the best form of interaction between DSO and the smart inverter and if this interaction should be direct or indirect through the aggregators and technology developers.
- Demonstrate the effectiveness of smart inverter exploitation in supporting system services such as voltage regulation by applying the proper control strategies.
- Demonstrations should be proposed at premises with pre-existing microgeneration (with or without battery energy storage system).

Note: SEAI will only fund smart inverter technology as well as required communication devices, not the full cost of microgeneration.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 6	Targeted interventions to empower communities and active energy citizens
Indicative Duration	Up to 1 year
Project Scale	Small Scale
Indicative Funding	Up to max €200k

Background

While research exists in specific sectors, there is limited research that explores the wider landscape of agencies, government departments and NGOs engaged in the provision of information and education aimed at improving climate and energy literacy. This involves not only availability of knowledge, but also the emotional and behavioural characteristics that enable citizens to make appropriate decisions regarding energy.

There is also a need to inform policy development and future community energy strategy, linking the significant national investment forecasted for Community Energy Grants, Community RESS and potentially Community Small Scale Generation (SSG). Existing models cannot scale to meet targets and current models of delivery require further innovation. The ambition of communities to address climate targets is increasing rapidly. This will require enhanced models to scale delivery for impact and action, which exceeds the existing primarily volunteer-led approach. Research could assess where gaps exist and propose measures to address them as policy evolves

Research in this topic would aim to develop and demonstrate models/methods of engagement (calls to action) that showcase targeted information and education to provide energy and climate literacy, and energy awareness training for energy communities and active energy citizens. Research could explore the supports and resources that would be required to implement action and deliver community energy projects. Novel and creative approaches are sought that consider a range of demographics including gender, disability, language, literacy, ethnicity and diversity of approaches to include the whole of society. Ideas could include living lab solutions, community champions, and community mentor approaches. Research proposed could also look at rural/urban differences and age inclusive approaches amongst others.

The outcome should be an enduring model that could be adapted and augmented over time.

Topic Objectives and Outputs

Project(s) proposed under this topic could consider addressing the following objectives:

- Develop and demonstrate models/methods of engagement (calls to action)
- Identify methods of targeted information and education to improve energy and climate literacy
- Develop energy awareness training for energy communities and active energy citizens
- Understanding communities preferred engagement and learning styles
- Understanding the most effective ways of engaging with communities
- Identifying who is best placed to relay and inform on these messages
- Building a national model for community engagement
- Review required resources to support local delivery
- Identify effective interventions to mobilise community energy action
- Assess the local need for services and outline national models
- Explore area based incentives for contractors to aggregate at scale. What can be done to increase aggregation and thereby make retrofitting more efficient?

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 7	Assessment of models for collaboration between Renewable Energy Communities (RECs) and larger renewable energy developers
Indicative Duration	<1 year (Small Scale); <2 years (Small-Medium Scale)
Project Scale	Small / Small-Medium Scale
Indicative Funding	Up to €200k (Small Scale); Up to €400k (Small-Medium Scale)

Background

Project(s) proposed to this topic could assess collaboration or co-development opportunities and models that are mutually beneficial for both Renewable Energy Communities (RECs) and larger developers, and how best these can be adopted and replicated for other RECs. Support schemes are currently under development such as the small-scale generation (SSG) scheme which is due to be launched in Q4 2023. This will give communities a new route-to-market option for their projects. These community projects primarily require the same consenting and development process as larger utility developer-led projects. This presents project delivery challenges for communities in terms of industry and technical knowledge as well as project management and financing as they do not have economies of scale.

Notwithstanding the opportunity that will be available for communities under support schemes, some community groups do not have the resources or the capacity to embark on their own grid scale project, yet they would like to explore other opportunities to co-develop/co-own a portion of a larger renewable project in their communities. Many other jurisdictions have successfully delivered co-ownership/co-development projects with communities however no such projects have been delivered in Ireland to date.

Models that explore and develop a range of opportunities for collaboration/co-development with industry and developers could improve outcomes and support the community generation sector. Such models could explore co-development opportunities of adjacent sites, sharing portions of infrastructure or innovative collaborative development arrangements. This research could help inform policy in the area with respect to the adoption of policies that would support the attainment of the CAP 21 target of 500MW of renewable energy generation being developed by RECs by 2030.

Additionally, research could support SEAI in the delivery and enhancement of the Community Enabling Framework of supports to RECs.

Topic Objectives and Outputs

Project(s) proposed under this topic could consider addressing the following objectives:

- Assess the challenges facing REC projects in the development phases of their projects and identify potential solutions such as collaborations/co-developments and partnerships.
- This could be done through case studies illustrating tangible and innovative approaches to co-ownership, infrastructure sharing and/or community investment opportunities.
- Identify and examine one or several specific areas for collaboration and determine how they could be implemented.
- Development of recommendations for collaboration or co-development opportunities and models that are mutually beneficial for both RECs and developers, and how best these can be adopted and replicated for other RECs.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 8	National car fleet and consumer decision-making modelling
Indicative Duration	<1 year (Small Scale); <3 years (Medium Scale)
Project Scale	Small - Medium Scale
Indicative Funding	<€200k (Small Scale); <€650k (Medium Scale)

Background

Targets outlined in the [Climate Action Plan 2023](#) aim to reduce total vehicle kilometres by 20% and reduce transport emissions by 50% by 2030. National and regional car fleet and consumer decision-making modelling will play a key role in measuring and predicting future emissions from passenger car use in Ireland.

New models could examine realistic trajectories for the full phase out of fossil fuelled vehicles from Ireland's car fleet, examining not just the uptake rate of new electric vehicles, but also the phase out of the fossil fuel stock. Such models could be used to examine how policy changes and interventions would affect consumer behaviour and car fleet development. The Society of the Irish Motor Industry (SIMI) provide detailed analysis by model and county of new vehicle registrations on a monthly basis and the Driver and Vehicle Computer Services Division (DVCS) contains details in respect of the 2.5 million registered vehicles currently taxed in Ireland. It is envisaged that available data could be used to devise a model of the car stock accounting for a number of ICE car segments, a number of EV segments based on current and near-term EV technology, and a number of further EV segments based on expected medium or longer-term EV technology developments accounting for the latest research in this area.

Topic Objectives and Outputs

Project(s) proposed under this topic could consider addressing the following objectives:

- Design a tool that would model consumer behaviour in terms of policy sensitivity and interventions for example, grants, tax exemptions, VRT reductions, emissions and/or weight based differentiated VRT, scrappage incentives, low/zero emissions vehicle zones, differentiated tolls by fuel type and differentiated parking fees by fuel type.
- Design a model of annual additions and removals from the national car fleet based on a range of consumer types and a range of competing car technology segments.
- Account for potential future technology and market trends for EVs, for example the development of new battery technologies such as sodium-ion batteries.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 9	Demand Flexibility – Research to explore achieving Ireland’s Climate Action Plan demand flexibility targets
Indicative Duration	<1 year (Small Scale); <3 years (Medium Scale)
Project Scale	Small - Medium Scale
Indicative Funding	<€200k (Small Scale); <€650k (Medium Scale)

Background

The Irish Government has outlined ambitious demand flexibility targets in the recent [Climate Action Plan](#), with targets for Demand Side Flexibility of 15-20% (2025) and 20-30% (2030) which ESB Network’s (ESBN) National Network, Local Connections Programme is leading. Demand side flexibility will support Ireland’s energy transition, with the potential for benefits to the domestic household, citizens and society. Research and analyses are needed to support and accelerate delivery of these ambitious targets.

ESBN’s first pilot titled [Flexibility Service Providers](#) (FSPs) via ([Piclo Platform](#)) aims to commence in Q4 2023 and will be delivered over two years. There may be potential for other communities to offer similar services to the grid, however research is needed to review and explore key considerations to inform future activity. This research could support further communities/ Flex Providers to come forward and in turn create a market for these services from a commercial perspective.

Topic Objectives and Outputs

Proposal(s) to this Topic could aim to explore the following:

- Review state-of-the-art and best-practice across a European/international context to understand key learnings.
- Consider how Ireland can reach Demand Flexibility targets from both DSO/TSO level perspectives.
- Review options to quantify Demand flexibility metrics.
- Investigate the optimisation of Demand flexibility from system operation, carbon reduction and household/domestic benefit perspectives.
- Provide an overview of domestic flexibility services, identify key stakeholders in Ireland and investigate market drivers or barriers needed to create a market.
- Identify the benefits/opportunities or challenges/barriers for citizens, aggregators, generators, suppliers’ and communities to participate in these services.

Potential project outputs could include:

- Generate a report based on the techno-economic or theoretical analysis to assess the benefits that may be possible and identify metrics.
- Development of a blueprint for future energy communities to a hub similar to ESBN’s first pilot referenced above in Mullingar.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 10	The potential role of Thermal Storage (including thermal batteries) in meeting the Climate Action Plan targets across a range of uses
Indicative Duration	<1 year (Small Scale); <3 years (Medium Scale)
Project Scale	Small - Medium Scale
Indicative Funding	<€200k (Small Scale); <€650k (Medium Scale)

Background

Thermal storage is a well-known technology but there is a growing need to analyse the potential for thermal storage due to the use of intermittent renewables and the need to decrease use of fossil fuels. Most thermal storage in Ireland is used to level demand to increase system efficiency. Thermal storage tends to be the cheapest form of energy storage and could be coupled with the electricity grid to provide balancing services. A key gap in research in Ireland is the feasible application of thermal storage e.g., decreasing the size of heat generators, accommodating intermittent energy supply or facilitating low temperature renewables/waste heat. The benefits thermal storage could provide and the key barriers to implementation need to be addressed to maximise the technology. Previous work has looked at the role of thermal storage on a specific site, but future projects would analyse it across different uses providing specific guidelines for the incorporation of thermal storage in the energy system.

Thermal Storage has a key role in the expansion of renewable District Heating. The [Climate Action Plan 2023](#) has committed Ireland to delivering district heating for 10% of Ireland's non-industrial heat demand by 2030. [The National Heat Study](#) notes that 'by adding a vessel to store hot water, the capacity of the generating plant can be reduced, which usually reduces the overall capital cost. Due to these benefits the Heat Study assumes thermal storage is used for the system as a whole giving it a large role. For these CAP 2023 targets to be met, 2.7Twh of district heat will need to be supported by thermal storage (seasonal or other). However, before this major ramp up, further analysis is needed on the range of benefits thermal storage could bring helping the economics of these systems and help integrate further renewables into our energy system.

Topic Objectives and Outputs

CAP 2021 Action 124 is to 'develop a storage policy framework that supports the achievement of electricity emissions targets.' To support this, further research is needed into how thermal storage could play a role in accommodating these electricity targets.

While segmented, much of Ireland's thermal storage is in the form of domestic hot water cylinders. Analysis should also consider how this storage could be leveraged to decrease costs for customers while providing services to the grid or improve system efficiencies.

Project(s) proposed could address the following objectives:

- A desktop analysis of the potential role Thermal Storage could play in meeting the Climate Action Plan targets across a range of uses
- Review of different forms of thermal storage and their suitability to Ireland. Consideration to be given not only to thermal storage in the context of District Heating but also different applications ranging from small-scale applications, i.e., individual dwelling, small commercial, etc., up to large-scale industrial applications
- Technical, CBA and/or financial analysis of the role thermal storage could have if incorporated into heating systems across different heat configurations e.g., improve system efficiency, decrease size of heat generator, accommodate intermittent energy supply, or electricity grid balancing
- Identify barriers to thermal storage
- Identify what factors affect the role of thermal storage in Heating (Location, generation technology or size of system)
- The study would use these findings to develop a 'How to' guide for incorporating appropriate thermal storage into a heating system from a technical and non-technical view

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 11	Electrified industrial heat storage (EIHS)
Indicative Duration	<1 year (Small Scale); <3 years (Medium Scale)
Project Scale	Small - Medium Scale
Indicative Funding	<€200k (Small Scale); <€650k (Medium Scale)

Background

Ireland's statutory climate objective is a 51% reduction in emissions by 2030 (relative to 2018 levels) and net-zero emissions no later than 2050. Industrial heat is a challenging sector for emissions reduction in Ireland and is concentrated in around 60 main centres with an overall demand of 17 TWh/year and total emissions of 4.6 MtCO₂/year (SEAI [National Heat Study](#)). There is significant potential for heat electrification in this sector, to meet ambitious RES-E targets as approximately 95% of the primary energy is supplied by fossil fuels. In addition, industrial heat storage could provide a low-cost flexible energy storage option that would be beneficial for the energy sector of Ireland.

Thermal storage has the potential to unlock the full benefits of electrified heat, by shifting away from fossil fuels to variable renewable energies (VRE). More specifically, in industrial applications heat storage could be considered as a viable solution to roll out the application of high efficiency and low carbon electrified heat provided by heat pumps (for low and medium grade heat) and electric boilers (for high grade heat). Enhanced demand side flexibility (such as demand response) regulations and tariffs are needed to be designed and implemented as highlighted in [CAP21](#) to facilitate a low carbon transition. Electrified industrial heat storage through high efficiency technologies such as industrial heat pumps and electric boilers can provide a range of electricity system services such as frequency regulation as mentioned by Action 113 of CAP21. Additionally, based on Action 124 of CAP21, development of EIHS as an effective energy storage option, needs a storage policy framework that supports the achievement of emission targets. Developing a tariff structure such as time-of-use tariffs and smart bills could help promoting EIHS.

Topic Objectives and Outputs

The aim of research carried out under this topic would be to investigate the possible impacts and benefits of EIHS in Ireland, especially in the electricity and heat sectors, by presenting feasibility and/or techno-economic studies in this area. Research gaps exist in the following areas:

- The potential capabilities of electrified Industrial heat storage in reinforcement of electricity and heat sectors coupling, achieving envisaged RES-E/H targets, and reduction of greenhouse gas emissions.
- Policies and regulations to facilitate the application of EIHS as a flexibility service provider or multi-sectoral short/long-term energy storage option.

Project(s) proposed under this topic could consider the following outputs:

- An architecture for ancillary services provided by EIHS. This architecture can be used by relevant authorities such as SEM, ESB, and EirGrid.
- To build a new demand response mechanism through the flexibilities available by EIHS.
- Techno-economic analysis on the EIHS role to solve electricity network congestion issues and possible reduction in VRE dispatch down.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 12	Geothermal Energy Economic Evaluation (District Heating and Industry)
Indicative Duration	<1 year (Small Scale); <3 years (Medium Scale or Academic Fellowship)
Project Scale	Small / Medium Scale / Academic Fellowship
Indicative Funding	<€200k (Small Scale); <€650k (Medium Scale); <€300k (Academic Fellowship)

Background

Ireland's heating sector faces immense decarbonisation challenges given its dependence on fossil fuels. As approximately 94% of heat in Ireland is currently generated from fossil fuels and the heat sector currently represents over one third of Ireland's energy consumption, it is necessary to consider our capacity to provide long-term, stable, baseload, low-carbon renewable energy, over a long time period, including geothermal energy.

The [National Heat Study \(2022\)](#) highlighted the potential of geothermal energy in Ireland. However, due to a lack of an established framework it was unable to be considered in the modelling framework utilised. Along with individual home and commercial geothermal systems, geothermal district heating networks can be used to heat and cool residential, industrial and municipal buildings. ([GSI, 2020](#)).

Currently, there are no established methods to evaluate and compare geothermal energy with other low carbon heat sources in Ireland. The establishment of a framework based on international examples with a similar geological setting to Ireland is needed. Research is necessary to accurately quantify barriers, risks and the potential economic viability of geothermal projects in Ireland. Similarly, an assessment of how to incorporate the relative non-financial benefits of geothermal energy is necessary. These may include, for example, emissions savings, air quality, stability, benefits to the grid. An assessment is needed of international examples relating to potential funding, financing and insurance models that could be used in Ireland.

Topic Objectives and Outputs

This Topic aims to improve the understanding of the technology's potential among various stakeholders, such as manufacturers, potential end-users, consultants, energy planners and policy makers. In addition, project(s) proposed to this topic would provide supporting material to facilitate and enhance the transition to a geothermal-based power or process heat supply for industrial applications and efficient district heating.

Project(s) proposed to this topic could aim to address the following objectives:

- Review and research the literature that have assessed the economic and technical potential of geothermal heat and district heating from the point of view of both costs and non-financial aspects. Application of similar analysis in Ireland.
- Review potential funding, financing, business and insurance models that have succeeded in other countries and analyse them in an Irish context.
- Based on the two outputs above, an up to date, fit for purpose project evaluation tool that can be used (and updated) by state bodies, agencies, industry, and policymakers.
- Identification of barriers to geothermal uptake including access to data, expertise, supply chain and skills.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 13	Impact of energy price rises on energy poverty
Indicative Duration	<1 year (Small Scale); <3 years (Medium Scale)
Project Scale	Small or Medium Scale
Indicative Funding	<€200k (Small Scale); <€650k (Medium Scale)

Background

The energy crisis is pushing many households into energy poverty/vulnerability. It is important to understand how these households (and those already in energy poverty) cope.

Global energy prices have escalated due to a variety of factors including ongoing geopolitical conflict, a swift post-pandemic economic recovery, continued over reliance on fossil fuels and the disparity between energy demand and supply. In Ireland, surging energy prices affect households in different ways and can push vulnerable households into energy poverty and even extreme poverty. Understanding how global energy prices are transferred to households through global supply chains and how they are affected is key for effective and equitable policy design.

The [Climate Action Plan](#) pledges to tackle energy poverty through additional funding to support lower income households to participate in retrofitting schemes and under the [National Development Plan](#), funding for retrofitting is expected to reach €2 billion by 2030. The plan also commits to reviewing the [Strategy to Combat Energy Poverty](#) and publish findings of the [Warmth and Wellbeing Pilot study](#).

Topic Objective and Outputs

Project(s) proposed under this topic could consider addressing the following objectives:

- Examine the impact of recent energy price rises on energy poverty.
- Assess how the profile of people in energy poverty has changed.
- Examine the extent to which income supports and energy efficiency measures can help.
- Assess the extent to which people have to reduce consumption of other essential items in order to afford their energy bills.
- Assess the gender dimensions of energy poverty.
- Investigate how decarbonisation of residential energy can mitigate against energy poverty.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 14	Barriers to uptake of low carbon heating technologies in industry
Indicative Duration	Up to 3 years
Project Scale	Medium Scale
Indicative Funding	<€650k

Background

A significant proportion of emissions in industry arise from fossil fuel use in combustion for heat required during manufacturing processes. The [2023 Climate Action Plan](#) aims to accelerate the uptake of carbon neutral heating in industry, with greater electrification of low-to-medium temperature heating, utilising high efficiency heat pumps and increased supply and use of biomethane and green hydrogen for high temperature heat demand.

This includes a KPI of a 50-55% share of carbon neutral heating in total fuel demand by 2025, made up of 35% of low/medium grade heat to be electrified, 12% of low/medium grade heat to be supplied by sustainable biomass and 64% of high-grade heat to be converted to direct/hybrid electrification technology. The KPI for 2030 is 70-75% share of carbon neutral heating in total fuel demand with 55% of low/medium heat to be electrified, 20% of low/medium grade heat to be supplied by sustainable biomass and 88% of high-grade heat to be converted to direct/hybrid electrification technology.

SEAI's [National Heat Study \(2022\)](#) found that most of industrial heat demand in Ireland could be decarbonised through technology changes or fuel switching. The IPCC has also highlighted electrification as a key decarbonisation option for industry but noted the lack of research in this area to evaluate feasibility.

An assessment of the barriers that exist in Ireland is needed, drawing on experience in other countries and research to date to decarbonise industrial heat demand through technology changes/fuel switching, building on the findings of SEAI's National Heat Study and complementing the targets and actions identified in 2023 Climate Action Plan.

Topic Objectives and Outputs

Project(s) proposed under this topic could consider addressing the following objectives:

- Review of research and technical options for fuel switching in this area, including low/medium grade heat and high temperature heat.
- Review available sustainable inputs for carbon neutral heating in Ireland.
- Review current state of play in enterprise sector in Ireland, utilising for example CSO and SEAI data on business energy use.
- Identification of barriers (e.g., economic, practical and behavioural barriers) to electrification or uptake of low carbon fuels (such as hydrogen, biomethane and biomass). This could include, for example, comparative capital and operational costs, access to expertise and supply chains or skills and any behavioural changes required.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 15	Development of an analysis framework for the use of bioresources in different sectors (heat, transport, and bioeconomy) in Ireland
Indicative Duration	Up to 3 years
Project Scale	Medium Scale
Indicative Funding	Up to €650k
Co-funding	Department of Agriculture, Food and the Marine (DAFM)

Background

The sustainability impacts of the use of bioresources in various systems and sectors (food, energy) has been well-studied. However, there is no methodology to identify the optimal destination for bioresources that considers different systems and sectors including transport and heat and cross-sectoral in the bioeconomy. Ireland has a finite quantity of bioresources which it can sustainably extract, and there will be demand from many sectors to meet decarbonisation and circular economy goals. The [National Heat Study \(2022\)](#) found that all domestic bioenergy available to the heat sector would be used in all its scenarios. To make best use of this resource and avoid policy distorting the market to non-optimal supply chains, an analysis framework is needed that would allow comparison across sectors.

A framework (e.g., Consequential LCA) could be developed to analyse the optimal use of bioresources in different sectors (transport and heat) and cross-sectoral in the bioeconomy in Ireland. It would identify the potential major sources of bioeconomy and bioenergy feedstocks out to 2050 across all types for both domestic and imported resource. The framework could consider biobased innovation and support policy decisions to be assessed to determine if they will have an unintended consequence of diverting resources from a sector where it could have greater impact or influence on climate action. The output of this framework could inform policy decisions, bioresource strategy or related scheme development. The impact categories could include technologies, biobased products, GWP, Air quality, ecotoxicity, economic, social, environmental and financial indicators. The approach could consider developments under RED III and existing principles including the food waste hierarchy and bioeconomy principles including the cascading use of biomass.

Topic Objectives and Outputs

Possible outcomes of this work could include:

- Identify the potential major sources of bioeconomy and bioenergy feedstocks out to 2050 across all types for both domestic and imported resource
- Incorporate and build upon previous relevant LCA or other analyses
- Development of a framework that analyses the impact of a feedstock depending on its end use, where it is being diverted from and what it is displacing
- Impacts to be studied could include economic, environmental (e.g., GWP, air quality, land use etc.) or social (e.g., jobs created)
- Analysis of biomass source(s) through the framework
- Development of guidance for use of the framework to support uptake and use by end-users
- Make collected data available to industry and other researchers in the sector to amplify impact
- A framework that identifies unintended consequences to better inform scheme and policy development

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI, DAFM and other relevant Public Bodies and industry stakeholders.

Topic 16	Performance gap in dwellings and non-domestic buildings
Indicative Duration	Up to 3 years
Project Scale	Medium Scale
Indicative Funding	Up to €650k

Background

A number of studies have identified that the energy demand of buildings as predicted by BER differs significantly from actual observed consumption. However, more information and data on the factors that cause this performance gap are required to inform future calculation and methodology development.

The BER rating system is increasingly being used as a measure of building energy performance for wider purposes than it was initially designed for. Data on the performance gap and the different factors at play is needed to inform future development of the BER system (e.g., calculation methodology, QA) and clarify its suitability as an indicator or a measure. Proposal(s) to this topic should build upon prior relevant research, including for example prior projects [FACT-HP](#) and [DesignForU](#), as well as other relevant national and international studies.

Topic Objectives and Outputs

Project(s) proposed under this topic could consider addressing the following objectives:

- Comparison of space heating demand calculated using DEAP and SBEMie versus actual heat metered demand
- Comparison of hot water heat demand calculated using DEAP and SBEMie versus actual heat metered demand
- Impact of heating control equipment on actual heating demand versus the assumptions in DEAP and SBEMie
- Comparison of the performance of heating and hot water appliances (tested and calculated versus actual), including heat pumps
- Overall suggested minimum numbers of homes required for analysis of 50; minimum 30 heat pumps and minimum 25 with secondary heat sources
- Fraction of heat delivered by secondary heat sources or room heaters: comparison of assumptions in DEAP with actual (note: 20+ homes with one room heater should be included and 5+ with two or more); the role of cooking stoves without boiler or water heater in delivering heat to the home also needs to be included (this may need to be considered differently in DEAP)
- Investigating and identifying the possible reasons for gaps in calculated versus actual figures for energy uses (space heating, ventilation, lighting, hot water)
- Assessment of the role that sociodemographic factors, occupancy and behaviour play in the performance gap and consider this impact on theoretical assumptions for DEAP calculations
- Consider post-occupancy evaluation and considerations, e.g. assessment of homeowner confidence in using the heating system
- Propose possible options to reduce the gap, including improvement of the calculation of heat demand based on e.g. fabric characteristics, ventilation; and improvement of the calculation of performance of appliances.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 17	Potential for optimising and standardising smart connections within the home, including vehicle to house connections, heat pumps and solar PV
Indicative Duration	Up to 3 years
Project Scale	Medium Scale
Indicative Funding	Up to €650k

Background

The [Climate Action Plan 2023](#) includes a 25-30% demand flexibility target to be achieved by 2030 and applications to this topic should aim to investigate the opportunity for Ireland's domestic landscape. Currently there is lack of data on how bi-directional charging or V2H/V2G could complement the national electricity grid and lower the impact of peak demand on generation. There are also wider questions around equity in resilience as well as creating a market and potential investments for smart services. There is potential for the optimisation of Smart Grid technology including EVs, Heat pumps, Solar PV and batteries and the benefits for individual households and the grid.

Smart grid technologies including V2H and V2G will require regulation and governance, which could take considerable time, but a roadmap of key milestones is required to guide this process. One basic application could be addressing V2G charging and exploring what V2G cycling warranties would look like for the owner, which would require engagement with manufacturers. Examining the options for establishing one common port or communication gateway that a utility company or service provider could connect to within a household would be key due to the challenges of dealing with individual manufacturers or apps. Technical capabilities, manufacturers specifications and behavioural nudges could also be considered.

Proposals to this topic should seek to develop a theoretical or physical trial, or consider collaborating with a Sustainable Energy Community or Living Lab. A medium scale project proposal could encompass microgeneration within households or communities and is not exclusive to EV technology. Potential interactions in domestic settings with heat pumps, solar PV and batteries would be most desirable to gain a greater understanding of how these technologies can be best optimised within a household.

Topic Objectives and Outputs

Projects proposed under this topic should consider exploring the following:

- Small scale demonstration of V2H in multiple locations e.g., Urban setting, with high population density, Semi-urban (e.g., village or town scenario), Cul-de-sac (how to optimise the LV line, how is the last home/connection treated fairly in terms of capacity vs. demand), Rural (Last mile).

Project(s) proposed under this Topic could aim to undertake the following:

- Economic analysis e.g., to consider installation costs, data collection, benefits, management software, hidden costs, the potential level of power that an EV can provide to a house (efficient energy delivery vs transport device needs)
- Behavioural analysis of data obtained e.g., how the correct V2H actions could assist the national grid?

The data obtained from a small-scale demonstration could provide the basis for a further investigation of Ireland's transition of V2H to V2G and could consider exploring some of the following:

- Research of V2G landscape from European/International learnings
- Gain a greater understanding of the potential uses of an EV and dynamic load management servicing the households vs. the grid's needs whilst considering behaviour patterns.
- Smart Inverter capability: key learnings from data collection, how quickly can they switch and add smartness to the grid with voltage support.
- Investigate the domestic interoperability framework needed for the domestic household.
- Communication gateways (who owns this space - EV manufacturers, aggregators or utilities)? What standards are needed to support development, innovation and uptake of V2G?
- Explore what benefits V2H/V2G can bring to the grid from operational/CO₂ perspectives?
- Explore recommendations for policy: e.g., what policy, supports, tools could support wider activation V2H/V2G.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 18	Developing electrolyzers for offshore deployment
Indicative Duration	Up to 3 years
Project Scale	Medium Scale
Indicative Funding	Up to €650,000

Background

Green hydrogen forms an important component of the [National Energy and Climate Plan](#) as well as the [National Energy Security Framework for Ireland](#) decarbonisation strategy, particularly to maximise the potential of offshore wind energy generation. The co-localisation of electrolyzers and offshore renewable energy is a key area of interest. In addition, the Programme for Government highlights the potential of developing green hydrogen and the recent [National Heat Study](#) investigated pathways for a decarbonised heat sector in Ireland by 2050 which included the important role of green hydrogen.

Despite the significant potential for offshore green hydrogen production, the operation of hydrogen electrolyzers in the marine environment represents major challenges in areas including the functioning of the electrolyzers offshore as well as the balance of plant (oxygen separation, hydrogen drying, transformers and rectifiers, compression and storage, water purification plant and cooling towers). The development of improved marine climate resistant materials and systems is key to ensure long term survivability and reduction in LCOH (levelised cost of hydrogen). Similarly, across the main electrolysis technologies of proton exchange membrane, alkaline water electrolysis and solid oxide electrolysis, there are a number of cross-cutting R&D challenges including the development of large-scale systems, advanced membrane materials research, power electronics; gas conditioning, development of testing protocols and the transportation of produced hydrogen to land through pipelines or via specialised H₂ tanker vessels.

Topic Objectives and Outputs

The objective of this topic is to support the research, development and demonstration of an electrolyser that will help enable the production of offshore green hydrogen. Anticipated project objectives and potential outputs of the research would aim to:

- Develop a proof-of-concept design to undergo performance testing and validation. A proposed project would focus on the design, performance testing and piloting of relevant components and systems in the marine environment.
- Address technical and economic challenges, including the need for durable, cost-efficient components, and the integration of multiple systems for the production, storage, and transportation of green hydrogen from offshore sites.
- Technology development should focus on key components to improve the reliability, survivability and efficiency of offshore electrolyzers.
- Consider the materials, design, corrosion, control systems and storage of green hydrogen. For instance, key challenges include technology improvements in the cell stack, power electronics, gas conditioning and balance of plant to increase electrolyser efficiency.
- Consider the potential for integration with various sources of renewable energy, e.g. wave or wind energy; sector coupling and the economic performance of offshore electrolysis are also areas of interest.

Proposals that address one or more of the above objectives and potential outputs are invited to apply under this topic. Projects should be positioned to test solutions to address these and related technical and commercial challenges. Applicants to this topic should consider forming a project consortium or involving project collaborators that could include academic, utilities or industry stakeholders.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies, research groups and industry stakeholders.

Topic 19	Innovation in dynamic cables for offshore renewable energy
Indicative Duration	Up to 3 years
Project Scale	Medium Scale
Indicative Funding	Up to €650,000

Background

Ireland has significant potential for the development of floating offshore wind energy and wave energy due to its extensive maritime area, deep-water conditions, and abundant wind resources. For far offshore renewable energy projects in deeper water requiring floating substations, dynamic high-voltage cables will be a key enabling technology. Innovation is needed in this area towards the objectives of the [2023 Offshore Renewable Energy Development Plan II \(OREDP II\)](#) which introduced a long-term plan for the development of at least 30GW of floating offshore wind energy off the Atlantic coast.

Harnessing Ireland's significant offshore renewable energy development will require cable technology to connect to the onshore electrical grid system from floating projects far off the Atlantic coast. Floating offshore renewable energy developments will require export cables that are able to endure a lifetime of constant motion, and withstand stresses from wind, wave and current. As turbines are moved to more dynamic environments on flexible platforms, there is a growing need to acquire knowledge about cable behaviour, protection, and management. Currently, the cable failure mechanism, interface with static cables and interface with the substructure are not well understood. High-voltage cable designs require aerodynamic, hydrodynamic, material and electrical innovation to avoid cable failure and achieve a better reliability of the cable and standardisation to allow manufacturing and maintenance at a lower cost.

Topic Objectives and Outputs:

Project(s) proposed to this Topic should aim to build on existing research to develop and demonstrate improvements to the performance and reliability of dynamic cables and cable arrays, the stress and cable failure mechanisms or the dynamic cable interface with static cables and substructures. Research in this area could also aim to address the following areas of interest:

- Development of dynamic cables to accommodate a step change to 132kV+ that will be required for higher wind turbine ratings of 20MW+ in the future.
- Designs for lead-free flexible sheathing to protect cabling from water exposure.
- Research and development to accelerate the technological readiness of HVAC dynamic cabling or other innovative solutions
- Data-driven approaches to detect anomalies in identifying cable faults.
- Modelling and monitoring of potentially damaging hydrodynamic drag forces, cable compression, or platform-relation motion etc.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 20	Monitoring and Field Trials Examining Energy Consumption in Ireland
Indicative Duration	Up to 3yrs duration (Medium Scale); Up to 4yrs duration (Large Scale)
Project Scale	Medium or Large Scale
Indicative Funding	Up to €650k (Medium Scale); Up to €1m (Large Scale)

Background:

The Government has set a very ambitious [Sectoral Emissions Ceiling](#) for electricity emissions whereby they need to fall by about 80% relative to 2018 by 2030. Emissions in the sector over the five years from 2026-2030 must not exceed 20 Mt CO₂ eq. Achieving this target will require a very significant package of actions on the supply and demand side and the data on energy consumption would form a very important input in this regard.

However, there is a significant lack of evidence regarding the actual effectiveness of economic, behavioural and technological measures in reducing energy consumption and shifting consumption to less emission intensive periods.

High frequency metering data, as provided by smart meters, thermostats or other monitoring devices has significant potential to improve our understanding of the dynamics of energy consumption. This data combined with administrative data (such as [BER database](#), [SEAI database of grants](#), 2022 Census) or survey data represents a significant potential opportunity for deriving insights into electricity consumption in the home, how it varies across various dimensions, and how effective our policies are at reducing emissions.

Topic Objective and Outputs

Project(s) proposed under this topic could consider addressing the following objectives:

- Collaborate with data providers to set up field trials with the aim of (i) shifting peak demand and (ii) reducing overall demand. The impact of behavioural, economic or technology interventions could be tested
- Assess the impact of different tariffs (day/night v day only/time of use) on consumption patterns
- Assess the impact of interventions and formulate policy advice.
- Assess consumption profiles for dwellings with different technologies such as ASHP, EV charging points, and assess interaction with centralised and distributed generation (e.g., solar PV, community energy schemes, batteries).
- Inform equity and distributional questions by examining how profiles vary across different socioeconomic groups and by gender, age, location, ethnicity and other factors.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 21	High temperature heat pumps for industrial use
Indicative Duration	Up to 4 years
Project Scale	Large Scale
Indicative Funding	Up to €1m

Background

The [Climate Action Plan](#) has set ambitious targets for the decarbonisation of all sectors of the Irish economy including the Enterprise sector. Manufacturing combustion and industrial processes account for approximately 11.5% of the state's emissions as measured by the [EPA Inventory of Emissions 2022](#). A major contributor to these enterprise emissions is the use of natural gas and oil fuels to generate the necessary heat in industrial applications. Developing heat pump technology to cater for higher manufacturing temperature requirements would promote the use of electrification and reduce the need for fossil fuels such as natural gas and oil.

High temperature heat pumps, or industrial heat pumps, can be defined as heat pumps that are able to deliver heat between 100°C and 200°C. Many industrial processes are designed for heat supply temperatures of around 100°C to 200°C with ~40% of industrial heat demand being under 150°C. The [SEAI National Heat Study](#) found that limited uptake of low carbon heating options in industry was mainly due to non-financial barriers. It recommended raising awareness of these low carbon options and addressing these barriers. High temperature heat pumps (100°C to 200°C) are now commercially available, however their uptake in Ireland is still limited.

Topic Objective and Outputs

Project(s) proposed under this topic could consider addressing the following objectives:

- Review of common industry processes and applications in Ireland across a range of required peak temperatures where industrial heat pumps could be used, for example the food and beverage industry. This could include case studies analysing:
 - Business case vs other options
 - Sector specific barriers and solutions
 - Other benefits e.g., Air Quality
 - Guidelines for implementing HP in the specific application or sector
- The Irish industrial heat pump market, specific heat use and temperature data for a number of high energy consuming processes.
- Integrated use of high temperature heat pumps in combination with thermal storage for combined heating and cooling demands in industrial applications, including the use of natural refrigerants.
- Analysis of policy around industrial heat pumps in Ireland and recommendations to increase uptake of heat pumps in industry and maximise benefits.
- Analysis of how to drive uptake of industrial heat pumps.
- Case study of a fully integrated high temperature heat pump with a high degree of waste heat recovery to minimise external energy consumption and GHG emissions of a representative industrial site with real operational data.
- Financial costings including:
 - A variable cost analysis of using this technology with electricity as the primary energy input including comparison with existing or counterfactual fossil fuel option. Identify investment cost for conversion from an existing fossil fuel heating system.
 - Quantify the energy and CO₂ saving of the calculated industrial heat pump market as well as the investments needed to realise the market potential.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI and other relevant Public Bodies and industry stakeholders.

Topic 22	PyCCS- Pyrogenic Carbon Capture and Storage
Indicative Duration	Up to 4 years
Project Scale	Large Scale
Indicative Funding	Up to €1 million
Co-funding	Department of Agriculture, Food and the Marine

Background

The [Climate Action Plan 2023](#) has stated that addressing the climate challenge will require the development of new technologies and innovative solutions to current and emerging issues. Technological innovation will be required across a wide range of areas, including in the development of carbon capture and storage.

The [IPCC special report](#) from 2018 recognised biochar as a promising Negative Emissions Technology (NET), capable of Carbon Dioxide Removal (CDR) at scale. In recent years, there has been increasing development of pyrolysis facilities across Europe and the rest of the world. Biochar production can produce excess thermal energy during the process which can be used to decarbonise process or district heating. Many of the European biochar producers produce evidence that their processes are carbon neutral or carbon negative, meaning that a carbon sink is created in the form of biochar, while the heat generated can offset existing heat sources. The resultant biochar is also considered a valuable commodity with many cross sectoral uses.

This topic welcomes research proposals that aim to analyse the potential for the development of combined heat and biochar production units or facilities at differing scales, using a variety of residual and waste biomass feedstocks while providing verifiable carbon sinks in the process.

Topic Objectives and Outputs

Project(s) proposed under this topic could explore the potential for a combined heat + biochar production model as a means to provide carbon negative or carbon neutral heating, alongside carbon sequestration. This project may require multi-disciplinary expertise from the agriculture and energy sectors.

Proposed project(s) could consider addressing the following objectives:

- Analysis of the size/scale/potential market for replacement of fossil fuel powered heating networks with combined heat and biochar production (PyCCS) systems.
- Analysis of potential carbon savings from utilising residual biomass as feedstocks.
- Proof of concept within the Irish landscape.
- Potential applications in agricultural and other land use settings e.g., cropland, grassland, wetland management.
- Set of recommendations and guidelines for policy makers and local and national authorities providing roadmap to development of the sector.
- Raising awareness of the potential this approach can offer.
- Examine regulatory approaches and demand side supports that could support carbon capture and storage.

A project advisory group will be formed, by the Project Team, comprising the successful research team, SEAI, Department of Agriculture, Food and the Marine, other relevant Public Bodies and industry stakeholders.

Annex 2: Application Form Template Instructions

This section provides guidance on how to complete the Application Form. Please note:

- Only fully complete applications received prior to the application deadline will be considered for evaluation.
- Do not exceed the maximum page limits defined for the following Application Sections:
 - Section 2 – Max 8 Pages
 - Section 3 – Max 8 Pages
 - Section 4 – Max 10 Pages
- The above page limits are exclusive of references. Please include a list of references/bibliography as an appendix as required.
- Font size must be a minimum of 10 pts.
- Please submit the final Application Form in PDF Format.
- Please use the following naming structure for submitting documentation
Organisation name (Lead surname) document type, for example 'SEAI (Bloggs) Application Form' and 'SEAI (Bloggs) Letter of Support 1', etc.

Section 1: Project Details

1. Project Title (max. 30 words)

The project title should clearly convey the nature of the project to be undertaken. Please include a project acronym, if applicable.

2. Topic Number (if applicable)

If you are applying to the Topic Strand detailed in Annex 1, please enter the topic number you are applying to here. If you are applying to the Open Strand, please type 'open strand'.

3. Lead Applicant, Partner Applicant & Collaborators

Provide the requested details relating to the Lead Applicant, Partner Applicant(s) and Collaborator(s). See Section 3 of the Call Document for definitions of project roles.

4. Project Scale/Type

From the drop-down list please indicate the project scale/type (Small Scale, Medium Scale, Large Scale, or Academic Fellowship) of your application. See Section 4 of the Call Document for definitions of each. Please provide a justification for the requested project scale/type.

5. Requested Duration, SEAI-Requested Costs and Total Project Costs

Indicate the requested project duration (months), the costs requested from SEAI and the total cost of the project. Please ensure that these figures align with those provided within the Budget Template (excel spreadsheet).

In-kind contributions are valued by SEAI and should be detailed in the 'in-kind contributions' table (only) within Section 5.3 of the Application form. In-kind contributions should not be included within the Total Project Costs table or within the Budget Template spreadsheet.

6. Abstract (max 250 words)

This should be a succinct and accurate summary of the proposed work.

7. Keywords (max 5 words)

These should be descriptors that best characterise the proposed research.

8. Energy Research Classification

From the drop-down list, please select the energy research category that best aligns with the proposed research.

9. Specific Policies and Targets addressed

List the national and international energy and climate targets and/or policies addressed through your project. Where relevant, please specify the specific policy target, and e.g., the number of the action(s) from the Climate Action Plan which your project aims to contribute to.

10. End-users targeted

Provide details of the research end-users targeted. A research end-user is defined as an individual, community, or organisation, that will directly use or directly benefit from the output, outcome or results of the proposed research.

11. SEAI and RD&D Funding Programme Remit (max 250 words)

Describe how the proposed project aligns with SEAI's remit and the overarching objectives of SEAI's National Energy RD&D Funding Programme. The overarching programme objectives are to:

- Accelerate the development and deployment in the Irish marketplace of competitive energy-related products, processes and systems;*
- Support solutions that enable technical and other barriers to energy market uptake to be overcome;*
- Grow Ireland's national capacity to access, develop and apply international class energy RD&D;*
- Provide guidance and support to policy makers and public bodies through results, outcomes and learning from supported projects.*

This statement will be reviewed by SEAI when determining the eligibility of the application.

Section 2: Excellence and Innovation (max 8 pages)

1. State-of-the-Art/Literature Review

Describe the current state-of-the-art, current knowledge or current best practice in this area, and particularly in the Irish context. Please ensure to use references where appropriate.

2. Innovation/Novelty - Beyond State-of-the-Art

Describe the concept of the proposed project and provide details of how the proposed project will further the current state-of-the-art, current knowledge or current practice. The degree of novelty and innovation associated with the proposed project should be clearly demonstrated. Describe clearly how this project would advance the state of the art in the research area/field, and within Ireland.

3. Project Objectives

Provide details of the objectives of the project and the associated timelines for delivery of these objectives.

4. Project Team & Collaborator Profile

Provide details of the Project Team (Lead Applicant and Partner Applicants) and Collaborators involved in the proposed project, including details of relevant qualifications and key achievements. Please refer to project members by surname.

Provide an outline of previous relevant involvement in research, innovation and/or commercialisation activities performed by the project team. For the Lead and Partner Applicants only, outline their track record in obtaining research/innovation funding from exchequer, industry, European or other funding sources.

For applications submitted under the **Academic Fellowship** Category, a mentor/supervisor should be identified as part of the project team and should be listed as a Partner Applicant. For Fellowship applications, a Letter of Motivation should also be submitted as a separate document. The Letter of Motivation should include a statement to demonstrate the Fellowship applicant's interest in and suitability for the proposed Fellowship. This may include an outline of their professional experience, how the Fellowship will enhance their career development and personal motivation for the submitted Fellowship proposal.

Please note: this section should refer only to the Lead and Partner Applicants and Collaborators and should not provide details of individuals or organisations who may be engaged as external consultants. Whilst requests for the funding of external consultants is permitted, please note that applications will not receive additional marks for such consultants at the evaluation stage.

5. Previous SEAI or other RD&D Funding (if applicable)

- a. If applicable, describe any previous SEAI funded research projects and clearly outline how this proposed project builds upon previously funded work.
- b. If applicable, describe any previous funded research projects and clearly outline how this proposed project builds upon previously funded work.

Section 3: Relevance and Impact (Max 8 pages)

This section should be as specific as possible and provide information that reviewers will find helpful in assessing the relevance and potential impact of the proposed research activity.

1. Relevance to the needs of the Irish Energy Sector and to SEAI

Clearly demonstrate the relevance of the proposed project to the needs of the Irish energy sector with particular reference to Ireland's Climate Action Plan, the Programme for Government, the National Mitigation Plan, Energy White Paper and/or Ireland's National Energy & Climate Plan (NECP), Climate Action and Low Carbon Development Bill (2021). Refer to other relevant policy documents as appropriate.

2. Impact - Expected Impact

Describe the expected impacts of the proposed project in terms of both a) academic impacts and b) research impacts. Furthermore, describe indicators of both qualitative and quantitative evidence of expected impacts.

In terms of academic impact, please describe how this research would contribute to your field of study within academia (if applicable). As part of your description, where relevant, please refer to how the proposed project would enhance the applicant/organisation's potential for involvement in, for example, Horizon Europe collaborative projects and/or other non-exchequer funded RD&D activities in the future. Where relevant, also outline how the proposed project would enhance collaboration with Industry or other business opportunities.

In terms of research impact, consider the contribution that this research would make in categories such as: economic (e.g. jobs, exports, turnover growth); societal (e.g. benefit to consumers/end users); policy-oriented (e.g. contribution to evidence-based policy formation and/or the legislative/regulatory framework); or scientific (enhancement of Irish scientific capacity and capability).

Provide details of expected impacts of engaged research¹; working with rather than for the potential research end users (e.g., businesses in the energy/low-carbon technology sector, energy consumers, local authorities, regulators, policy makers, communities etc.) and indicate the timeframe over which the anticipated impacts will be realised.

¹ IUA Engaged Research Planning for Impact https://www.campusengage.ie/wp-content/uploads/2022/03/Updated-Final-PBS10581-IUA-Engaged-Research-Planning-for-Impact-Framework-2022-Update_V5.pdf

3. Impact – Communication and Dissemination Plans

Communication and Dissemination Plans: Describe the strategy for communication, dissemination and implementation (if applicable), and what activities will be undertaken to promote the proposed project and engage the relevant audiences/end-users throughout the project. Please provide evidence of tailored, multifaceted communication strategies for varying end-users including public participation or consultation. SEAI expects that outputs/findings from SEAI supported projects will be widely disseminated and made publicly available. Please note that project outcomes (i.e., generated knowledge/scientific output/research results/lessons learned) must be made available, among others, in the form of a short, publishable project report/case study (allowing for IP or commercial sensitivity restrictions on any sensitive data). These outcomes may be disseminated via the SEAI website and further publication as required.

4. Impact – Data Management and Open Access Strategy

Data Management Strategy: Project participants are asked to consider in advance how they will acquire and subsequently manage the data the project will generate, and to plan which data will be preserved, made publicly available and where. Where possible, use of existing available data is encouraged, and data acquisition agreements should be in place with data holders in advance. A data management plan will demonstrate how the data will be managed effectively and securely. Please describe (500 words max):

- *What new data will be collected or produced;*
- *What existing data will be re-used and evidence of preliminary data-sharing agreements (if relevant);*
- *How the data will be safely stored and managed both during and after the project.*

Open Access Strategy: Project teams are encouraged to work with open access tools and to make project outputs/models/assumptions available to interested stakeholders to facilitate follow-on studies and reduce duplication of research. Associated metadata and clear descriptions of data, acquisition, organisation, analysis and interpretation should be included. Planned open access locations for the data should also be included. Projects should aim to follow the FAIR principles, making research data findable, accessible, interoperable and re-usable. Please describe your open access strategy (500 words max).

*Please complete the **Data Management Plan** Form (Annex 1 of the Application Form) and submit along with your application. This should outline details of all data to be collected, processed and/or generated by the proposed project.*

5. Impact - Intellectual Property Management & Exploitation

Exploitation Plan: describe how results and outcomes from the proposed project will be exploited during and after the project, such that the project will result in tangible impacts.

Describe how background and foreground Intellectual Property (IP) will be managed.

Describe how any discoveries, inventions or processes resulting from the proposed project will be exploited. Where relevant/available, provide details of potential end users/markets.

Where there is a reasonable potential for commercial exploitation of research outputs, applicants should apply the principles of the National IP Protocol² 2019 – Ireland’s framework for research commercialisation.

Where relevant, applicants should discuss expected project outputs and intellectual property with their Technology Transfer Office and/or consult with Knowledge Transfer Ireland for information on how to fulfil Intellectual Property obligations, and for support in relation to developing consortium agreements where required.

² <https://www.knowledgetransferireland.com/ManagingIP/National-IP-Protocol/>

Successful applicants are required to take necessary steps to preserve and protect such intellectual property rights including, where appropriate, applying for patent registration; and actively exploiting any discoveries, inventions or processes resulting from the research, by means of commercial licensing arrangements or otherwise.

Where appropriate and whenever possible, IP should be managed for the benefit of enterprise development in Ireland.

For collaborative projects, please confirm (by ticking the relevant box in the application form) that should the proposed application be successful, the project consortium (Lead Applicant, Partner Applicant(s) and Collaborator(s)) will put a formal agreement in place to agree on Intellectual Property Rights and other relevant issues associated with the responsibilities within the project and exploitation of results.

6. Engagement with research end-users and key stakeholders ³

Please describe any engagement with research end-users, or other stakeholders, in the formation of the research proposal and in setting priorities for the proposed research. Please describe planned engagements with research end-users, including participatory processes, both during and after the project, that could involve multiple disciplines, sectors and stakeholders.

7. Gender Considerations*

Complete the 'gender considerations' table in the application form template with further details on gender balance and any potential gender dimension within the proposed research activities.

Description of how gender balance will be fostered within the project team:	
Please describe how gender balance will be fostered within the proposed project team.	
Please list concrete actions demonstrating how gender balance will be fostered.	
<ul style="list-style-type: none"> For 3rd level educational bodies, please comment on the Athena Swan⁴ Institutional award status or award commitment for your organisation/department. 	
Action title (add as many lines as appropriate)	Description
Action 1:	
Action 2:	
Action 3:	
Description of any potential gender dimension of the proposed research activity:	

³ https://www.campusengage.ie/wp-content/uploads/2019/01/FINAL-JAN-16_ER-Report-2016-Jan-v2.pdf

⁴ <https://www.advance-he.ac.uk/equality-charters/international-charters/athena-swan-ireland>

Please consider any potential gender dimension of the proposed research activity. Gender considerations in research mean that gender is part of the research design and systematically controlled for throughout the research process, without necessarily being the primary focus of analysis. Research that takes gender considerations into account is found in most scientific disciplines and in energy research, with empirical evidence researchers have studied the gender dimension in areas such as energy consumption in households, energy saving and decision-making in the production of energy. Energy research that takes the gender dimension into account has potential for further development e.g., does the underrepresentation of women in the energy sector, in terms of both production and decision-making, have any impact on the transition to more sustainable energy systems?⁵ ⁶

The following video may be helpful in outlining the gender dimension in research:

[Gender dimension in research video - YouTube](#)

*Note - there will be no discrimination due to gender in the evaluation of projects.

⁵ [what is the gender dimension roggkorsvik kilden genderresearch.no .pdf \(kjonnsforskning.no\)](#)

⁶ [A Review of Energy and Gender Research in the Global North.pdf \(geecco-project.eu\)](#)

Section 4: Workplan (Max 10 pages)

1. Work Plan

Complete the 'summary of work packages' table in the application form template which provides details of the number and title of each work package.

WP No.	Title
1	xxx
Etc.	xxx

For each work package, replicate and complete the table below in the application form template.

WP No. & Title	Provide the number and title of the work package.		
Start Month No.	e.g., 1	Finish Month No.	e.g., 6
WP Lead	Indicate the role and organisation of the project team member who will lead the work package.		
WP Contributors	Indicate the role and organisation of other contributors to the work package and briefly describe their role.		
Objective(s)	Describe the primary objectives of the work package.		
Description	Provide an outline of the work to be undertaken as part of the work package, including the methodology to be followed, specialised equipment to be used and analysis to be performed.		
Milestones (Specify the month each milestone will be reached)	Define and number each milestone (add as many lines as milestones)	Specify the month number each will be achieved	
	e.g., WP1-M1: Literature review	e.g., Month 3	
Deliverables (Specify the month the deliverable will be provided)	Define and number each deliverable (add as many lines as deliverables)	Specify the month number each will be achieved.	
	e.g., WP1-D1: Literature review paper submitted to a peer-reviewed journal	e.g., Month 3	
Data Required (if applicable)	WP1- Dataset 1: WP1: Dataset 2: (Add as many lines as datasets)		
	Please provide a brief description of data required for this work package ⁷ .		
Est. resource allocation per WP (est. cost and FTE)	Provide an estimation of resourcing allocation per work package, e.g., total associated staffing budget requested, and approx. staffing allocation (FTE)		

2. Project Management & Risk (max 3 pages)

Clearly describe the proposed project management structure for the project and provide details of reporting lines and responsibilities. Please also provide a high-level Gantt chart (or similar) indicating timelines and dependencies for the work packages and tasks.

Please include details highlighting the capacity of the Lead Applicant to lead this project, e.g. consideration to number of current awards and other activities underway, and associated full time equivalency (FTE), along with

⁷ As per the data management strategy, (Section 3.4) projects are encouraged to outline good consideration of existing datasets and encouraged to reuse and repurpose existing datasets. Risks to data access/acquisition should be detailed in Section 4.2; Project Management and Risk.

FTE expectations on this project. Similarly, please include details highlighting the capacity of the wider project leadership team, across both Lead/Partner Applicants, to deliver the project.

Please ensure to include your high-level Gantt chart within the Application Form (Word Document template). Please do not submit a Gantt chart as a separate file.

Using the table provided in the application form template, describe the primary risks associated with the proposed project, their likelihood (low, medium or high) and outline the measures which will be undertaken to avoid or mitigate these risks.

If your research requires the acquisition of a licence (e.g., foreshore licence), permits or planning permission, please consider this in your risk assessment and provide details of the estimation of acquisition timelines and mitigation measures/alternative options. Similarly, please identify risks associated with data acquisition/ access and mitigation measures to reduce impacts.

Section 5: Budget

Please complete the following:

1. Budget Justification (see below)
2. Budget Template (MS Excel spreadsheet)
3. Provide the requested 'financial documentation/declarations' (as PDF documents)

Applicants should refer to the SEAI RD&D Budget Policy Document when completing the budget sections of their application.

1. Research Category Justification (max 250 words)

Please select a Research Category from the list and provide a justifying narrative for your selection. Before selecting, please review and refer to the SEAI RD&D Budget Policy document for detailed definitions of each research category listed.

The onus is on the Applicant organisations to select a research category which appropriately reflects the proposed project activities. Please select the appropriate Research Category. Repeat the table as required for each partner applicant.

2. Grant Aid Intensifier Justification (max 250 words)

If applying for the grant aid intensifier, please select the relevant intensifier and provide a justification in the table provided. Please refer to the SEAI RD&D Budget Policy document for eligibility details and requirements of this grant intensifier.

Repeat the table as required for each partner applicant.

3. Budget Summary

Provide an overview of costs by completing the budget summary table. Add additional columns for each additional project partner if applicable. **Please ensure that these figures align with those provided in the budget template** (Excel spreadsheet).

Please also complete the Summary Table – In-kind Contributions.

In-kind contributions are valued by SEAI and should be detailed within the 'In-kind Contributions' table (only) within Section 5.3 of the Application form. In-kind contributions should not be included within the Total Project Costs table or within the Budget Template spreadsheet

4. Budget Justification

Provide a justification to support proposed total project costs included in the application under the headings of: staff, equipment, materials, travel and external consultants.

Staff: Justify the role and need for each staff member who would be funded by the proposed project by completing the table below for each person. Repeat the table as required for each proposed staff member to be funded.

Position Title	<i>Please detail the requested position title (e.g. Research Engineer or Postdoctoral Researcher to be Recruited).</i>
Organisation name	<i>Indicate the name of the organisation which this staff post will be associated with.</i>
Total cost of staff member	<i>Indicate the total cost (€) associated with this role.</i>
WP/task alignment	<i>Provide details of the work packages/tasks which this person will work on.</i>
Justification for the level of this position	<i>Describe how the costs associated with this position have been calculated.</i>
Justification for this position	<i>Describe why this position is required on the project.</i>

Equipment: Justify the need for each piece of equipment which will be funded by the proposed project by completing the table below for each piece of equipment. Repeat the table as required for each piece of equipment.

Equipment & quantity	<i>Indicate the equipment required and the quantity.</i>
Organisation name	<i>Indicate the name of the organisation who will own the equipment and where it will be based.</i>
WP/task alignment	<i>Provide details of the work packages/tasks which the equipment is required for.</i>
Cost requested (€)	<i>Indicate the cost (€) associated with the equipment.</i>
Justification for cost	<i>Provide a justification/rationale for the quoted cost.</i>

Materials: Justify the need for each material which will be funded by the proposed project by completing the table below. Repeat the table as required.

Materials & quantities	Indicate the materials required and the quantity.
Organisation name	Indicate the name of the organisation who will own the materials.
WP/task alignment	Provide details of the work packages/tasks which the materials are required for.
Cost requested (€)	Indicate the cost associated with the materials.
Justification for cost	Provide a justification/rationale for the quoted cost.

Travel: Justify the need for travel costs requested as part of the proposal. Where possible, online meetings/events are encouraged.

Travel	Indicate the travel required and the quantity.
Organisation name	Indicate the name of the organisation who the requested costs are associated.
WP/task alignment	Provide details of the work packages/tasks which the travel is required for.
Total cost (€)	Indicate the total cost associated with the travel.
Justification for cost	Provide a justification/rationale for the quoted cost.

External Consultants: (max ½ page): Justify the need for and value of external consultants costs requested as part of the proposal. As noted in the SEAI RDD Budget Policy, every possible effort must be made, in the first instance, to build a project team capable of completing all tasks proposed in the project without the need for external consultants.

Section 6: Letters of Support

Letters of Support (max 1 page each)

The following letters of support should be submitted as part of an application to the Call. Letters of support may be uploaded individually or may be merged into a single PDF file.

Please also complete the summary Letters of Support checklist Table within the Application Form.

- ✓ **The Lead Applicant**, confirming that the information provided in the application is correct to the best of their knowledge, and that the proposed project has not been/is not the subject of grant aid from any other source. By submitting a proposal, the Lead Applicant confirms that they hold a contract covering at least the duration of the proposed project or agreement from their employer that their employment will be extended to cover at least the period of the proposed project.
- ✓ **An authorised staff member in the lead institution/organisation** (e.g., company CEO/CFO/Director, University/Research Institution Vice President for Research/Director of Research or equivalent) confirming their endorsement of the proposal and confirming their commitment to hosting and facilitating the proposed project should it be successful.
- ✓ **Each Partner Applicant Organisation (if any)** confirming their role in the proposed project and indicating the level of any financial support (cash or in-kind) being provided by their organisation to the proposed project.
- ✓ **Each Collaborator Organisation (if any)** included in the application, providing details to confirm their role in the project, and details of any proposed support (e.g., data access, technology trial/demonstrator, in-kind support, or other).

✓ **Fellowship Applications** (*Fellow*)

- 1) **Lead Applicant** (*Fellow*) – *as per above Lead Applicant Letter of Support;*
- 2) **Partner Applicant** (*Academic Mentor/Supervisor. Please note the Academic Mentor/Supervisor must be a core-funded member of academic staff or a member of academic staff with a fixed-term contract covering at least the duration of the proposed fellowship;*)
- 3) **An authorised staff member within the 3rd level educational body** (*e.g., University/Research Institution Vice President for Research/Director of Research or equivalent*) *confirming their endorsement of the proposal and confirming their commitment to hosting and facilitating the proposed fellowship should it be successful.*) and;
- 4) **Letter of Motivation** - *providing a statement to demonstrate interest in and suitability for the proposed Fellowship. This may include an outline of professional experience, how the Fellowship will enhance their career development and personal motivation for the submitted Fellowship proposal.*

Please note that unsolicited letters of support are not permitted.

Annex 3: Application Checklists

****PLEASE NOTE - THE BELOW DOCUMENTATION IS MANDATORY AND FAILURE TO SUBMIT ANY DOCUMENTATION (IF APPLICABLE) WILL DEEM YOUR APPLICATION INELIGIBLE****

Companies

Application form	
Budget template	
Declaration of Financial Resources	
Declaration of Solvency	
Most recent annual financial statements (if applicable)	
For Newly Incorporated Companies - Management Accounts or 1 year Cash Flow Projection prepared by Qualified Accountant (if applicable)	
Declaration of SME Status (if applicable)	
Proof of funds (if applicable)	
A letter from the Revenue Commissioners (if applicable)	
Letters of Support	
Data Management Plan	

3rd Level Educational Bodies

Application form	
Budget template	
Declaration of 3 rd level educational body – Non-Economic Public Good (NEPG) (if applicable)	
Letters of Support	
Data Management Plan	

Public or Semi State Bodies

Application form	
Budget template	
Declaration of Financial Resources	
Declaration of Non-Economic Public Good (NEPG) (if applicable)	
A letter from the Revenue Commissioners (if applicable)	
Letters of Support	
Data Management Plan	

Academic Fellowships

Application form	
Budget template	
Declaration of 3 rd level educational body – Non-Economic Public Good (NEPG) (if applicable)	
Letters of Support	
Letter of Motivation	
Data Management Plan	

Annex 4: Budget template Instructions

Please find details in Appendix 1 of the SEAI RD&D Budget Policy document, available to download from the Programme Documents section of the SEAI RD&D Webpage:

<https://www.seai.ie/grants/research-funding/research-development-and-demonstration-fund/>

Annex 5: General Terms and Conditions

1. Failure to fully adhere to the provisions of the Call may result in application refusal, grant offer revocation or grant claim refusal, depending on the particular status and stage of the application.
2. Please note that SEAI may, if required by law or otherwise and without incurring any liability, vary, revise or supplement Programme Documentation and/or Terms and Conditions of the Programme before or after the applicant's submission of an application and such revised terms will apply to the application unless the applicant chooses to withdraw its application or withdraw from the Grant Agreement.
3. The applicant's agreement with SEAI in the event of a Grant Offer being accepted will comprise the Grant Agreement, Terms and Conditions of the Programme, the Call Document (including its annexes), and other programme documentation provided by SEAI. The applicant having accepted the Grant Offer and communicated his/her acceptance of it to SEAI shall comply with and agree to be bound by the provisions of these documents.
4. The project, in respect of which the grant application is made, must be located in the Republic of Ireland.
5. The Grant Offer only becomes valid upon receipt by SEAI from the applicant of the signed Grant Agreement.
6. The applicant must ensure Grant approval is received before proceeding with any orders, purchases or commencing works. No payments will be made retrospectively for costs incurred prior to approval being granted. Orders placed or invoices dated prior to grant approval will not be eligible for grant support.
7. The total grant amount will not be permitted to escalate above the amount indicated in the grant agreement under any circumstances.
8. The applicant must obtain all necessary insurances, consents and statutory approvals and have authority to implement the project.
9. The SEAI National Energy RD&D Funding Programme is subject to any state aid clearances required from the Commission of the European Union and any consents, clearances or licenses that might be required from any

other competent body. The applicant must ensure that compliance is achieved with the relevant principles of Irish and EC law regarding the spending of this funding and, where applicable, the laws and guidelines concerning State Aid and public procurement.

10. The applicant must be prepared to participate in follow-up site visit(s) to verify impacts and achievements and to participate in follow-up research (telephone or questionnaire) as may be commissioned by SEAI to establish the Programme's impacts and achievements. This may also include the acquisition of information and data for the development of case studies for wider dissemination (protecting as appropriate all confidential or commercially sensitive information/ data). The applicant acknowledges that SEAI may have to provide certain contact details to third party contractors in relation to these matters and the applicant hereby consents to SEAI making these disclosures.
11. The timing of payment to approved applicants is subject to the funding allocated by government to the Programme in a particular calendar year, in accordance with public financial procedures. Where all other conditions are met, payment will be made on a "first come, first served" basis. Where funding is exhausted in a particular calendar year, payment to remaining applicants will be deferred until such time as further funds may become available. Deferred payments will receive priority, if and when those funds become available.
12. The applicant shall follow the SEAI complaints procedure in relation to any disputes between the applicant and SEAI concerning any matter in connection with the Programme.
13. Any false, fictitious or fraudulent statements or claims knowingly made on grant applications, or supporting documentation, submitted in respect of previous grant applications / requests for payment or otherwise made to SEAI, its authorised officers, or an SEAI Inspector, or any breach of these Terms and Conditions of the Programme may result in current and future applications being deemed ineligible by SEAI. In respect of applications where the applicant has already received payment pursuant to the Programme.
14. The Applicant acknowledges that SEAI is subject to the requirements of the Freedom of Information Act 2014, as amended ("FOIA"). SEAI undertakes to use its best endeavours to hold confidential any information provided by the applicant subject to its obligations under law, including the FOIA. Should the applicant wish that any of the information supplied by him/her should not be disclosed because of its sensitivity, he/she should, when providing the information, identify the same and specify the reasons for its sensitivity. SEAI will consult with the applicant about such information before making a decision on any Freedom of Information request received.
15. Any personal information which an Applicant volunteers to SEAI will be treated with the highest standards of security and confidentiality, strictly in accordance with the Data Protection Acts, 1988 to 2003, as re-enacted,

amended or replaced from time to time, and pursuant to the General Data Protection Regulation (meaning Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC) and any related legislation. SEAI, as data controller, and its agents, will store such information on its database and fully respect the confidentiality of the data provided. The information provided by applicants will be used for evaluation purposes and to facilitate the administration of the grant process. This may require that data be supplied to and discussed, in confidence, with any person or organisation appointed by SEAI to assist in assessing or monitoring this application. These persons will be subject to the same requirements for protection of confidentiality.

16. An applicant must notify SEAI immediately if it decides not to undertake and/or complete its project. If a successful applicant decides not to undertake and/or complete its project, SEAI will not pay it the grant and instead may (but is not obliged to) allocate some or all of the funds provisionally allocated to that applicant to a different applicant.
17. The parties are of the view that there is no supply of goods or services between them and therefore there is no VAT chargeable to SEAI by the grantee in relation to the payment of the grant. In the event that the Revenue Commissioners determine that, in their view, VAT is chargeable then the grant payment shall be regarded as inclusive of any VAT charge.



Riailtas na hÉireann
Government of Ireland

Sustainable Energy Authority of Ireland

w: www.seai.ie

e: energyresearch@seai.ie

