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REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

on the implementation of the Innovation Fund in 2023

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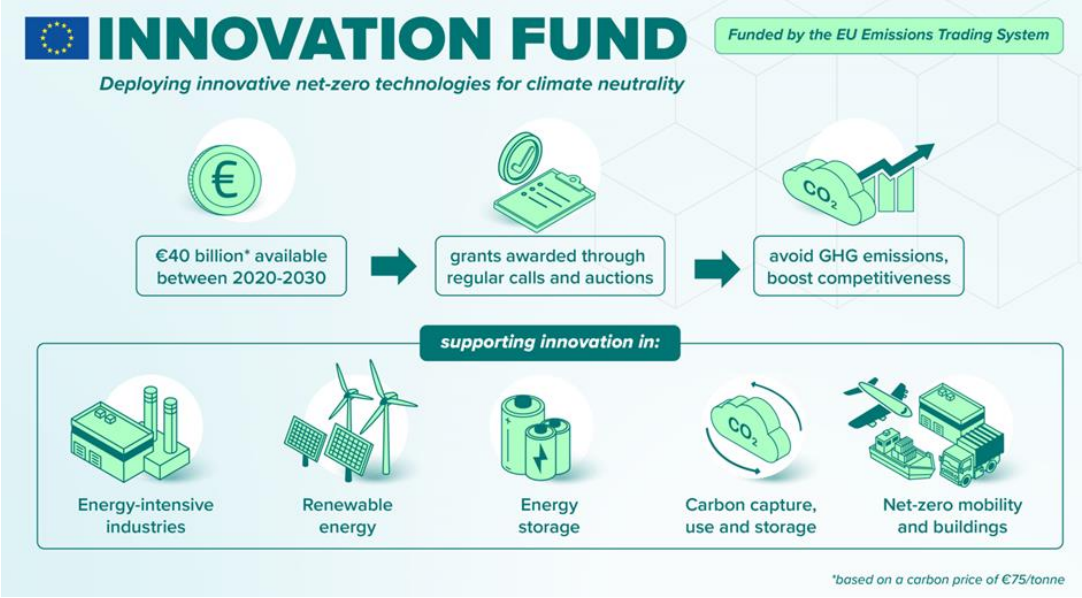
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1 THE INNOVATION FUND

The Innovation Fund (IF) is one of the world's largest funding programmes for demonstrating innovative commercial zero-carbon and low-carbon technologies. Its aim is to bring to market novel solutions to decarbonise sectors covered by the EU Emissions Trading System (EU ETS) in support of Europe's transition to climate neutrality. The IF is funded by revenues from auctioning the EU ETS allowances. In turn, it provides funding, mostly in the form of grants, to support projects in five key areas (se figure 1 below). Under the IF funds are currently mainly awarded through open competitive calls for proposals or through competitive bidding procedures ('auctions'). The IF also supports projects through advisory services (Project Development Assistance – PDA) and through contributions to blending operations with other EU instruments (e.g InvestEU).

Figure 1: Key components of the Innovation Fund



The European Commission's **Directorate-General for Climate Action (DG CLIMA)** has overall responsibility for IF policy development and implementation. The Commission is also responsible for adopting decision on the amounts of financial assistance awarded and has entrusted the **European Climate Infrastructure and Environment Executive Agency (CINEA)** for launching and evaluating calls for proposals and for managing grant agreements.

Under Article 10a (8) of the EU ETS Directive[1], the Commission will report annually to the Climate Change Committee on IF implementation. This report provides a breakdown of projects that have been awarded funding by sector and by Member State, and an analysis of how these projects will contribute to the EU's goal of achieving climate neutrality by 2050.

This report covers the implementation of the Innovation Fund **up until 31 December 2023**.

[1] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC, OJ L 275, 25.10.2003, p. 32.

1.1 Innovation Fund's contribution to EU policy objectives

The IF's main objective remains that of supporting decarbonisation in the sectors covered by the EU ETS and contributing to the EU's greenhouse gas reduction objectives as defined in the European Climate Law [2], while at the same time supporting urgent policy priorities and aiding the economic transition by creating new 'clean industry' business cases.

- The 104 projects in the IF's portfolio by the end of 2023 are expected to avoid 442 million tonnes of carbon dioxide equivalent (CO_2-eq) emissions during their first decade of operations, contributing to the goals of reducing GHG emissions set out in the European Climate Law and achieving climate neutrality by 2050. A project such as NorthSTOR+ is expected to avoid 34.5 million tonnes of CO_2-eq during its first decade of operation by developing an innovative stationary energy storage system for lithium batteries based on technology originally intended for the electric vehicle industry.

- The IF awarded EUR 715 million to fund 16 projects within the hydrogen sector. In total, projects in the IF's portfolio are set to produce 6.54 million tonnes of hydrogen during their lifetimes. This figure is expected to contribute to the EU's aim of ramping up renewable hydrogen production, as outlined in legislation such as REPowerEU[3],and the Renewable Energy Directive, as well as in the European Hydrogen Strategy. For example, the Holland Hydrogen project is set to produce 1.3 million tonnes of renewable hydrogen in the Port of Rotterdam from a 400 MW electrolyser, 10 times greater than any electrolyser currently installed in Europe.

- The IF awarded EUR 177 million in grant funding to four projects that involve biofuels and bio-refineries, contributing to the objectives of developing alternative fuels outlined in the ReFuelEU Regulation and the biomethane action plan, as well as supporting the implementation of FuelEU Maritime Regulation[4]. For example, the FirstBio2Shipping project is expected to produce and supply biofuel to the maritime sector worth 6 million normal cubic metres per year (Nm3/year) of biogas, 2 400 tonnes per year of biomethane and 5 000 tonnes per year of bio-CO_2.

- The IF awarded a total of EUR 360 million to 11 projects that directly involve solar, wind and geothermal energy. This IF support is directly contributing to the objectives in the Renewable Energy Directive and REPowerEU on rolling out renewable energy

[2] Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law'), OJ L 243, 9.7.2021

[3] Regulation (EU) 2023/435 of the European Parliament and of the Council of 27 February 2023 amending Regulation (EU) 2021/241 as regards REPowerEU chapters in recovery and resilience plans and amending Regulations (EU) No 1303/2013, (EU) 2021/1060 and (EU) 2021/1755, and Directive 2003/87/EC, OJ L 63, 28.2.2023

[4] Regulation (EU) 2023/1805 of the European Parliament and of the Council of 13 September 2023 on the use of renewable and low-carbon fuels in maritime transport, and amending Directive 2009/16/EC, OJ L 234, 22/09/2023

generation and developing the EU's strategy for offshore energy[5]. In particular, five projects in the wind sector will receive EUR 135 million, which will directly help the deployment of technology targeted under the EU Wind Power Package. For example, the HIPPOW project is developing a new offshore wind turbine model in Denmark. The prototype alone will be able to supply energy to power 7 000 households annually with a possible 700-fold increase or more by 2030.

- The IF awarded EUR 91 million in grants to fund six projects that involve intra-day electricity storage and EUR 190 million to projects manufacturing energy storage components, thus contributing to the Batteries Regulation[6] goal of promoting a domestic circular economy for batteries, as exemplified by projects such as GigaArctic, a lithium-ion battery giga factory in Norway that will produce 29 Gigawatt-hours per year (GWh/y).

- The IF awarded EUR 709 million to fund 11 projects that involve manufacturing components to produce renewable energy or store energy. It also awarded EUR 1.08 billion to six projects that involve carbon capture and storage (CCS) technologies, and EUR 3.45 billion to 59 projects that involve energy-intensive industries. The IF is therefore already contributing to the overall objectives of the Net-Zero Industry Act (NZIA)[7] and the Industrial Carbon Management (ICM) strategy[8]. One example of this contribution is the HynCrease project, which is designing, constructing and demonstrating manufacturing lines for electrolysis and fuel cells using innovative coating techniques and automation processes. Another project, TopSOEC, will construct a 500 Megawatt solid oxide electrolysis cell (SOEC) stack module manufacturing facility. The Elan project will manufacture anode graphite materials that are expected to be used in 846 000 electric vehicles. Lastly, the Silverstone project in Iceland is deploying CO_2 capture and permanent mineral storage on a commercial scale.

[5] Communication from the commission to the European parliament, the council, the European economic and social committee and the committee of the regions, An EU Strategy to harness the potential of offshore renewable energy for a climate neutral future, COM/2020/741 final

[6] Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC, OJ L 191, 28.7.2023

[7] Regulation (EU) 2024/1735 of the European Parliament and of the Council of 13 June 2024 on establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem and amending Regulation (EU) 2018/1724, OJ L, 2024/1735, 28.6.2024,

[8] Communication from the commission to the European parliament, the council, the European economic and social committee and the committee of the regions Towards an ambitious Industrial Carbon Management for the EU, COM/2024/62

2 THE INNOVATION FUND'S KEY MILESTONES IN 2023

1. Award of the third call for large-scale projects (LSC 2022)
2. Launch of the third call for small-scale projects (SSC 2022) and initial selection of proposals
3. Launch of the Innovation Fund call for 2023 (IF23)
4. Launch of the pilot auction for RFNBO hydrogen (IF23 auction)
5. Selection of the first projects under the EU-Catalyst partnership
6. Additional PDA for projects
7. An updated legal framework[9] to ensure that the IF: (i) is fully aligned with the most recent amendments to the ETS Directive; and (ii) draws on the lessons learnt from the initial years of implementation.
8. Implementation of communication and engagement activities for specific sectors around each call for proposals.

3 MAIN IMPLEMENTATION EVENTS IN 2023

3.1 Award of the third call for large-scale projects (LSC 2022)

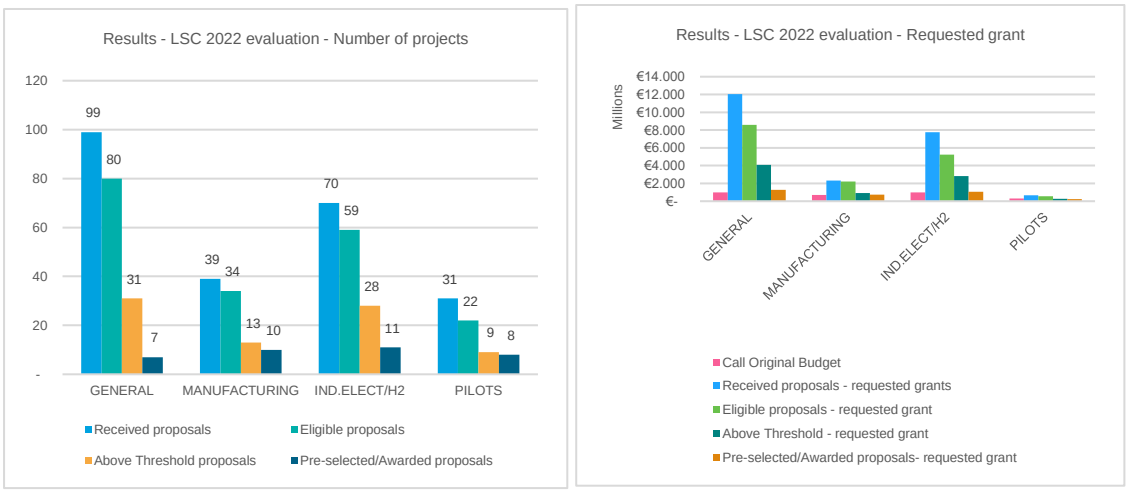
On 3 November 2022 the Commission launched the third call for proposals for large-scale projects under the Innovation Fund, with a budget of EUR 3 billion. This call was aimed at projects with an estimated capital expenditure (CAPEX) of over EUR 7.5 million per project. For the first time, the call was divided into four 'topics': (i) general, with a budget of EUR 1 billion; (ii) clean-tech manufacturing of components for hydrogen production, renewable energy and energy storage, with a budget of EUR 700 million; (iii) innovative electrification in industry and innovative hydrogen production and use, with a budget of EUR 1 billion; and (iv) construction and operation of pilot projects, with a budget of EUR 300 million. The results of the call were published on 13 July 2023

The 239 proposals submitted in response to the call requested total grants worth EUR 22.8 billion, six times greater than the available budget. After evaluation, 41 proposals were invited for grant agreement preparation process. By the end of 2023, 36 projects had signed grant agreements worth EUR 3.3 billion[10] in total support. Together, the awarded projects are expected to avoid approximately 223 million tonnes of CO_2-eq emissions during their first decade of operations. The first projects are due to start operations in 2024 and, by 2027, more than half of them (64%) will have started operations.

[9] Commission Delegated Regulation (EU) 2019/856, as updated on 21/11/2023.

[10] A flexibility rule, allowing up to a 20% increase in the available budget, was used.

Figure 2: Results of the LSC 2022 evaluation



Most of the project awarded grants were in the 'energy-intensive industries' category (23 proposals, requesting 66% of the available budget), the bulk of them involving the 'manufacturing components for renewable energy', 'chemicals' and 'hydrogen' subcategories.

Figure 3: Categories of awarded projects in LSC 2022

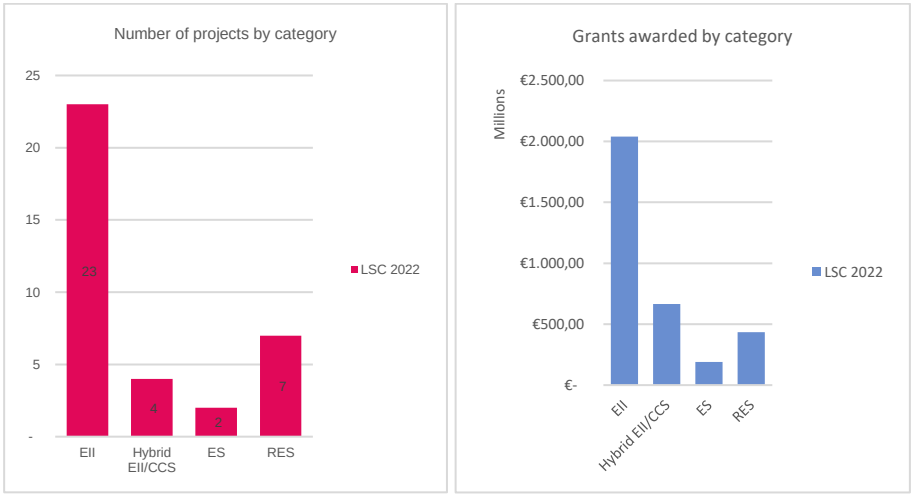
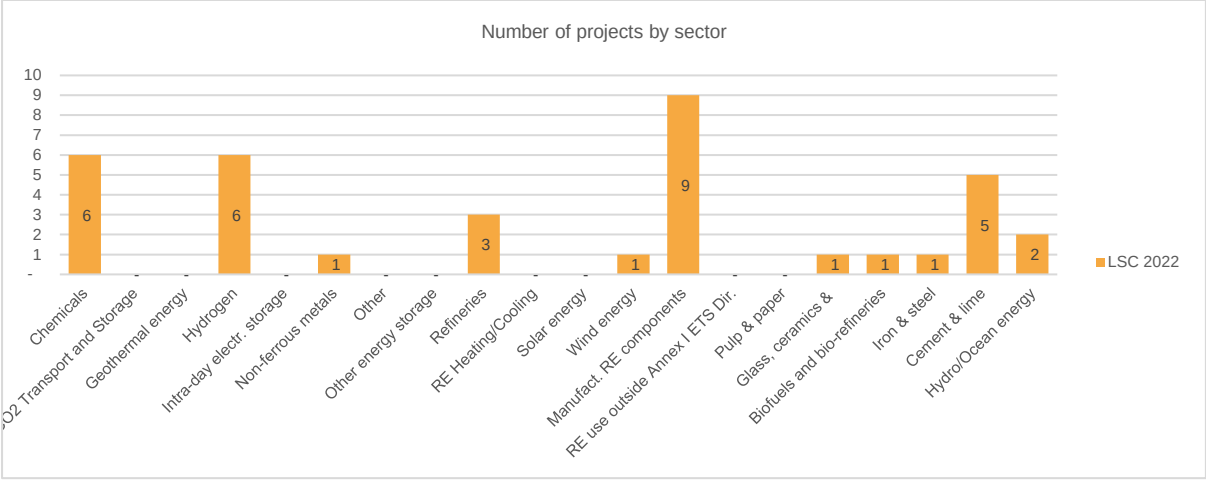
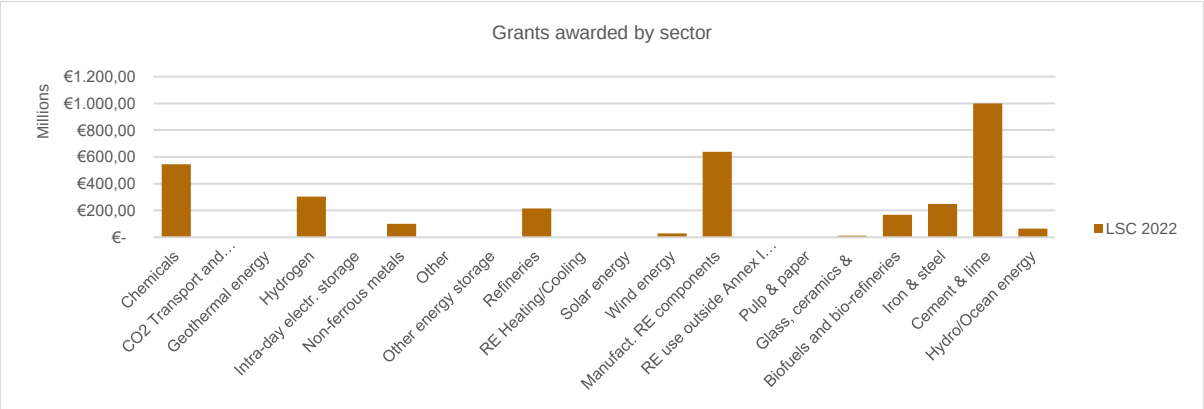


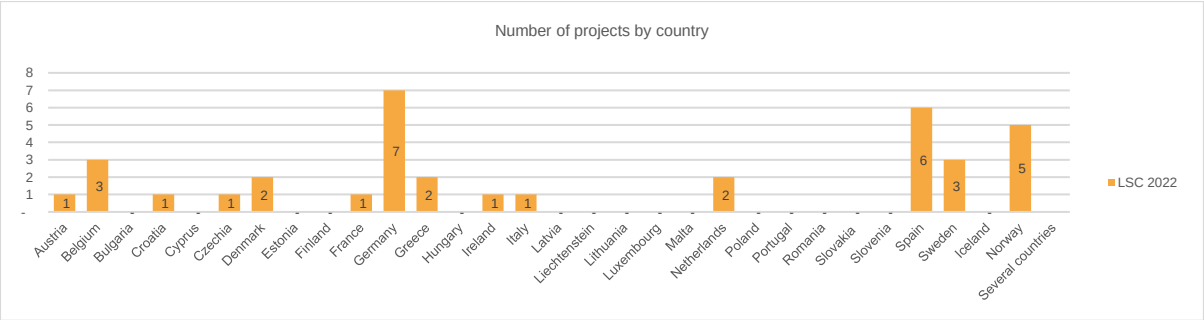
Figure 4: Sectors of awarded projects in LSC 2022

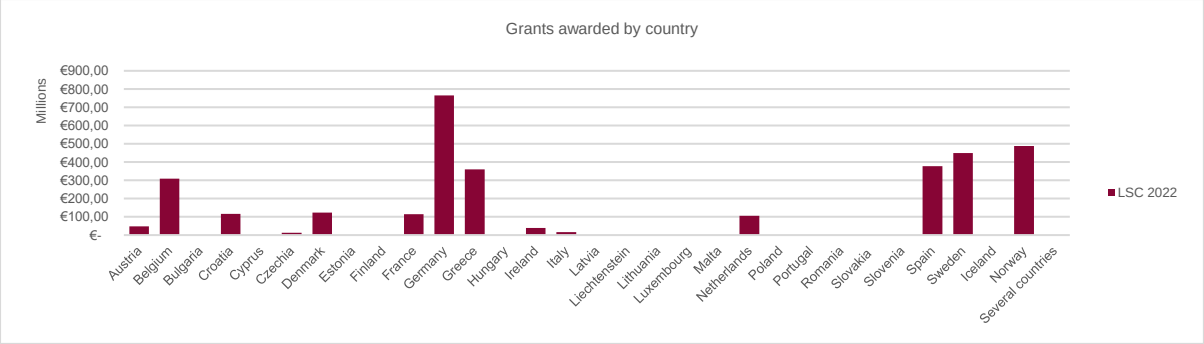




The awarded projects are located in 14 different European countries, most notably Germany (7), Spain (6) and Norway (5).

Figure 5: Geographical spread of awarded projects in LSC 2022



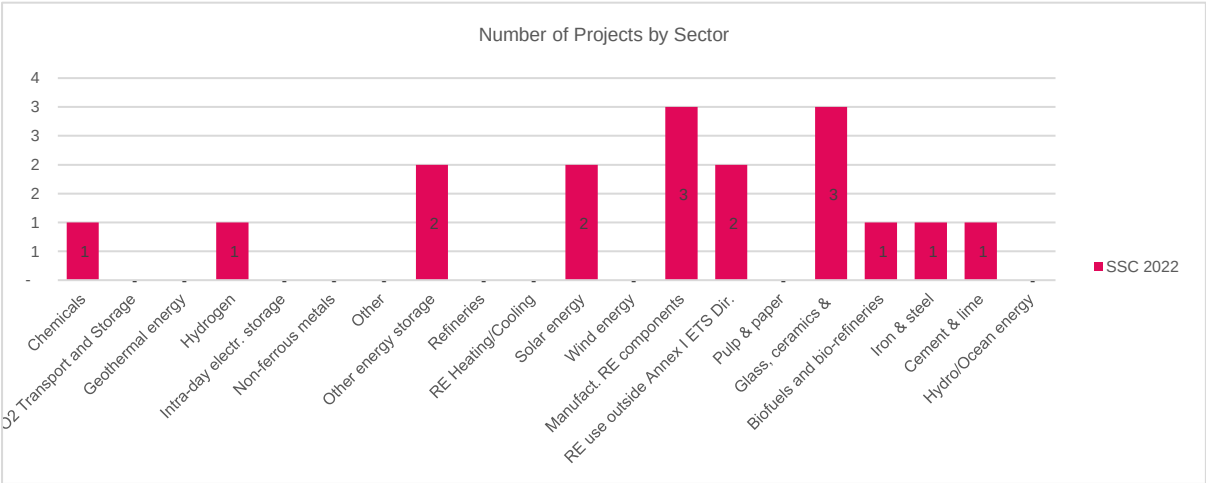


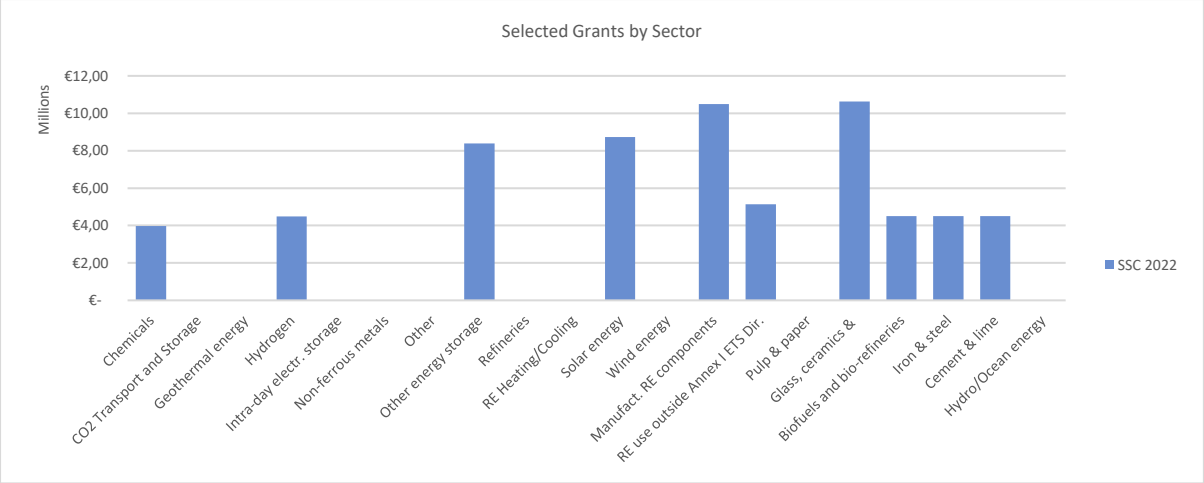
3.2 Launch of the third call for small-scale projects (SSC 2022) and initial selection of proposals

On 30 March 2023 the Commission launched the third small-scale call for proposals, with a budget of EUR 100 million for projects and an estimated CAPEX per project of between EU 2.5 million and EUR 7.5 million.

The 72 proposals submitted in response to this call requested grants totalling EUR 289 million, almost three times the available budget. The [results of the call] were published on 19 December 2023. After evaluation, 17 proposals worth a total of EUR 65.4 million were submitted to the grant agreement preparation process. The selected projects are set to avoid more than 1.8 million tonnes of CO_2-eq emissions within their first decade of operations. The 'renewable energy' (8 projects) and 'energy-intensive industry' (7 projects) categories accounted for the most awards; the 'glass, ceramics and construction material' and 'manufacturing of renewable energy component' categories, with three projects each, were also well represented. This focus mirrors that of the large-scale projects and reflects the different needs in the various sectors in terms of project size.

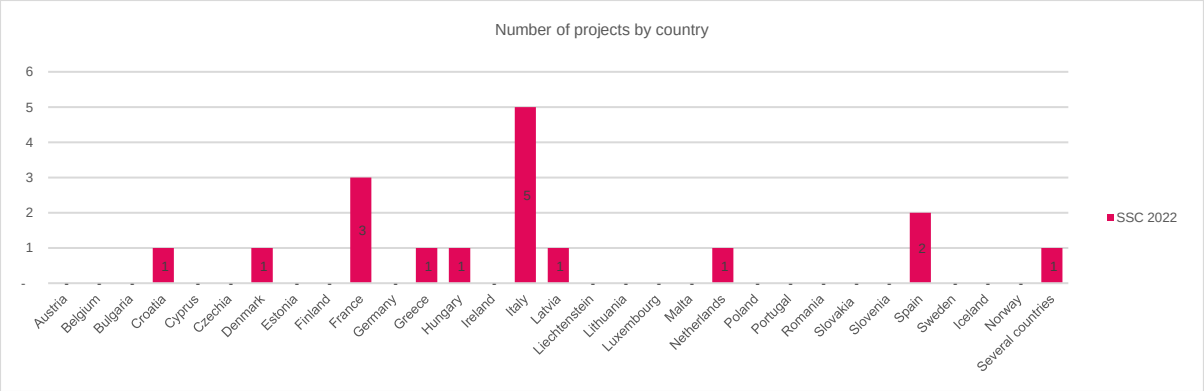
Figure 6: Sectors of selected projects in SSC 2022

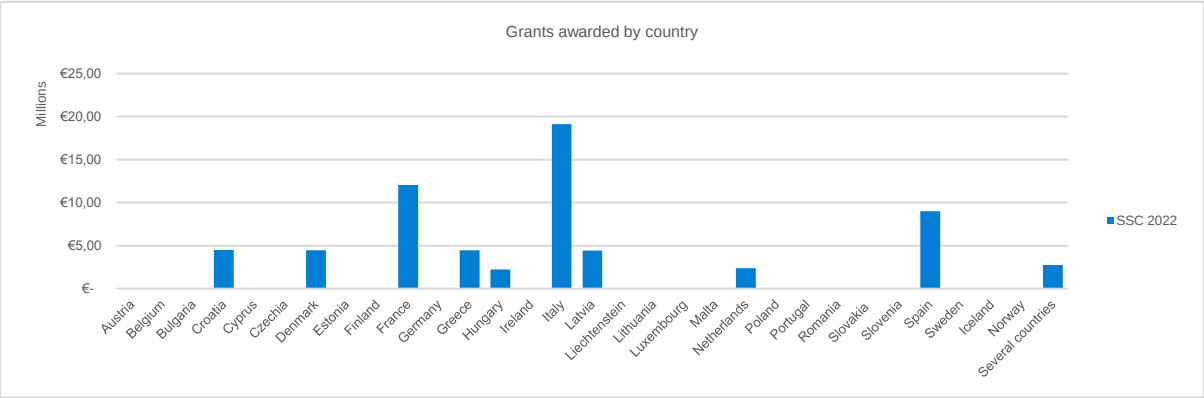




In terms of geographical representation, projects from 23 eligible countries applied for Innovation Fund support under this call, demonstrating a wide geographical spread in terms of support needed to finance clean-tech and EU green industry. After evaluation, projects from 10 different countries were awarded support, with Italy (5) accounting for the most projects.

Figure 7: Countries of selected projects in SSC 2022





As the projects were awarded funding in Q2 2024, further details of the results of this call will feature in the 2024 IF Annual Report.

3.3 Launch of the Innovation Fund call for 2023 (IF23)

The call was launched on 23 November 2023 with a budget of EUR 4 billion to support the deployment of innovative decarbonisation technologies.

This call was the first to combine topics for different project sizes and different themes:

- 'General decarbonisation' (large-scale) – EUR 1.7 billion available for projects with CAPEX of over EUR 100 million.
- 'General decarbonisation' (medium-scale) – EUR 500 million available for projects with CAPEX of between EUR 20 million and EUR 100 million.
- 'General decarbonisation' (small-scale) – EUR 200 million available for projects with CAPEX of between EUR 2.5 million and EUR 20 million.
- 'Clean-tech manufacturing' – EUR 1.4 billion available for projects with CAPEX of over EUR 2.5 million focusing on the manufacturing of components for renewable energy, energy storage, heat pumps and hydrogen production.
- 'Pilot' – EUR 200 million available for projects with CAPEX of over EUR 2.5 million focusing on deep decarbonisation. The pilot projects were considered to offer a higher degree of innovation, as shown in an operational environment, but were not yet expected to demonstrate large-scale commercial production.

The projects were selected on the basis of the following award criteria: potential to reduce greenhouse gas emissions; degree of innovation; maturity; replicability; and cost efficiency. Following the most recent revision of the EU ETS Directive[11], this call was also made open to the maritime, road transport and buildings sectors. The introduction of 'bonus points', for which certain types of projects can qualify, was another new feature.

The call closed on 8 April 2024 and the results are expected to be published by the end of 2024. The results of this call will therefore feature in the 2024 IF Annual Report. For the first time, projects submitted under this call and exceeding the evaluation thresholds will receive a STEP Seal[12].

[11] Directive (EU) 2023/959 of the European Parliament and of the Council of 10 May 2023 amending Directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading within the Union and Decision (EU) 2015/1814 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading system

[12] The EU's new quality label to be awarded to high-quality projects contributing to the objectives of the Strategic Technologies for Europe Platform (STEP). The aim of the STEP Seal is to facilitate access to further opportunities of public and private support for these projects.

3.4 Launch of the pilot[13] auction for renewable fuel of non-biological origin (RFNBO) hydrogen (IF23 auction)

On 23 November 2023, the Commission launched the first-ever auction for the production of RFNBO hydrogen under the Innovation Fund and as part of the European Hydrogen Bank[14] financing instrument. The main objectives of this auction for renewable hydrogen were to: (i) narrow the gap between production costs and demand-side willingness to pay; (ii) support the price discovery mechanism and market formation; (iii) help de-risk projects and mobilise private investment; and (iv) reduce the administrative burden on applicants compared to regular calls for proposals.

The pilot auction had a budget of EUR 800 million and was designed to support producers of RFNBO hydrogen located in the European Economic Area (EEA). Support will take the form of a fixed-premium payment for a maximum 10-year period. Projects will only receive the support upon certified and verified production of renewable hydrogen. The auction closed on 8 February 2024 and 132 bids from 17 different Member States were submitted.

For the first time, the auction deployed an 'auctions-as-a-service' scheme, allowing Member States to support projects in their territories that met the criteria but were not selected by the IF because of budgetary constraints. Germany was the first Member State to apply the 'auctions-as-a-service' scheme by providing an additional EUR 350 million in budget support to German projects.

The results of this call will feature in the IF Annual Report 2024.

3.5 Selection of the first two projects under the EU-Catalyst partnership

In addition to the calls for proposals and the auction for renewable hydrogen, the Innovation Fund supported the EU-Catalyst partnership with a budget of EUR 220 million (in addition to EUR 200 million from Horizon Europe) through a Green Premium top-up of the InvestEU guarantee.

The partnership was launched in 2021 at COP26 in Glasgow by President Ursula von der Leyen, President Werner Hoyer, and Breakthrough Energy Founder Bill Gates. It aims to develop large-scale green tech projects based in Europe and boost investments in critical climate technologies. The partnership is implemented under the Breakthrough Energy Catalyst partnership, which provides equity and grants to the selected projects, and through the European Investment Bank (EIB), which provides quasi-equity/venture debt finance (backed by a green premium top-up InvestEU guarantee), complemented by grants from Horizon

[13] This first auction was considered a 'pilot', with the lessons learnt from it to be implemented in follow-up auctions.

[14] Communication from the commission to the European parliament, the council, the European economic and social committee and the committee of the regions on the European hydrogen bank com/2023/156 final

Europe. This is the Innovation Fund's first experience of funding in synergy with other EU instruments.

During COP28 in December 2023, the partnership announced support for its first two projects:

- Ottana (Energy Dome): Energy Dome has developed the CO_2 battery in Sardinia as part of its long-duration energy storage technology based on liquified CO_2. This project was awarded a EUR 25 million venture debt loan by the EIB, supported by the IF's InvestEU guarantee.
- FlagshipOne (Ørsted)[15]: Located in Sweden and owned by the Danish energy company Ørsted, the project was expected tol use captured biogenic CO_2 and renewable hydrogen to produce some 55 000 tonnes of e-methanol annually for the shipping industry, making it Europe's largest integrated e-methanol production facility.

At the time of publication of this report, a third project, Rondo, which involves power-to-heat technology, had been selected for support under the partnership, while others were also being assessed.

3.6 Project development assistance (PDA)

The IF's PDA programme provides tailor-made support for promising projects, which could not be selected because of their lower degree of maturity, in the form advisory services. PDA seeks to help these unsuccessful projects to mature their project proposals further, thus facilitating potentially successful applications for later IF calls as well as other funding. PDA is implemented by the EIB.

In 2023, the Commission provided PDA for 26 projects, which by the end of the year were either awaiting the signature of the PDA agreement or being implemented. Since the start of the programme, 39 projects have signed a support agreement and 32 PDA assignments have been completed.

The positive impact of PDA became clear in 2023. A project that had applied unsuccessfully for the LSC 2020 call was chosen under the LSC 2022 call, while a further three projects from LSC 2020 were also selected. Similarly, an unsuccessful project from SSC 2021 was selected when it reapplied for SSC 2022.

As well as enabling project owners to improve their proposals with a view to applying successfully to the IF in future, PDA also facilitates access to other funding opportunities. For example, two projects supported by PDA were included in the list of projects of common interest (PCIs), two other projects funded under the Breakthrough Energy Catalyst partnership (including the Ottana project, awarded under the EU-Catalyst partnership) received PDA support from the EIB, and four additional projects received national grant awards or earned recognition.

[15] At the time of this report's publication, Ørsted announced that it would be terminating the project.

3.7 Knowledge-sharing and communication activities

Knowledge-sharing is an essential part of the IF as it supports the replication and faster market penetration of technologies or solutions supported by the IF, making it easier to provide policy feedback.

Throughout 2023, the IF continued to organise thematic knowledge-sharing workshops, facilitating sectoral discussions and exchanges of know-how among the projects receiving IF support. Four knowledge-sharing events were held during the year on: creating a CO_2 transport and storage market together with relevant projects from the Connecting Europe Facility fund (30 March); hydrogen (19 September); energy storage (10 October); and CCS technologies (a closed-door event on 28 November).

On 19 January 2023, the Commission, together with the CINEA, organised the 2023 clean-tech conference under the Innovation Fund. The event attracted policymakers, investors, industry leaders and other stakeholders, who raised awareness among public and private financiers about the many business opportunities the Innovation Fund offers. During the event, there was a total of 120 on-site participants while some 2 000 online participants were connected to the livestream, demonstrating the event's outreach to an array of interested potential stakeholders and applicants.

After calls had been opened, the Commission and the CINEA organised multiple workshops to present the texts of calls, provide guidance on the application process, and answer any questions in relation to the respective calls.

The Commission also organised the regular bi-annual meetings of the IF expert group in 2023 (29 March and 6 October). The aim of these meetings was to gather input from Member States and industry representatives on implementation during the year and the IF's future orientations.

3.8 Synergies with other funding

The IF aims to ensure synergies and compatibilities with other investment support instruments, for example potential upstream synergies between it and the EU framework programme for research and innovation (i.e. Horizon 2020 and Horizon Europe). To foster such synergies, assorted specific efforts were undertaken during 2023.

For instance, several relevant topics in Horizon Europe's 2023-2024 work programme (particularly under clusters 4 and 5) encouraged applicants to include a business-case strategy and a feasibility study in their proposals that could later pave the way for potential future applications to the IF. Furthermore, the 2023 work programme for the fifth cluster included a topic dedicated to supporting five coordination and support actions (CSAs) aimed at promoting synergies between Horizon projects and the Innovation Fund. All five CSAs started in January 2023.

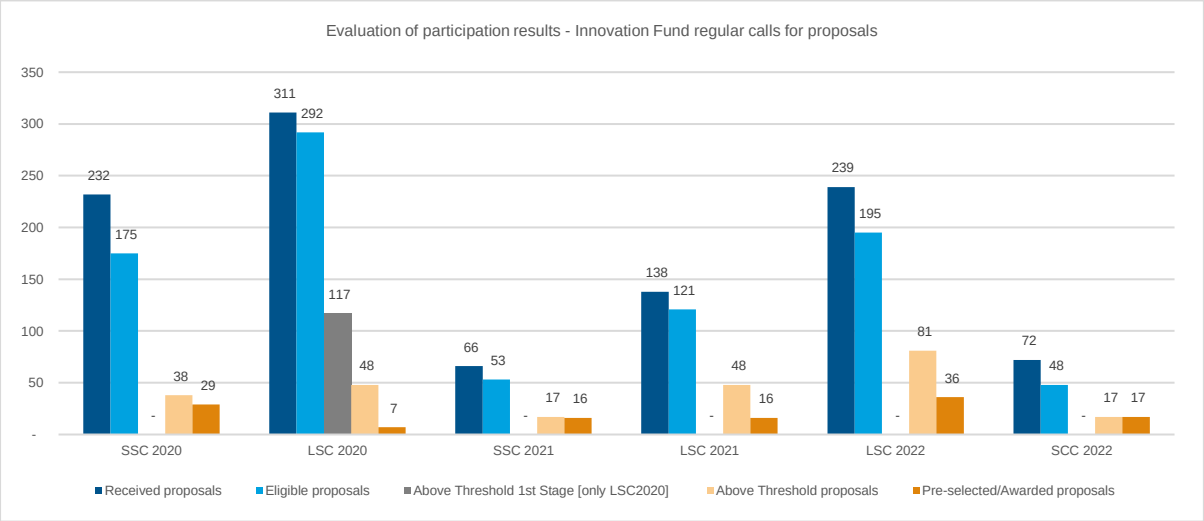
Furthermore, on 8 February 2023 the Innovation Fund organised the European Framework Programme for Research and Innovation (R&I) – Innovation Fund Synergies Workshop, bringing together participants from mature R&I projects funded under EU R&I funding programmes (notably Horizon 2020) to explore funding opportunities under the Innovation Fund in order to deploy their technologies.

4 CUMULATIVE STATUS OF THE INNOVATION FUND BY THE END OF 2023

4.1 Overview of the results of regular calls for proposals

By the end of 2023, the Innovation Fund had already organised seven regular calls for proposals and one competitive bidding procedure. As a result, a total of 104 projects had signed grant agreements worth a maximum total of EUR 3.3 billion, and 17 additional projects had been selected and were in the process of preparing the signature a grant agreement[16]. The calls in question were all oversubscribed when the proposals received are compared with the available budget (on average 12 times over for large-scale projects, or 5.3 times over for small-scale ones). However, the following graph shows that the number of applications submitted for small-scale calls was down on the first call: this could be explained by the relatively low maximum CAPEX threshold of EUR 7.5 million and the fact that projects of this size often benefit from national funding subject to less competition and with easier application procedures.

Figure 8: Evaluation of participation results – Innovation Fund regular calls for proposals

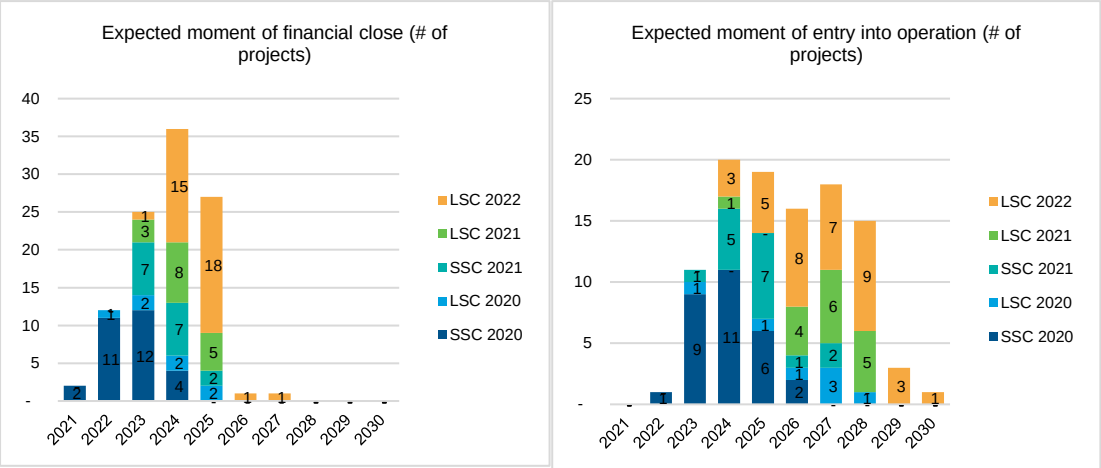


[16] These projects, selected under SCC 2022, were yet to receive their awards by the end of 2023 and will therefore feature in the 2024 IF Annual Report.

4.2 Maturity levels of projects, implementation status and challenges

By the end of 2023, a total of 39 projects in the IF's portfolio had reached financial close and 12 had already started operations. On average, large-scale projects plan to reach financial close within 20 months of signing the grant agreement (well within the mandatory four-year limit referred to in Article 11(1), letter c) of the IF Delegated Regulation) and start operations within 49 months. For small-scale projects, the respective averages are 15 and 31 months. By the end of 2023, the Innovation Fund had disbursed a total of EUR 120.9 million grant to projects.

Figure 9: Maturity levels of projects in the IF's portfolio by the end of 2023



Despite the notable maturity and quality of the projects selected, developing innovative technologies entails certain risks that sometimes materialise during implementation. This can lead to the grant agreement being amended or to a project being terminated.

Since its foundation, the IF has amended 45 grant agreements. Almost 30% of cases have incurred schedule delays caused by supply-chain disruptions. Other common reasons leading to amendments delays in permitting, changes affecting a project's consortium, challenges in securing funding, and revisions of non-substantial financial or technical aspects.

In 2023, grant agreements were terminated for just two projects[17]:

- BIOZIN (selected under LSC 2020, terminated in July 2023). The project had aimed to develop the first drop-in biofuel plant on a commercial scale, using Shell's proprietary Integrated Hydropyrolysis and Hydroconversion (IH2). The developer changed its business priorities after re-assessing the technology.
- BCP (selected under SSC 2020, terminated in November 2023). The project had aimed to recover and reuse waste heat from furnace fumes in the float glass production

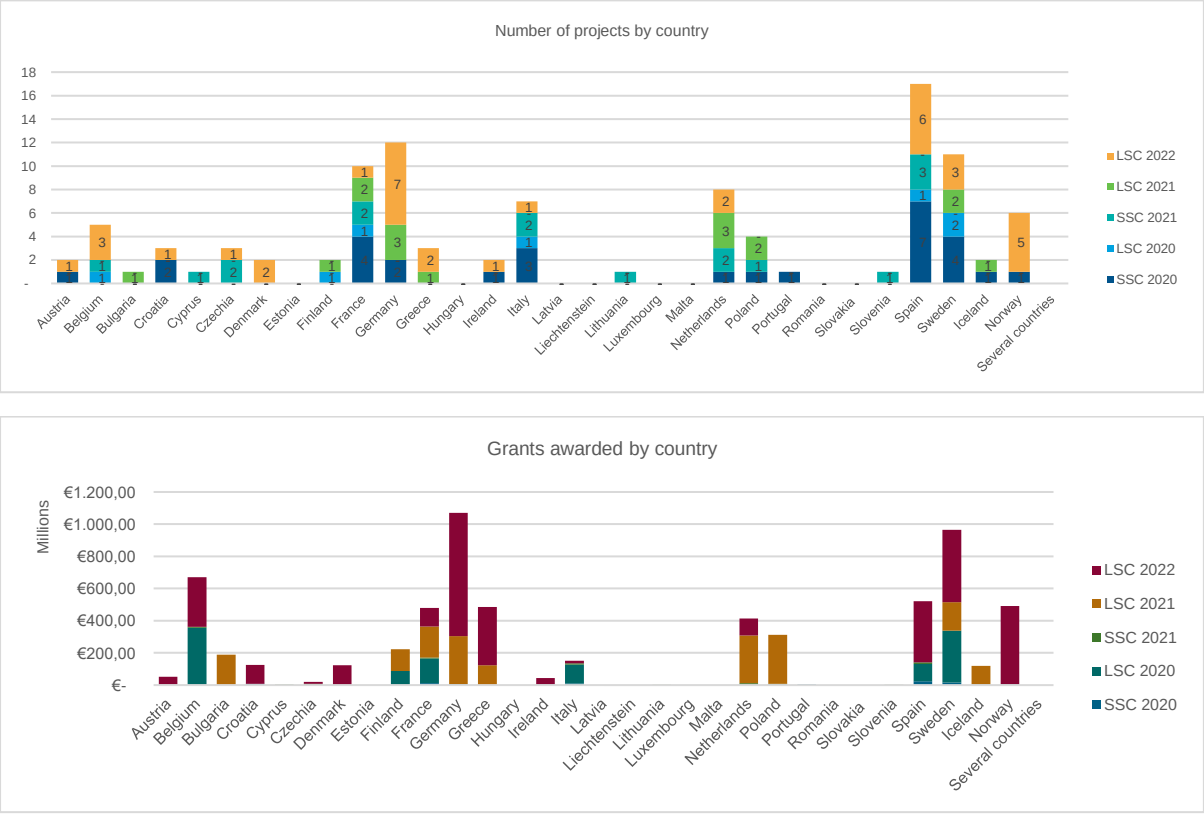
[17] In both cases, no disbursement had taken place at the moment of termination. Non-disbursed funds will accrue back to the budget of the Innovation Fund.

process. The project failed to overcome uncertainty in terms of where the plants would ultimately be located.

4.3 Geographical spread

55% of the projects are located in five countries: Spain (17), Sweden (11), Germany (12), France (10), and the Netherlands (8). However, the share in terms of grants awarded paints a different picture, with German projects receiving the most funds (EUR 1.07 billion), followed by Sweden (EUR 964 million) and Belgium (EUR 670.7 million). The number of projects in the portfolio from eastern and central Europe remains comparatively low.

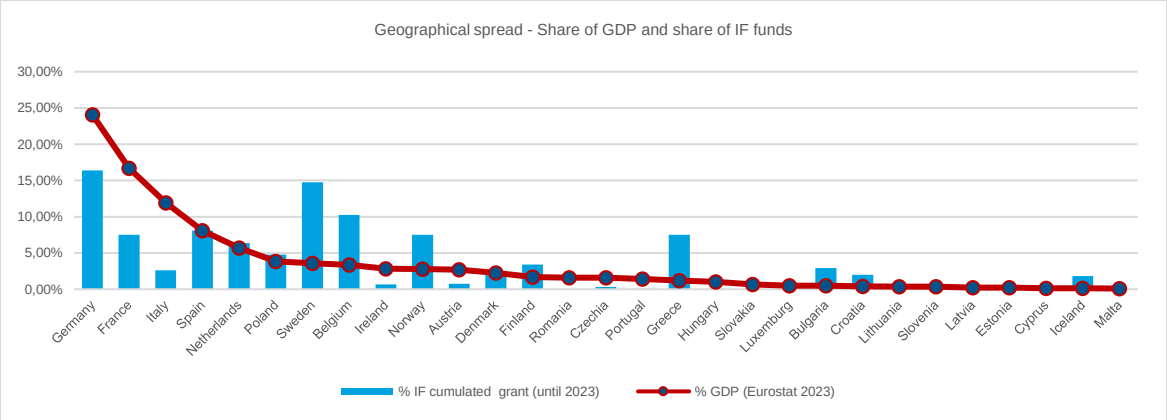
Figure 10: Geographical spread of projects in the IF portfolio[18]

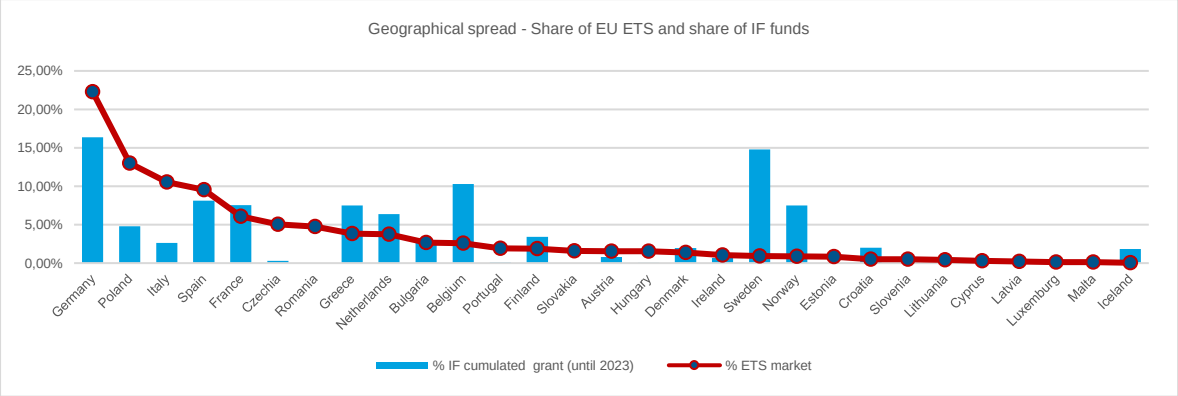


The geographical spread of IF funding can also be compared in terms of weighted GDP and EU ETS market share in each of the countries. From these standpoints, countries like Germany, Italy, Ireland and Austria can still be regarded as underrepresented in terms of the amount of funding awarded within their territory.

[18] Only projects with signed grant agreements (by the end of 2023, projects selected under SSC 2022 were yet to sign their grant agreements).

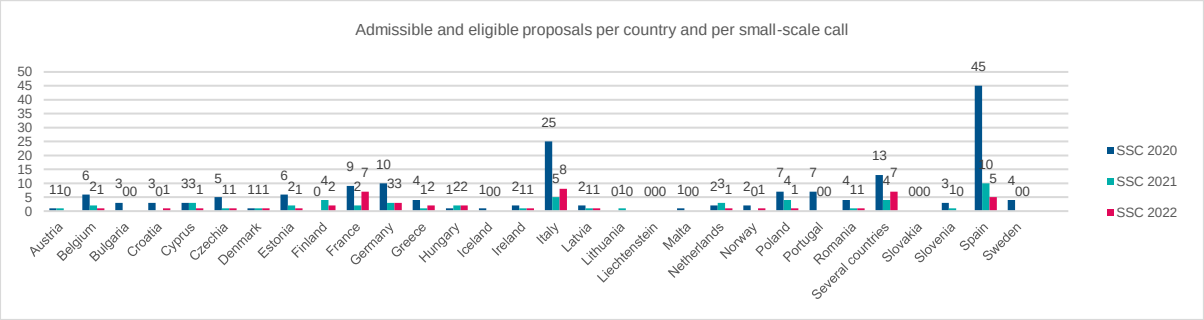
Figure 11: Comparison between grants awarded per country and each country's share of European GDP and EU ETS

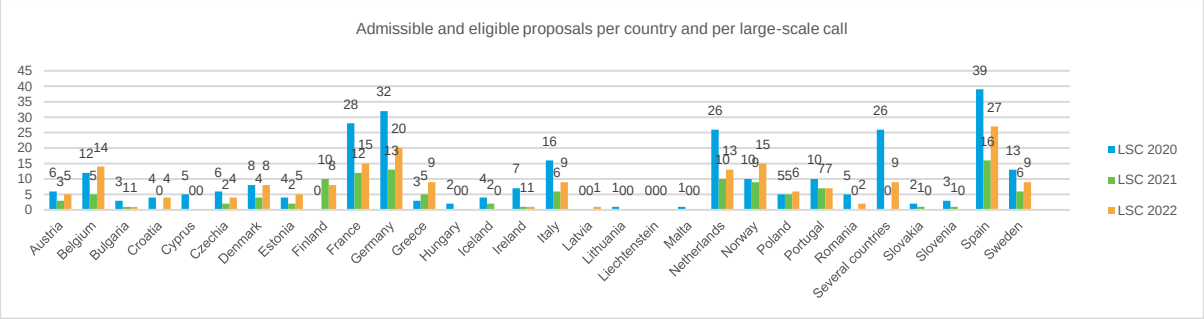




Although the effective geographical participation in the IF it is being closely monitored, it is too early to draw conclusions about how geographically balanced implementation has been. In 2023, LSC 2022 awarded six large-scale projects in five new countries (Austria, Croatia, Czechia, Denmark, Ireland) and SSC 2022 selected the first small-scale projects in Denmark, Greece, Hungary and Latvia.

Figure 12: Admissible and eligible proposals received per country and call





However, to address the fact that some Member States have fewer applications and awarded projects (as shown in the above graph), the IF is promoting several initiatives to help Member States increase the quality of project applications and thus improve the geographical balance. These include PDA, dedicated technical assistance to Member States with low effective participation, and dedicated training sessions for national contact points (NCPs).

The Innovation Fund is offering PDA combined with training sessions for NCPs to help achieve a geographical balance across Europe. However, as shown in the graph above, achieving this goal has proved challenging in terms of applications received and awarded projects. The Innovation Fund's Delegated Regulation was therefore revised to include technical assistance for Member States with low effective participation. This aims to strengthen the capacities of specific Member States to support project applicants within their territories through a needs assessment and by implementing solutions to fill gaps.

4.4 Sectors supported

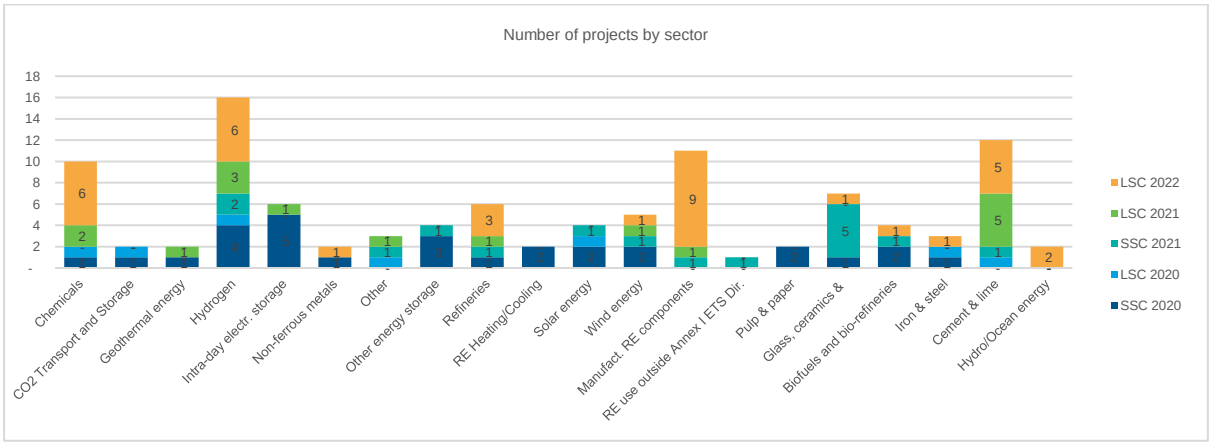
The Innovation Fund places the projects in its portfolio into four main categories: (i) carbon capture and geological storage (CCS); (ii) energy-intensive industries (EII); (iii) energy storage (ES); and (iv) renewable energy (RES). Projects can also be classified in a fifth hybrid category in cases where they combine carbon capture technologies and industrial decarbonisation activities. By the end of 2023, most projects supported were classified as EII, with 59 projects representing 53% of total grants awarded.

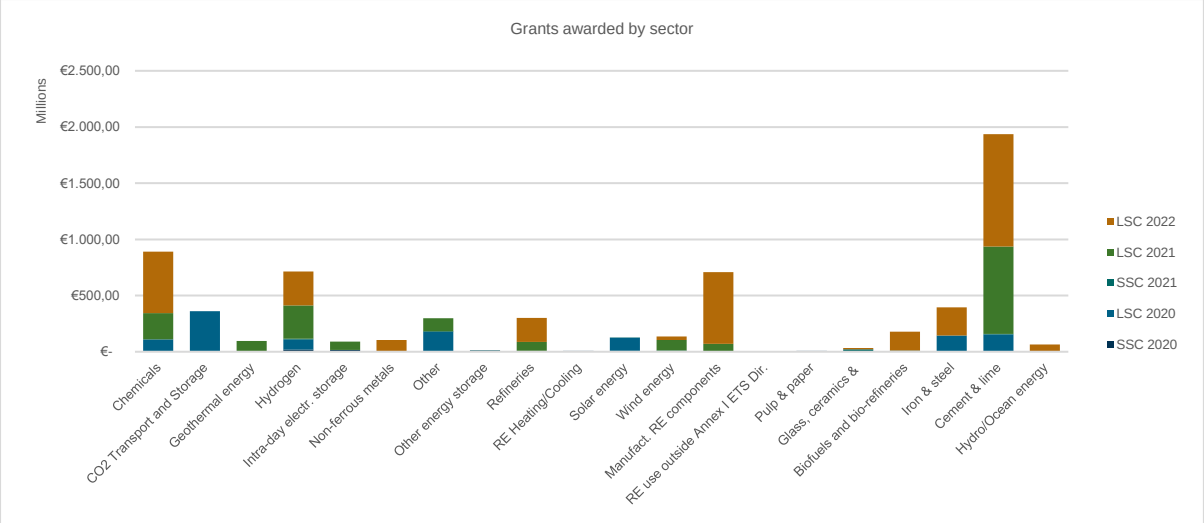
Figure 13: Categories of awarded projects



The sectors with the largest number of projects in the IF's portfolio are: hydrogen (16), cement & lime (12), manufacturing of RE components (11), and chemicals (10). The most funding support (EUR 1.9 billion) has been awarded to the cement & lime sector, which is funding-intensive owing to its continued heavy reliance on CCS technologies in order to decarbonise.

Figure 14: Sectors of the awarded projects

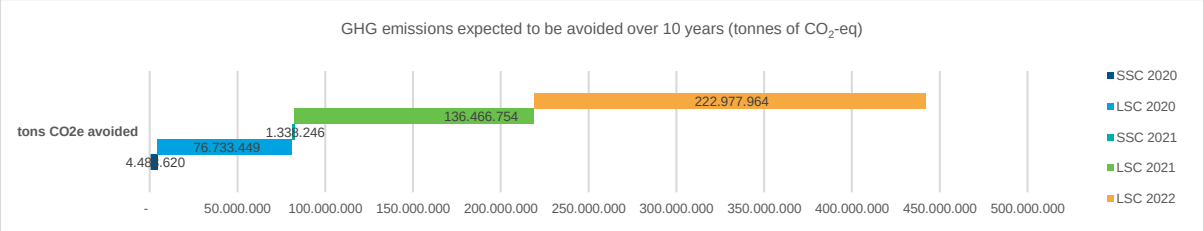




4.5 Greenhouse gas (GHG) emissions avoided

The 104 projects in the Innovation Fund's 2023 portfolio are expected to avoid a total of 442 million tonnes of CO_2-eq during their first decade of operations, representing an average of EUR 68 of grant funding per kg of CO_2-eq avoided.

Figure 15: Emissions expected to be avoided during the first decade of operations



5 CONCLUSIONS

The IF has become a key instrument for achieving EU climate neutrality by 2050, supporting the net-zero ambition, developing innovative technologies and achieving EU policy objectives. By the end of 2023, the 104 projects awarded IF grant support worth almost EUR 6.5 billion across 20 sectors were expected to avoid 442 million tonnes of CO_2-eq during their first decade of operations. For reference, this is approximately 14% of the EU's total GHG emissions in 2022.

The IF's large-scale project calls are consistently oversubscribed both in terms of the number of proposals received and those that are positively evaluated (on average, 3.25 times oversubscribed for the latter). This demonstrates the strong interest in the Fund on the European market and ensures high levels of competition among projects. However, it also shows that this type of funding is very much needed at EU level to speed up the green transition. LSC 2022 has also been a success, receiving 239 applications, 81 of them above the minimum evaluation thresholds, and 36 ultimately awarded. Organising this call in four different topics proved positive in terms of instilling competition between peer projects, and it was therefore replicated in the IF23 call, where all four topics were again oversubscribed.

Interest in small-scale calls, however, has been lower than expected. This could be explained by the low ceiling for maximum CAPEX of EUR 7.5 million as projects of this size often have access to national funding subject to less competition and with easier application procedures. For that reason, IF23 was designed to include topics for three sizes of project (large, medium, small), with the 'small' ceiling size increased to CAPEX of EUR 20 million.

In 2023, the Innovation Fund successfully implemented new allocation mechanisms and was able to deploy, in record time, a competitive bidding procedure to support RFNBO hydrogen producers in the EEA, combined with the possibility for Member States to pool additional resources through the 'auctions-as-a-service' scheme, thereby facilitating clearance for state aids. The Innovation Fund is also contributing to the blending of funding with other EU instruments through the EU -Catalyst partnership, enabling certain projects to receive EIB venture debt financing under the InvestEU programme.

Furthermore, under the 2022 calls for proposals the Innovation Fund steadily improved its geographical balance by awarding projects in a number of new countries for the first time. The Innovation Fund's Delegated Regulation was also amended to include technical assistance for Member States with low effective participation. In order to strengthen the capacities of specific Member States to support project applicants within their territories through a needs assessment and by implementing solutions to fill gaps.

The PDA programme implemented by the EIB came on stream in 2021. By the end of 2023 it was still helping 17 projects to fine-tune their design and leave them mature enough to apply for and obtain funding. As a result, five resubmitted projects improved their outcomes and were selected for IF funding.

Throughout the year, the IF delivered on its knowledge-sharing and capacity-building commitments by: pursuing synergies with other EU funding sources; organising information days for its calls and knowledge-sharing events between its supported projects and main sectoral stakeholders; and deploying accessible information tools to facilitate new applications. The IF also simplified its application procedures. In 2023, the methodology for calculating 'relevant costs' was simplified by reducing the number of available methodologies from three to two (withdrawal of 'levelised cost') and making the 'no reference plant' the default methodology. The development of auctions during 2023 also helped to implement award mechanisms that place a smaller administrative burden on applicants.

The Innovation Fund is continuing its work in 2024 by awarding the IF23 call and through the IF23 auction; and it is also developing 'auctions-as-a-service' schemes that can help leverage additional Member States' budgets for its instruments. The Fund will continue to serve as a key instrument in response to urgent policy needs while facilitating applications by simplifying and speeding up the deployment of funds.