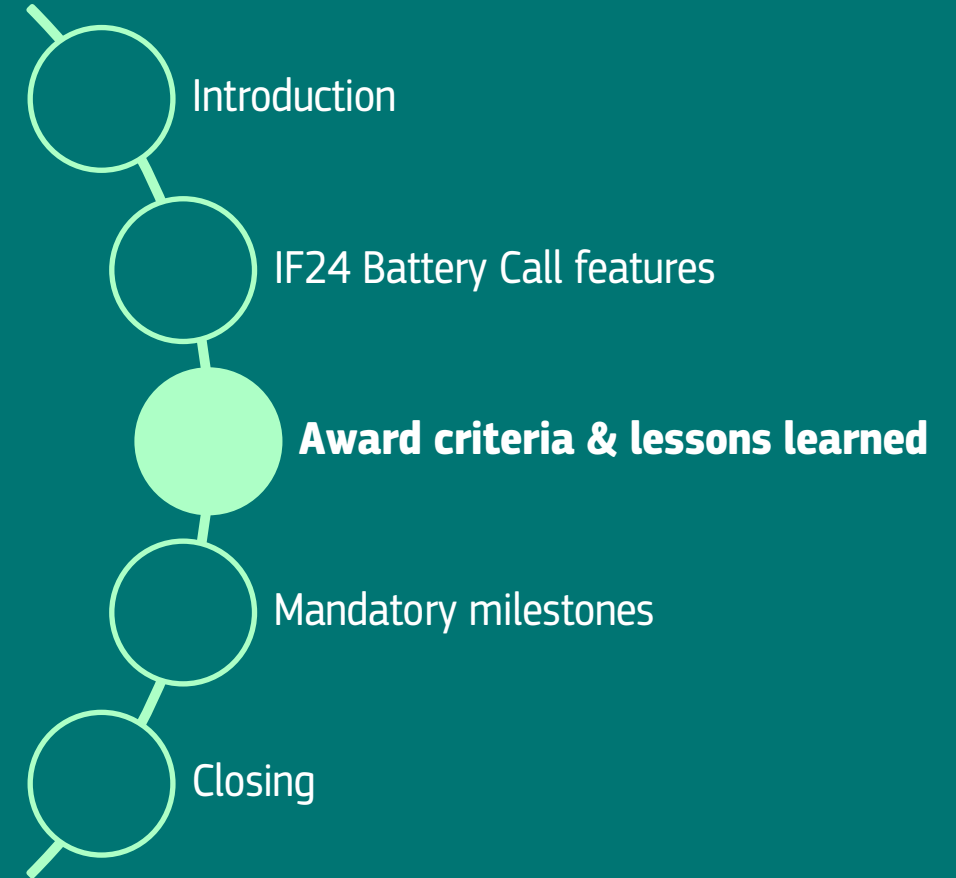


Award criteria

Best practices



The award criteria and lessons learned

- Degree of innovation
- GHG emission avoidance
- Manufacturing carbon footprint
- Project maturity
- Replicability
- Security of supply and countering dependency
- Mandatory milestones and deliverables



Degree of Innovation

Uwe LÜTZEN, *Head of Sector*
CINEA - Innovation Fund Unit

Degree of Innovation



- **Application form, Part B:**

- Section 1: Degree of innovation
 - Innovation **in relation to the state of the art**
 - Innovation **beyond the state of the art**
- Feasibility study (mandatory annex)
- Any due diligence report (if any)



A template for the Feasibility study is available in the Submission System (under "Part B templates").

Feasibility study is mandatory - if template not used, provide at least the same level detail and information to ensure a proper assessment



Degree of Innovation

- Innovation Fund aims at supporting projects beyond incremental innovation on a scale from intermediate to breakthrough, including scaling-up, considering the European level as reference point

Very low / incremental innovation

Intermediate or strong

Very strong or breakthrough

Incremental innovation: minor changes or improvements to existing products, processes or business models; implies limited new knowledge / technology; such projects **will not be retained.**

Intermediate or strong: new or considerably changed technologies or processes or business models; novel combinations of mature technologies; scale-up of innovative technologies

Very strong or breakthrough: completely new technologies or processes or business models; innovations leading to significant changes that transforms entire markets or industries or creates new ones



Degree of Innovation: types of innovative actions

Innovation Fund aims at supporting technologies, business models and processes:

- **First-of-a-kind commercialisation** or **large-scale commercial size demonstration** of technologies, processes or business models previously proven at pilot or smaller scale, or large-scale demonstration plants
- A **second or more of a kind commercialisation**, under certain conditions. In particular, where the relevant costs remain a significant share of total costs that prohibit commercialisation without further public support. Innovation beyond incremental must still be demonstrated
- **Innovative smaller demonstrations or pilot plants**, especially if this is the right scale at which technology needs to be proven before moving to a larger scale demonstration
- Projects aimed at demonstrated **scaling up** of innovative techniques, processes and technologies for their broad roll-out, which contribute significantly to the decarbonisation of the IF sectors



Degree of Innovation

Innovation in battery cell manufacturing can be demonstrated in:

Final product performance, e.g., in terms of:

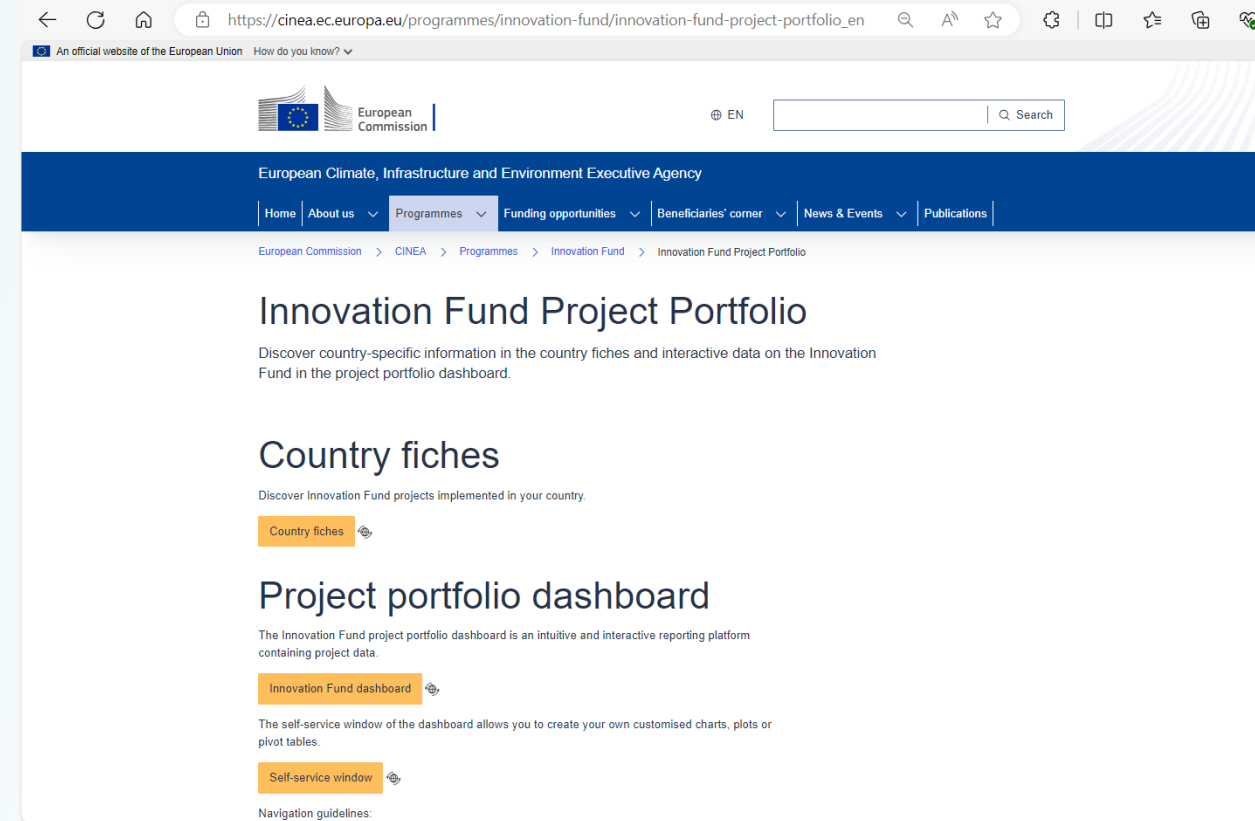
- Energy density
- Expected storage performance over lifetime
- Fast charging
- Long cycle life
- Reduced use of raw materials
- Circularity
- Uniqueness of technology

Battery manufacturing process, e.g., in terms of:

- Innovative and more efficient process techniques
- Application of innovative digital technologies
- Integration of recycling of materials

References to Innovation Fund projects

- Proposals focusing on innovations similar to the ones of ongoing Innovation Fund projects, must clearly justify where the new innovative elements lie
- Such projects may receive a lower score
- Consult the list of funded Innovation Fund projects (Innovation Fund Project Portfolio Dashboard)

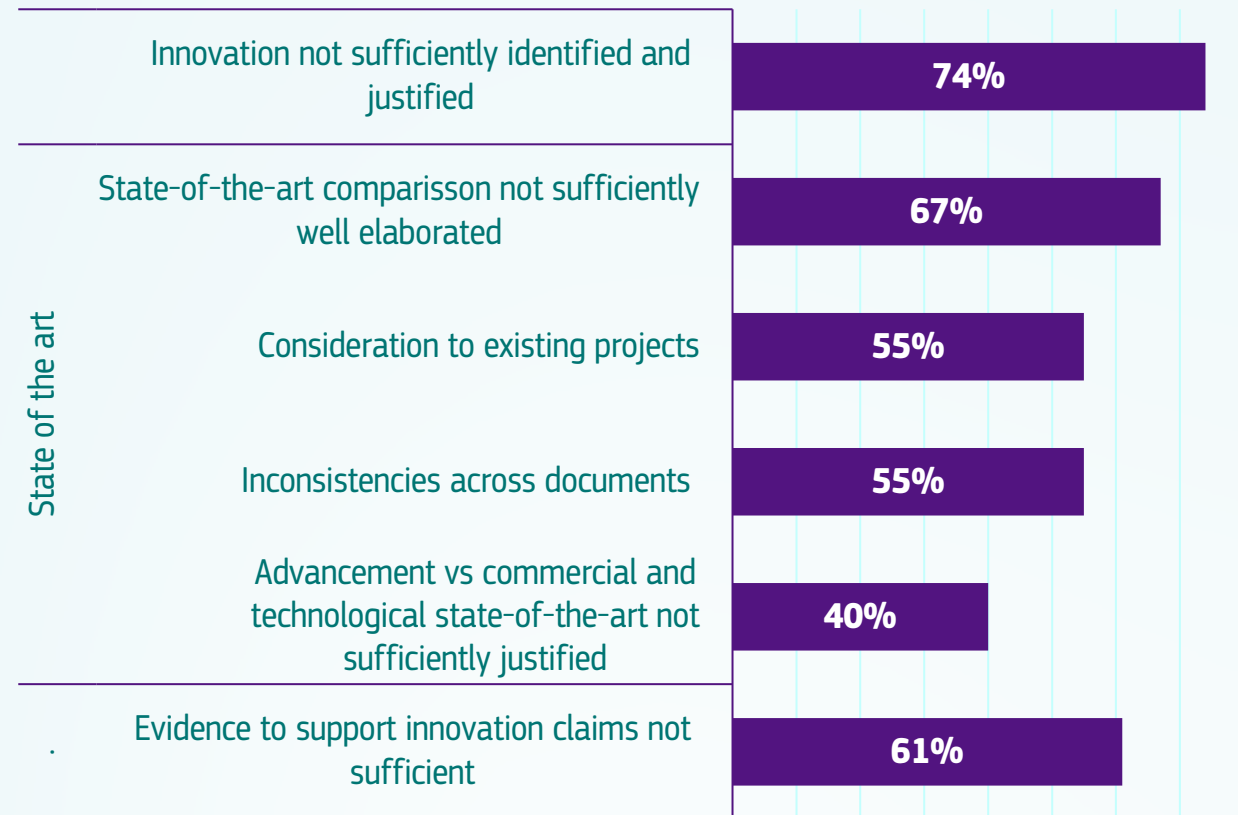


Degree of Innovation: Lessons Learned IF23 Call

Out of 12 proposals failing under Degree of Innovation, the main reasons are:

Key reasons for failure:

- Innovation not sufficiently identified and justified with credible evidence
- State of the art not sufficiently well elaborated
- Inconsistencies across documents



Best practice – Degree of Innovation

- Check thoroughly **Annex 1** (*Innovation in relation to the state of the art*) in call text
- Be clear, exhaustive and transparent
- Provide convincing and substantial **evidence for your claims**
- Make clear references to the feasibility study, where relevant



Best practice – Degree of Innovation (cont.)

1

Describe

- Describe relevant state of the art
 - Include both technological & commercial aspects
- Provide quantitative inputs and evidence for:
 - Costs
 - Technical characteristics & performance
 - TRL/SRL

2

Identify

- How does your innovation go beyond state of the art?
 - Compare with previous & ongoing EU and IF projects
 - Provide geographical reference point
- Consider barriers: for scaling up & for technology integration

3

Provide evidence

->Feasibility study, GHG calc., other

- Compare key performance data vs state of the art
 - Relevant parameters
 - Consider also energy efficiency and circularity
- Provide patent data (when relevant)
- Consider how will the innovation be implemented or integrated?

GHG emission avoidance potential

Uwe LÜTZEN, *Head of Sector*
CINEA - Innovation Fund Unit
and

Johannes ECKSTEIN/Christoph NEEF, Fraunhofer ISI

Greenhouse gases (GHG) methodology

Johannes ECKSTEIN
Fraunhofer ISI

Manufacturing carbon footprint

Sofia RIANO, *Project Adviser*
CINEA - Innovation Fund Unit

Johannes Eckstein/Christoph Neef, Fraunhofer ISI

Manufacturing carbon footprint

A measure of the total amount of greenhouse gas (GHG) emissions associated with manufacturing processes

Energy related emissions

Emissions related to upstream components

Raw material emissions



Manufacturing carbon footprint

Why is it important?

- Policy priority to reward sustainable manufacturing processes
- Represents a significant portion of the overall carbon footprint of a process or product
- Helps manufacturers identify areas for improvement and reduce their environmental impact
- Helps identify opportunities for innovation
- It has an impact on business reputation and customer trust
- Helps manufacturers comply with emerging climate policies and regulations



Manufacturing carbon footprint

Methodology for GHG emission avoidance calculation for projects applying under the INNOVFUND-2024-BATT CALL

Absolute and relative GHG emission avoidance



Manufacturing carbon footprint reduction

Standardised battery
manufacturing
reference

Project's
manufacturing
emissions

Considering emissions from raw materials to
battery cell production



Manufacturing carbon footprint

Included in the methodology for GHG emission avoidance calculation

Mandatory project scope

EV battery cells production

Optional additional project scope

Upstream component production*
Battery or battery recycling material*

Outside project scope

Mining, processing and refining
Upstream components imported into the project
Battery module and pack production
Battery application production

Not included in the methodology for GHG emission avoidance calculation

Outside project scope

Upstream component production // battery or battery recycling material exceeding 100% of the project's battery cell production capacity

*Not exceeding 100% of the project's battery cell production capacity



Manufacturing carbon footprint

System boundaries (steps within project scope)

- Includes manufacturing steps of battery cells that will be used in electric vehicles
- The manufacturing steps are defined on the basis of inputs and outputs
- Besides the battery cell production, certain upstream steps can also be part of the project's GHG avoidance claims, **provided their outputs serve as input for the project's battery cell production**
- The battery cell production inputs can also be supplied by external suppliers (project's own upstream outputs < 100% battery cell production inputs)



Manufacturing carbon footprint

System boundaries (steps within project scope)

- **Battery cell production**
 - Includes electrode production and electrode and cell assembly.
 - Does not include any further processing battery cells to modules or battery packs.

Optional:

- Battery cathode active material (CAM) production
- Precursor battery cathode active material (pCAM) production
- Anode active material (AAM) production
- Separator production
- Electrolyte production



Manufacturing carbon footprint

System boundaries (steps outside the project scope) but within the manufacturing carbon footprint calculations

- Raw material extraction and refining
 - Bill of materials, raw materials and share of recycled raw materials is considered in the calculation
 - Production of Cu-current collector and Al-current collector



Manufacturing carbon footprint

Alternative battery systems

- Select a system boundary for cell production that is as comparable as possible to the one of the lithium-ion battery production process
- Include all processes and components necessary for a functional electrochemical unit



Manufacturing carbon footprint

Customised emission factors for components

- If upstream components are not produced within the project boundary, default emission values are used unless evidence justifies a divergence
- Default emission factors are assumed for externally sourced upstream components
 - Projects can customize default emission factors if they provide evidence of a lower GHG footprint for imported components
- Customized emission factors must be based on predefined manufacturing steps and cover the full scope of inputs to outputs

Customised emission factors for imported energy

- Default emission factors for imported energy can be customized with a MoU or proof of renewable energy purchase (see call text)

Provide adequate evidence at application stage and during project implementation

