



Guidelines and approaches for using funding in line with technological developments

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Executive summary

Huge investment in innovation and breakthrough technologies are crucial if the European steel industry is to meet EU climate and energy targets, boost its competitiveness and give stakeholders a ‘first-mover’ advantage on the global scene.

This report provides **guidelines to EU and national policymakers and industry players** on how to harness existing and forthcoming funding opportunities to decarbonise the EU steel industry and achieve the EU energy and climate targets. The guidelines are developed based on the main findings of the report on Funding Opportunities to Decarbonise the EU Steel Industry¹.

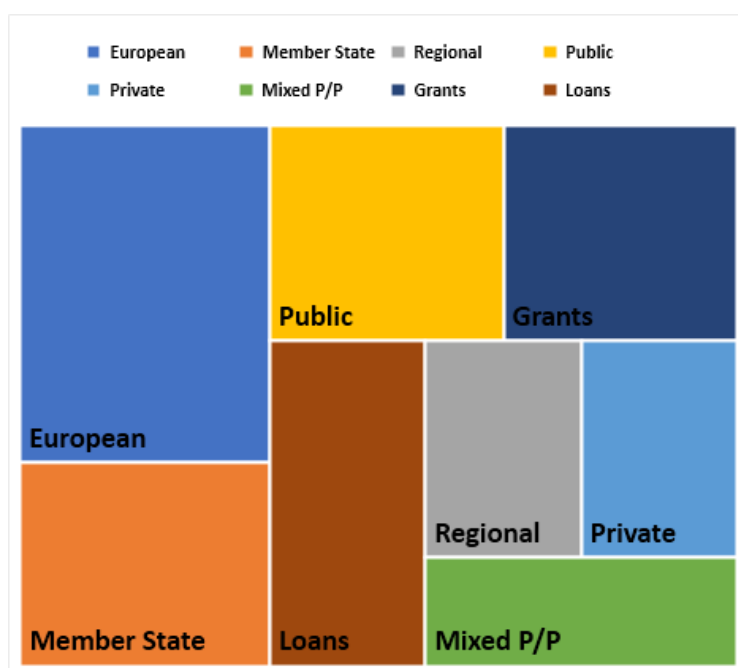
D2.4 finds that the financial support relevant to the steel sector consists of **25 EU programmes** (19 public and 6 private), **24 private funding opportunities** (mainly from banks, including both conventional instruments and green bonds; 13 with specific tables) and **81 national and regional instruments** (from 11 countries). All the main relevant financial instruments are analysed based on the information currently available, including blending and sequencing options, to enable a global view of funding to reach the 2050 European zero greenhouse gases (GHG) emission target. Findings of the Funding Opportunities to Decarbonise the EU Steel Industry report and the Investment Needs report² also show that the support ensured by the **funding programmes dedicated to the investment needs of the EU steel industry is currently not sufficient**. Considering the significance and key role of the European emissions reduction target for future generations and the high impact of the steel industry on overall CO₂ emissions, an enormous effort is required from steel stakeholders.

To achieve the challenging CO₂ reduction objectives, a strong collaboration and joint commitment of the private and public sector are needed at EU, national and regional level (see Figure 1).

¹ Deliverable D2.4 of the ‘Green Steel for Europe project’- GREENSTEEL

² Deliverable D2.2 of GREENSTEEL

Figure 1 - Main funding elements of the blending framework



Source: authors' own compilation.

At **European level**, the following synergies of funding programmes are suggested:

- Combining Research Fund for Coal and Steel (RFCS) and Horizon Europe (HEU). To better achieve the synergies at European level, three options could be considered:
 - Combining HEU and RFCS funds and assets under the same Clean Steel Partnership (CSP) call for proposals (the so-called 'one-stop shop approach') to ensure synergies at European level;
 - Presenting the call as a single package (the so-called 'single package approach'); and
 - Publishing at least (RFCS and HEU) CSP calls with the same deadline.
- Combining RFCS and HEU with the Innovation Fund (IF):
 - HEU and IF: HEU can support innovation up to the pilot phase and IF can support innovation in the demonstration and scale-up phases;
 - RFCS and IF: RFCS can support innovation for the research phase and up to the pilot and demonstration phase, and IF can support innovation for the scale-up phase.
- Combining RFCS and HEU with LIFE program:
 - HEU and LIFE: the EU is now working to provide more support through the LIFE Climate Action financial instrument to have a basis for a larger number of projects.
 - RFCS and LIFE: the LIFE Climate Action sub-programme supports projects to develop innovative ways to respond to the challenges of climate change in Europe. In particular, one of the main objectives of the sub-programme is to contribute to the shift towards a low-carbon and climate-resilient economy. Importantly, this objective can be reached through synergies with the RFCS.
- Combining RFCS and HEU with IPCEI:

- Member states, the EU steel industry and other actors (under the supervision of the CSP) could explore the possibility to table a proposal for setting up an IPCEI on Green Steel. This IPCEI would create a legal framework allowing the combination of EU, national, regional and private funding in compliance with state aid rules.
- In this respect, the European Commission may consider an ‘integrated project’, i.e. a group of single projects inserted in a common roadmap or programme aiming at the same objective and based on a coherent systemic approach. The individual components of the integrated project may relate to separate levels of the supply chain but must be complementary and necessary for the achievement of the important European objective.
- Combining HEU with ESIF:
 - Over the next budget cycle, the Cohesion Fund and the structural funds aim at supporting the green transition. In this respect, the combination of funding among HEU and ESIF for ambitious industrial projects is especially concerning. In this report an extensive analysis of this two instruments’ combination, an overview of the differences between H2020 and structural funds and finally, on the practical side, a real industrial case of combination between ESIF and EIB loans are presented.

Synergies and blending of funding program at national and regional level is also necessary to achieve the abovementioned objectives. Current national and regional instruments are often insufficiently coordinated in terms of their scope, timeline and funding availability. Since there are potentially €800 M available from national and regional instruments to support the CO₂ emissions reduction in the steel sector for the period 2021-22³ in the 11 EU countries considered, full knowledge of those instruments is needed to create synergies with the EU instruments. In this case, the general aim is to establish formal and informal mechanisms of cooperation with member states to create additional synergies with national and regional policies and programmes.

Finally, **synergies at project level** can be achieved through a combination of:

- funding related to the same project idea;
- inter-related or successive projects,
- parallel projects;
- projects at different Technology Readiness Levels (example of ‘vertical’ synergies in Table 1).

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Table 1 - Synergies among projects in terms of Technology Readiness Level (TRL)

TRL	Funding instrument
TRL 1 – Basic principles observed	HEU, RFCS, regional funds
TRL 2 – Technology concept formulated	HEU, RFCS, regional funds
TRL 3 – Experimental proof of concept	HEU, RFCS, regional funds
TRL 4 – Technology validated in lab	HEU, RFCS, regional funds
TRL 5 – Technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)	HEU, RFCS, IF
TRL 6 – Technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)	HEU, RFCS, IF
TRL 7 – System prototype demonstration in operational environment	HEU, RFCS, IF
TRL 8 – System complete and qualified	HEU, InvestEU
TRL 9 – Actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies)	HEU, InvestEU

Source: authors' own compilation.

From the analysis of private instruments at European, national and regional level, including banking instruments, several **possible synergies between public and private** sectors have emerged:

- involvement of public and private investors to increase the total amount of financing available to projects as compared to support through grants only;
- greater and more extensive support to beneficiaries that may not be supported by a single grant at EU or national level, also considering state aid rules;
- risk reduction and bridging over the 'innovation valley of death'; and
- higher alignment of company interests and the successful outcome of the project.

Several possible blending scenarios are shown in Table 2.

Finally, Table 3 evidences in a comprehensive way the possible synergies existing between the main European funding programmes, national and regional funding opportunities. While at European level the various programmatic resources can generally be combined (left side of the table), synergies between EU and national/regional instruments are generally not allowed, except for a small number of cases (right side of the table).

Besides suggestion for synergies of funding, the report also presents several '**success stories**' - examples of funding instruments used by steel companies to support their decarbonisation technologies. Several examples of funding instruments used by the steel sector are EIB's loan to Arcelor Mittal, Marcegaglia Group and Aperam; EIB, H2020 and national instrument's financing and guarantee for Salzgitter AG; and the Swedish Energy Agency's funding support for SSAB, LKAB and Vattenfall.

As a final comment, to reach the 2050 climate objectives, private and public funding must join forces within a consistent and coordinated framework. The steel industry and other stakeholders will need to cooperate to overcome the technological and economic challenges regarding the implementation of CO₂-low production technologies.


Table 2 - R&D&I funding instruments – Blending

HEU	CSP	P4P	Clean Hydrogen for Europe	RFCS	Innovation Fund	LIFE	EGDIP calls	JTF	Erasmus+	ERA-NET	IPCEI	Recovery Plan	EIB	EBRD	InnovFin	InvestEU	Austria	Belgium	Finland	France	Germany	Italy	Luxembourg	Netherlands	Poland	Spain	Sweden
HEU	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
CSP	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
P4P	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Clean Hydrogen for Europe	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
RFCS	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Innovation Fund	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
LIFE	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
EGDIP calls	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
JTF	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Erasmus+	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
ERA-NET	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
IPCEI	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Recovery Plan	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
EIB	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
EBRD	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
InnovFin	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
InvestEU	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Private Banks	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red



Source: authors' own composition. Note: green: the project size is within the scope of the instrument; red: the project size is outside the scope of the instrument; and yellow: the instrument is still under discussion. More details in the Report.

Table 3 - Main financial instruments available to the steel sector by project size

	Project with funding <7.5 M€	Project funding between 7.5 and 100 M€	Project funding between 100-250 M€	Projects with funding > 250 M€
Horizon Europe (HEU) and related relevant PPPs (P4P, Clean Hydrogen)*	Pillar 2 calls to be published at the beginning of 2021.			
Clean Steel Partnership (CSP)	Expected calls in April/May 2021;			
Research Fund for Coal and Steel (RFCS)	Usual call every year; Average project dimension 1.5 M€ funding.			
Innovation Fund (IF)	IF small-scale instrument (no calls currently open. Calls expected to be launched on beginning 2021).	<ul style="list-style-type: none"> - Budget up to 150 M€ - Calls published on 3rd of July 2020. Deadline 29th October - At least 7.5 M€ CAPEX. - A single legal entity, as well as consortium, can apply. - Breakthrough projects; it is funded the innovation gap respect to conventional plant. - Maximum grant 60% of the relevant costs. - Payments against GHG emissions avoidance. - Cost incurred prior of the signature of the GA are not included in the calculation of the relevant cost. - IF grant is not considered to be State aid - A project that has received the IF support may also receive a contribution from any other Union programme. 		

European Green Deal (EGD) Calls	CSA projects starts from 2 M€	Topic Area 3 (of interest of the Steel Sector). Work Programme available. 10 -40 M€ project dimension. Deadline on January 2021	
InvestEU	The InvestEU Fund is expected to mobilise more than 372 B€ of public and private investment through an EU budget guarantee of 26,2 B€ that backs the investment of financial partners such as the EIB Group and others.		
Important Projects of Common European Interest (IPCEI)	<ul style="list-style-type: none"> - Two types of IPCEI actions interesting for the GREENSTEEL project: <ul style="list-style-type: none"> 1. IPCEI - Hydrogen for climate action 2. IPCEI – Low carbon industries (still in preparation) - Currently the maximum amount for a single MS, based on the two already active IPCEI (Microelectronics and Batteries), amount to 400 M€. - Funding up to 100% of the relevant cost, even if industry co-financing is highly expected. - IPCEI follows the State aid rules (2014/C 188/02). 		
National and Regional	Considering the wide variety of rules, these instruments have to be specifically verified on a case-by-case base.		
EIB		Loans > 25M€, e.g. InnovFin Energy Demonstration Projects up to 75M€	No defined upper limit
ERBD	Loans available in the range 3-250 M€ (average amount €25 M). Full details are negotiated with the client on a case-by-case basis-		
Banks	Conventional instruments and green bonds		

Source: authors' own composition. Note: green = funding available; yellow = funding rules under definition; red = funding not available.

*Links to the programs and relevant detailed info on the project website <https://www.estep.eu/green-steel-for-europe/> .