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**SIDERWIN**

**Deliverable:**

**D8.2.2**

**Title:**

**Master Dissemination and Communication Plan and Updates**

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## D8.2.2 Master Dissemination and Communication Plan and Updates

### Status

Final

In Progress. Please explain:  Iterative Process – This year’s results have been 100% achieved.

Delay – This year’s results were not fully achieved.

### Tracking Changes

First Draft	0.1	First Draft (M36) by Tecnalia
Second Draft	0.2	Integration of partner’s feedback
Initial Version	1.0	Issue to EC (M36)

### Level of Dissemination

Confidential

Public

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### Executive summary

This document is a deliverable of WP8 of the European Commission funded project SIDERWIN (Grant Agreement no. 768788, under the H2020 framework and the SPIRE initiative) and presents the second release of deliverable D8.2 “Master Dissemination and Communication Plan and Updates”.

The deliverable D.8.2.2 includes an overview of the dissemination activities carried out during the last 18 months of the project life and the action plan for the next reporting period. It is associated with Task 8.1 Communication and dissemination actions, and it is under the responsibility of TECNALIA.

The deliverable aims at describing the update of the Dissemination and Communication Plan of SIDERWIN project. The plan will serve to disseminate and outreach the project results. The dissemination activities are mostly focused on the description of the project’s goals, the explanation of how it is planned to attain them, the forecast results and expected benefits.

The proper dissemination and communication are keys in order to ensure the maximum impact of the SIDERWIN project. The main goal of the planned dissemination activities is to increase the visibility of SIDERWIN on selected communities and target groups, at both European and International level, to promote the implementation and use of the project results (exploitation), always considering confidentiality and IPR protection aspects. All partners of the consortium will contribute to the SIDERWIN dissemination, according to their foreseen role and effort, and using all available tools and channels.

This deliverable outlines the SIDERWIN dissemination strategy in terms of identification and description of the dissemination key elements:

- the objectives of the dissemination (why, mission & vision).
- the subjects of the dissemination (what will be disseminated).
- the target audience (to whom it will be disseminated).
- the timing (when the dissemination will take place).
- the dissemination tools and channels (how to reach the target audience).
- the responsible for the dissemination (who will perform the dissemination).
- the rules for performing the dissemination activities.
- the way to evaluate and assess the impact of the dissemination activities.

It must be underlined that, this deliverable is based on the second release of D8.2.1 (M18), that has been updated to cover the activities carried out during the last 18 months of the project. This deliverable will also be updated in M48. Therefore, the action framed in this plan is a dynamic one, which requires a continuous supervision carried out by the Dissemination and Exploitation Work package leader.

### 1 Introduction

European Union countries have agreed on a 2030 Framework for climate and energy, including EU-wide targets and policy objectives for the period between 2020 and 2030. These targets aim to help the EU achieve a more competitive, secure and sustainable energy system and to meet its long-term 2050 greenhouse gas (GHG) reductions target [1].

The targets established for 2030 are:

- a 40% cut in GHG emissions compared to 1990 levels.
- at least a 27% share of renewable energy consumption.
- at least 27% energy savings compared with the business-as-usual scenario.

Nowadays, there are no economically feasible steelmaking technologies available having the potential to meet the EU's climate and energy targets for 2030. At best, a 15% decrease in the overall CO<sub>2</sub> intensity of the sector could be achieved throughout the widespread dissemination of technologies that could reasonably become cost-effective in the future. Therefore, breakthrough technologies are urgent and indispensable.

With this in mind, SIDERWIN project proposes to develop a breakthrough innovation compared to the actual steel production process bringing together steel making with electrochemical process. The electrolysis process using renewable energies will transform any iron oxide, including those inside the by-products from other metallurgies, into steel plates with a significant reduction of energy use. This process decomposes under mild conditions but at intense reaction rate naturally occurring iron oxides, such as hematite, into iron metal and oxygen gas. By offering a low CO<sub>2</sub> emissions steel production process, the project will contribute to the reduction of the total greenhouse gas (GHG) emissions.

The technology developed within the framework of SIDERWIN project can provide *environmental benefits* to reach the targets established by the EU, compared to traditional steelmaking plants, such as:

- a reduction by 87% of the direct CO<sub>2</sub> emissions.
- a reduction by 31% of the direct energy use.
- the ability to produce steel from by-products rich in iron oxides from non-ferrous metallurgy residues.
- an increased integration with renewable energies with a more flexible process.
- oxygen as by-product.

SIDERWIN project is focused on:

- the development of an electrochemical processing route for primary steel production.
- an industrially feasible new processing route.
- an iron metal production from renewable energy.
- raw material efficiency during steel production.
- close to market research.

Dissemination and communication of project results (both within and beyond the project's own community) are key activities in order to ensure the maximum impact of the SIDERWIN project and facilitate the exploitation activities.

## D8.2.2 Master Dissemination and Communication Plan and Updates

This document is organised in the following sections:

- Section 1: introduces the main goals and features of the project.
- Section 2: contains the information about the scope and objectives of this deliverable.
- Section 3: presents the Dissemination and Communication Plan, illustrating the objectives of the dissemination and the main elements of the dissemination strategy (subject, timing, target audience, tools and channels and the dissemination management policy).
- Section 4: presents the activities carried out during the last 18 months of the project (M19 - M36).
- Section 5: presents the activities planned for next reporting period (M37 – M48).
- Section 6: presents the conclusions of the document.
- Annex I: presents the Technological Platforms and Associations with involvement of SIDERWIN partners.
- Annex II: presents some screenshots of first SIDERWIN animation videos.
- Annex III: includes the 4 issues of the Newsletter.

## 2 Scope and objectives of this deliverable

This document is the deliverable D8.2.2 of WP8 of the SIDERWIN project and it is associated to Task 8.1. Communication and Dissemination actions. The scope of this document is to present the third release of the dissemination and communication plan for the SIDERWIN project, including the activities carried out during the last 18 months of the project, the formulation of the SIDERWIN dissemination strategy and the action plan focused on the next 12 months of the project (M37 – M48).

A new release of the deliverable (D8.2.3) shall be elaborated and published at M48, including a detailed report of the dissemination and communication activities performed during preceding 12 months and the action plan for the next reporting period. If needed, it will also be included an update of the dissemination strategy in accordance with the findings gained during the preceding months of the project.

Finally, at the end of the project (M60), a survey of the dissemination and communication activities carried out along the whole project lifetime will be elaborated and published (deliverable D8.6 “Dissemination and communication actions survey”).

This plan represents the strategic vision of the Consortium in terms of the dissemination of the SIDERWIN project itself and of its achievements and outputs as well. The main objective of the planned dissemination activities is to increase the visibility of SIDERWIN on selected communities and target groups, at both European and International level, in order to ensure the maximum impact of the project and to promote the exploitation of the project results.

This deliverable outlines the SIDERWIN dissemination strategy in terms of identification and description of the dissemination key elements:

- the objectives of the dissemination (mission, vision).
- the subjects of the dissemination (what will be disseminated).
- the timing of the dissemination (when dissemination will take place).
- the target audience (to whom it will be disseminated).
- the dissemination tools and channels (how it will be disseminated).
- the responsible for the dissemination (who will perform the dissemination).
- the rules for performing the dissemination activities.
- the way to evaluate and assess the impact of the dissemination activities.

It also includes a description of the actions carried out during the last 18 months of the project (M19 – M36) and the activities planned for the next 12 months.



### 3 Dissemination and Communication Plan

#### 3.1 Dissemination goal and strategy

The final goal of the dissemination and communication activities is to promote the SIDERWIN project and spread the SIDERWIN's results to the largest possible concerned audience (at the national, European and international level) in order to encourage the implementation and use of the project results (exploitation), always taking into account the confidentiality and IPR protection aspects.

In more detail, the objectives of the dissemination are:

- to raise public awareness about the project, its expected results and progress within defined target groups,
- to disseminate the fundamental knowledge, the methodologies and technologies developed during the project,
- to exchange experience with projects and groups working in the field, in order to join efforts, minimize duplication and maximize potential,
- to pave the way for a successful (commercial and non-commercial) exploitation of the project outcomes.

The objective of the dissemination strategy is to identify and organise properly the activities needed to achieve these objectives. The following sections describe the main pillars of the dissemination strategy: (i) subjects (what will be disseminated), (ii) target audience (who will most benefit from the project results and who would be interested in learning about the project findings), (iii) the timing (when dissemination will take place); (iv) tools and channels (how to reach the target audience) and (v) dissemination management and policy.

#### 3.2 Subject of Dissemination

The following general subjects of dissemination have been identified up to now:

- SIDERWIN project itself: goals, approach, pilot plant and expected benefits.
- The techniques and methodologies used for the technical development of the project in all the involved areas (simulation, modelling, monitoring, control, automation, optimization...).
- The sustainability indicators and Key Performance Indicators in the process industry.

#### 3.3 Timing of Dissemination

Dissemination activities are planned in accordance with the stage of development in the project. Although a number of dissemination actions took place during the last 18 months of the project and they will continue during the next months, the most significant dissemination activities will take place as final research results were available. It is also important to take into account that plant owners' investment decision might require extensive time, so timely communication on the project results will ease the successful commercialisation of the results.

The dissemination follows the **AIDA** principle: **A**wareness to attract the attention of the target audience, **I**nterest of the target audience, **D**esire of the target audience to know more about the

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project and **Action** to lead the target audience towards get involved in the project and to promote its results to facilitate their exploitation. According to this principle, three phases are considered:

- Initial phase (**Awareness**) (month 1 – month 12): focused on increasing the visibility of the project and mobilising stakeholders and multipliers. At this phase, the main activities were related to the implementation of the dissemination tools (website, social networks, visual identity), preparation of dissemination material, general presentations of the SIDERWIN project and launching of the SIDERWIN Special Interest Group.
- Intermediate phase (**Interest/Desire**) (month 13 – month 36): focused on informing and engaging to the target stakeholders when preliminary results become available. At this phase, the project results and their future applications will be presented in journals and conferences to specialized audience with the objective of stimulating the interaction with the concerned scientific and industrial community and determining the stakeholders' expectations.
- Final phase (**Action**) (month 37 – month 60): focused on encouraging further exploitation of the SIDERWIN outcomes (transfer to other industries, replicability...). At this phase, the results of the validation of the SIDERWIN approach at the pilot plant and the transferability analysis will be presented in journals, conferences and industrial events. One of the main dissemination actions at this phase will be the organization of the SIDERWIN workshop at the end of the project, as it is explained later.

### 3.4 Target audience

Taking into account the goal of the SIDERWIN project, the target audience for the dissemination activities has been divided in the following groups:

1. *Industrial Community*: raise awareness of and interest in the project results to promote the exploitation and co-operation opportunities.

SIDERWIN project addresses specifically the steel sector and the aluminium sector as providers of raw material within the circular economy approach, but other industrial sectors could also use the new technologies developed in the project to reduce the carbon emissions and residues and increase their competitiveness.

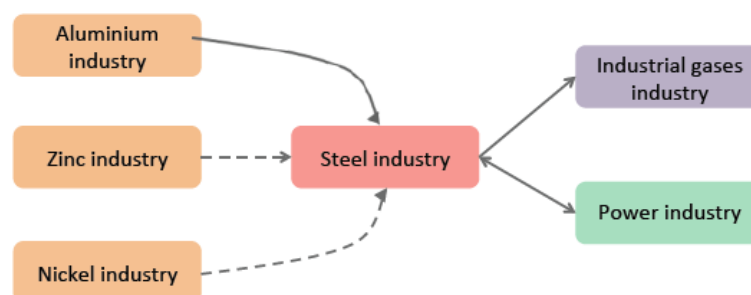


Figure 1. Synergies between the steel industry and other European industries thanks to SIDERWIN technology

The project will disseminate the results to business stakeholders to make them aware of the expected impact of the project and promote the exploitation of its results. So, from the exploitation side, the target audiences from the industrial community will be:

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- a. Steel industry: European Union is the second largest producer of steel in the world after China. Its output is over 177 million tonnes of steel a year, accounting for a 11% of global output [ 3 ].
- b. Aluminium industry: The aluminium industry's presence spans across Europe, with a total of more than 600 plants in all 27 EU Member States, including alumina, metal supply (primary and recycling) and semis production (i.e. extrusion presses, rolling mills) [ 4].
- c. Other metallurgies where iron oxides are produced as by-products of their processes
- d. Mining industry and particularly iron ore industry.
- e. Electricity producers from renewable energy sources.
- f. Oxygen gas producers.

The message for this audience would be:

“Increased economic competitiveness and reduced environmental impact due to a breakthrough production process by applying electrochemical method to steelmaking, reducing CO<sub>2</sub> emissions and direct use of energy. This will allow producing steel from by-products rich in iron oxides from non-ferrous metallurgy residues such as the aluminium industry allowing further processing of these by-products and increase the integration with renewable energies by flexible and interruptible operation.”

2. *Scientific Community* (universities and research centres): enlarge the knowledge and facilitate the communication among European researchers in the research field of the SIDERWIN project (industrial process modelling, control and optimization, alternative raw material, techno-economic and environmental assessment).
3. *Financial Community*: financial instruments are a key point for investments in low carbon technologies. The project will disseminate the results to existing Public-Private Financial and Insurance schemes available for Energy Intensive Industries (i.e. Public funds, Private Equity Funds, Mezzanine) with the aim to promote the direct investments by innovative financial-insurance schemes.
4. *Policy makers*: raise awareness of the relevance and economic impact of exploited research results obtained by EU-funding (the European Commission's DG develops policies and actions for the re-industrialisation of Europe and an innovative, modern and sustainable economy). Dissemination among national and European decision-makers is to encourage them to develop/support policies that promote the development and implantation of low carbon technologies as the technologies developed in SIDERWIN.
5. *“Internal” Community (SIDERWIN partners)*: Ensuring effective internal communication and dissemination among the consortium partners is a key element for the development of the project and also because some of the partners represent “influencers” due to their great position on the associated industrial sectors. Particularly, SIDERWIN consortium partners comprise important market players in various segments and this constitutes a natural channel for the dissemination of the project and its results to other potential users. Therefore, it is important to communicate information about the project and its results to partners' managers, consultants and people responsible for their marketing and sales and to encourage them to share this information further to their customers and business partners.

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6. *General public*: the goal is that the audience can be aware of the general impacts of the project for the society in general (i.e. sustainability, environmental impact) and let them aware of the positive impacts generated and the relevance of the EU funded research industry. In order to disseminate the sustainability assessment of the investigated technology and scenarios, QUANTIS will develop and maintain a user-friendly web-based footprinter, based on the results of WP7. Footprinters are easy-to-visualise, user-friendly and robust web-tools of high scientific quality allowing users to better understand the materiality of environmental impacts and/or compare products and technologies (e.g. SIDERWIN vs. baseline) based on scenarios. In order to make the results more accessible to the large public, benchmarks will be developed to express the potential gains per indicator with respect to the selected baseline. QUANTIS has developed several of these tools and examples are provided below:

- <http://lifenet.bayer.fr/#>
- <http://footprinters.ch/test-rivages/>
- <http://footprinters.ch/test-usdairy/carbon/>
- <https://www.morningstarfarms.com/just-what-the-world-ordered/what-we-do.html#calculator>
- <https://www.nescafe.com/the-future-of-coffee>, <http://footprinters.ch/test-st/mems/>.

Dissemination activities must be tailored in such a way to reach the audiences most efficiently through appropriately selected dissemination tools and channels.

### 3.5 Dissemination tools and channels

This section describes the main tools and channels that are being implemented/used by the SIDERWIN partners for the dissemination of the project and its results. Some of the tools are of general purpose, while other ones are oriented to specific target groups.

#### 3.5.1 SIDERWIN Website

The SIDERWIN website (<https://www.siderwin-spire.eu>) is the main interface for communication to the public. It contains information on the SIDERWIN objectives, the consortium, the proposed activities and the foreseen/achieved results. It also allows having access to the dissemination material and to facilitate the interaction between partners and interested parties by means of the contact formulary. In order to maximize its visibility, free or affordable methods to increase page ranking on search engines are being used. When possible, links from the homepages of all the partners will also be established to the SIDERWIN site.

#### 3.5.2 Social networks

In order to reach a broad target audience while establishing two-ways communication channels, the presence of the SIDERWIN project in social media will be encouraged. A Twitter account ([https://twitter.com/siderwin\\_spire](https://twitter.com/siderwin_spire)) is being used as an instant dissemination instrument for reaching the general public. In order to reflect the relation of the project with the SPIRE community, references to @Spire2030 in the SIDERWIN tweets is being included whenever possible. On the other hand, a LinkedIn (<https://www.linkedin.com/in/siderwin-spire->

[15b185154/](#)) page is being used for reaching stakeholders and industry professionals. Official LinkedIn groups will be joined to raise awareness among Process Industry professionals.

The website has direct access to these social networks by clicking over the icons situated on a visible part of the website. In this way, it is easy for every user to participate in these social networks when the website is visited.

Finally, YouTube is being used for the publication of videos produced within the course of the project, provided that this does not imply any property right conflict.

### 3.5.3 Visual Identity and dissemination material

The visual identity (logo and style) of the project helps external audience to easily identify SIDERWIN and contribute to the project visibility by providing a clear identity from the very beginning of the project. Communication and dissemination tools (such as project website, Twitter, LinkedIn page...), dissemination material (such as flyers, presentations, posters...) and deliverables apply the visual identity defined for the project.

Different dissemination material is being produced along the project lifetime, such as:

- Project flyers (hardcopy and electronic version) in order to provide our audiences with an attractive and written project overview and summary of the main project objectives and results. Two flyers were scheduled in the project: one at the beginning of the project focused on the project's objectives and vision (<https://www.siderwin-spire.eu/sites/template.drupal.pulsartecnia.com/files/documents/flyer-siderwin%20FINAL.pdf>) and another one a few months before the end of the project highlighting the key results of the pilot plant. The flyers will be able to be distributed in printed form (handed out at conferences or other events) or in electronic version (PDF file). The flyers will also be available for download through the project website.
- Short Project presentations (electronic version) describing the objectives and the main achieved results for presenting the project in different forums, such as internal presentations inside of the partners, presentations at schools/universities, visits with clients, etc. These presentations will be available for download through the website ([https://www.siderwin-spire.eu/sites/template.drupal.pulsartecnia.com/files/documents/SIDERWIN-Project%20Presentation%20-%20WEB\\_v0.1.pdf](https://www.siderwin-spire.eu/sites/template.drupal.pulsartecnia.com/files/documents/SIDERWIN-Project%20Presentation%20-%20WEB_v0.1.pdf)) and could be uploaded in SlideShare.
- Videos to communicate the project's vision, objectives and results. Two videos are scheduled: one animation at start of the project (<https://youtu.be/OSG421hiKXA>) and one video focusing on the results at the pilot plant. These videos will be accessible through the website and could be uploaded in YouTube.

Finally, the deliverables will also offer a good mean for disseminating the performed activities and achieved results. Public deliverables will be accessible through the website, meanwhile confidential deliverables will be used to spread the knowledge within the partners' organizations.

### 3.5.4 Special Interest Group (SIG)

The “SIDERWIN Special Interest Group” was created at the beginning of the project to engage stakeholders with the SIDERWIN consortium. The SIG is an informal group of external stakeholders interested in the project (i.e. possible beneficiaries, end users...). Participation in this group is under accepted subscription and it is managed through the website to ease the contact of the interest people/entities.

For this purpose, a specific section is available through the website vertical navigation bar where a form to be completed by people/entities interested in being part of the SIG is available. They will receive periodically via email a newsletter starting from May2019 with information about relevant news, events and results of the project. At this moment 4 editions have been launched (May 2019, November 2019, April 2020 and October 2020).

### 3.5.5 Channels offered by the European Commission and SPIRE

The SIDERWIN consortium will make use of the tools offered by the European Commission and SPIRE in order to maximise the diffusion of the project.

#### *European Commission*

The EC offers different tools such as:

- The “projects and results” service from CORDIS that provides: (i) “project information” based on the project’s grant agreement, (ii) “report summaries” that come from the publishable summaries of periodic and final reports submitted by the project participants and approved by the project officer and (iii) “Results in Brief” written by CORDIS science editors based on each report summary
- CORDIS Wire to publish articles on the CORDIS News and Events service
- research\*eu Results Magazine that features highlights from the most exciting EU-funded research and development projects

#### *A.SPIRE*

A.SPIRE is the European Association which is committed to manage and implement the SPIRE Public-Private Partnership. It represents innovative process industries, 20% of the total European manufacturing sector, and more than 130 industrial and research process stakeholders from over a dozen countries spread throughout Europe. A.SPIRE’s offers different communication tools/channels for dissemination of project outputs such as:

- A dedicated page on the SPIRE website where information about all SPIRE projects and links to project-dedicated websites are published (<https://www.spire2030.eu/printpdf/projects/our-spire-project/2218>).
- A section of the SPIRE website, SPIRE Newsletter and Twitter account where project related announcements can be published
- Annual projects brochure
- SPIRE event (such as Impact workshop, SPIRE projects’ conference, etc.)

### 3.5.6 National and European technology platforms and associations

The link of the SIDERWIN partners with a number of relevant national/European platforms and associations, closely related with the SIDERWIN objectives, provide a great chance for

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disseminating the project activities and increasing the number of reached stakeholders. The Annex I gathers information of some of these platforms and associations together with the type of involvement of the partners. An updated list of the platforms and associations where the partners are involved would be available in the SIDERWIN SharePoint.

### **3.5.7 Scientific and trade journals**

Scientific publications are an effective way to disseminate high-level project information and to attract the interest of representatives of the various target groups. Similarly, publications in trade journals can attract the attention of potential beneficiaries of the SIDERWIN results. The industrial and academic partners will individually and in collaboration publish and present scientific advances in scientific journals (peer reviewed or not) and trade magazines, taking into account confidentiality and IPR protection aspects.

Table 1 provides some examples of scientific and trade journals where the SIDERWIN partners could submit papers along the project.

### **3.5.8 National and international conferences**

National and international conferences are a good opportunity to share the results with experts in the field and, therefore, to achieve an effective dissemination of the project.

Table 2 provides some examples of national and international conferences where the project and its results could be presented.

### **3.5.9 Workshops and trade fairs**

Finally, workshops and large events such as trade fairs will be attended by the partners to disseminate both the techniques developed during the project and the achieved results to the targeted beneficiaries of the SIDERWIN project.

Table 3 provides some examples of potential events.

### **3.5.10 Media and social media coverage**

SIDERWIN news in the media (newspapers, magazines, radio...) are expected to inform to general public about the project and reflect the impact of EU research and innovation funding on European industry and environment.

### **3.5.11 SIDERWIN workshop**

At the end of the project, the final SIDERWIN workshop will be organized to show the achieved results and to give the opportunity to meet potential interested clients (either on public or private field), investors and researchers. Target audience could include different players in the scientific, industrial, financial and social fields, as well as journalists. Announcement of the SIDERWIN workshop will be done through all the available channels (web, Twitter, LinkedIn, EU/SPIRE tools, related Platforms and Associations, etc.) to reach the maximum audience as possible.

### **3.5.12 Other activities**

Presentations of the project at the universities will be carried out, mainly by the academic partners, in order to promote the research fields of the SIDERWIN project.

Direct proactive communication with stakeholders during visits/meetings and internal meetings inside of the partners organizations will help raising awareness of the goal/benefits of the project.

At the beginning of 2020 it was organized by The Project Coordinator, Hervé Lavelaine, an EU-Japan Neutral-Carbon Steelmaking seminar at Maizière's with the attendance of a Japanese delegacy and JP. Birat who provides his point of view about neutral carbon steelmaking in Europe.

A first project webinar is planned to show the initial performance of the pilot plant. The construction of the pilot plant has suffered some delays and therefore the webinar has been delayed. The new plan is to organize this webinar in the second half of 2021.



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Table 1. Scientific and trade journals

Journal/Magazine Name	Type	Journal/Magazine topics	Indexed (Yes/No)	Other relevant information
Computers & Chemical Engineering	Scientific	Modelling, numerical analysis and simulation; Mathematical programming (optimization); Process dynamics, control and monitoring; Plant operations, integration, planning/scheduling and supply chain; Enterprise-wide management and technology-driven policy making	Yes	Q1 Chemical Engineering (Miscellaneous) - SJR 2017 1.02
DYNA Journal (Spain)	Scientific	Journal of general engineering; Industrial innovation, engineering and management.	Yes	Q3 Engineering (Miscellaneous) – SJR 2017 0.15
Electrochimica Acta	Scientific	Analytical Electrochemistry; Bioelectrochemistry; Electrochemical Energy Conversion and Storage; Electrochemical Materials Science; Electrochemical Process Engineering and Technology; Molecular Electrochemistry Physical Electrochemistry	Yes	Q1 Chemical Engineering (Miscellaneous) - SJR 2017 1.44
International Journal of Life Cycle Assessment	Scientific	Journal devoted entirely to Life Cycle Assessment (LCA) and closely related methods. It is a forum for scientists developing LCA and LCM (Life Cycle Management); LCA and LCM practitioners; managers concerned with environmental aspects of products; governmental environmental agencies responsible for product quality; scientific and industrial societies involved in LCA development, and ecological institutions and bodies.	Yes	Q1 Environmental Science (Miscellaneous) - SJR 2017 1.44
Journal of Applied Electrochemistry	Scientific	Technologically orientated aspects of electrochemistry	Yes	Q2 Chemical Engineering (Miscellaneous) - SJR 2017 0.65

## D8.2.2 Master Dissemination and Communication Plan and Updates

Journal/Magazine Name	Type	Journal/Magazine topics	Indexed (Yes/No)	Other relevant information
Journal of Cleaner Production	Scientific	Cleaner production and technical processes; Sustainable Development and Sustainability; Sustainable Consumption, Environmental and sustainability assessment	Yes	Q1 Environmental Science (Miscellaneous) - SJR 2017 1.47
Journal of Electroanalytical Chemistry	Scientific	Electrochemical science in all its aspects	Yes	Q1 Chemical Engineering (Miscellaneous) - SJR 2017 0.76
Journal of Sustainable Metallurgy	Scientific	Metallurgical processes and related research aimed at improving the sustainability of metal-producing industries, with a particular emphasis on materials recovery, reuse, and recycling	No	
Journal of the Electrochemical Society	Scientific	Energy storage and conversion; Corrosion; Electrodeposition; Electrocatalysis; Double layer phenomena; Sensors; Bioelectrochemistry; Electrochemical engineering; Electroanalytical chemistry	Yes	Q1 Condensed Matter Physics – SJR 2017 1.27
SIDENEWS	Trade	Steelmaking	No	Managed by SIDEREX (the Spanish Association of Steelworks Exporters) whose main goals are to promote Spanish steel exports.
Simulation Modelling Practice and Theory	Scientific	Theoretical aspects of modelling and simulation; methodology and application of modelling and simulation in any area; distributed and real-time simulation; tools for high performance computing simulation, including dedicated architectures	Yes	Q1 Hardware and Architecture – SJR 2017 0.68

## D8.2.2 Master Dissemination and Communication Plan and Updates

Table 2. National and international conferences

Conference Name	Scope	Conference topics	Type of audience	Organiser
COM – Conference of Metallurgists	International	Environment; Hydrometallurgy; Light Metals; Management in Metallurgy; Materials; Minerals Science and Engineering; Pyrometallurgy	Researchers and practitioners	MetSoc
ESTAD – European Steel Technology and Application Days	International	Steelmaking, Rolling, Environmental and energy	Researchers and practitioners from equipment suppliers, plant manufacturers & steelmakers	ASMET, AIM, A3M, Steel Institute VDEh and Jernkontoret
ECCC – European Continuous Casting Conference	International	Steelmaking (Continuous Casting)	Steelmakers, Researchers	ASMET
EUROSIM Congress	International	Simulation and modelling	Researchers and practitioners	Federation of European Simulation Societies
ICSTI – International Congress on Science and Technology of Ironmaking	International	Cokemaking; Iron ore production and handling; Sintering; Pelletising; Blast furnace ironmaking; Direct reduction; Smelting reduction; Environmental control in coke and ironmaking; CO <sub>2</sub> reduction and energy saving; Recycling of in-plant residues; Automation and digitalization in coke and ironmaking; Modelling and simulation in coke and ironmaking	Researchers and practitioners	ASMET
IFAC-MMM – Symposium on Automation in Mining, Mineral and Metal Processing	International	Process modelling; Control and optimization; Advanced process control; Data mining and statistical analyses; Artificial intelligence, machine learning systems	Professionals, researchers and experts	IFAC MMM

## D8.2.2 Master Dissemination and Communication Plan and Updates

Conference Name	Scope	Conference topics	Type of audience	Organiser
Life Cycle Management (LCM) conference	International	Life cycle sustainability and circular economy	Researchers and practitioners	Changes with each conference
Materials Science and Technology	International	Materials Science	Material researchers and industries	AIST, ASM, TMS
Society of Environmental Toxicology and Chemistry (SETAC)	International	Dedicated to the use of multidisciplinary approaches to examine the impacts of stressors, chemicals, and technology on the environment. Sessions related to developments in LCA	Researchers and practitioners	SETAC

Table 3. Events (Workshops and Fairs)

Fair/workshop Name	Scope	Event topics	Audience profile	Web	Organiser
Electrochemical Society Meetings	International	Solid-state and Electrochemical Science and Technology	Professionals, researchers, experts and students	<a href="https://www.electrochem.org/meetings/">https://www.electrochem.org/meetings/</a>	The Electrochemical Society
METEC – International metallurgical trade fair	International	Metallurgy; Steelmaking	Researchers and practitioners	<a href="http://www.metec-tradefair.com/">http://www.metec-tradefair.com/</a>	GIFA, METEC, THERMPROCESS and NEWCAST
STAHL - International annual meeting of steel makers and suppliers	International	Steelmaking	Professionals, researchers and experts	<a href="http://www.stahl-online.de/">http://www.stahl-online.de/</a>	Steel Institute VDEh

### 3.6 Dissemination management

A special section in the SIDERWIN SharePoint was created for the management of the dissemination activities (planning, monitoring, storing dissemination material...).

#### 3.6.1 Distribution of responsibilities

According to the Article 29.1 of the Grant Agreement “*each beneficiary must — as soon as possible — ‘disseminate’ its results by disclosing them to the public by appropriate means (other than those resulting from protecting or exploiting the results), including in scientific publications (in any medium)*”. Therefore, every possible opportunity will be embraced, by individual partners or on collective basis through joint appearance by more than one partner, to make SIDERWIN project known among technicians and general public as well.

TECNALIA will act as Dissemination and Communication Manager of the project coordinating and supervising all the dissemination activities. On the other hand, all partners of the consortium will contribute to the SIDERWIN dissemination according to their foreseen role and effort and using all available tools and channels (thus for instance by participating and giving presentations at conferences and workshops, publishing papers, networking, attending to fairs and showcases where technical achievements and prototypes can be shown to stakeholders, etc.) for the purpose of the project results adoption and successful future commercialization of SIDERWIN outputs.

#### 3.6.2 Dissemination policy and rules

Dissemination activities in the SIDERWIN project are deeply joined with the intellectual property rights protection and confidentiality aspects that are clearly stated in the articles 23a and 36 of the Grant Agreement respectively and adjusted in the Consortium Agreement. It is important to find out a good equilibrium among the interests of academia and industry partners. Usually, the academia partners tend to publish all information they have at disposal, which is caused by academia common motivation systems, while the industrial partners’ decision whether, when and where to publish can depend on commercial considerations.

The basic regulation of the dissemination activities in the Consortium Agreement states that:

*During the Project and for a period of 3 year after the end of the Project, the dissemination of own Results by one or several parties including but not restricted to publications and presentations, shall be governed by the procedure of Article 29.1 of the Grant Agreement subject to the following provisions:*

- *Prior notice of any planned publication shall be given to the other Parties at least 45 calendar days before the publication.*
- *Any objection to the planned publication shall be made in accordance with the Grant Agreement in writing to the Coordinator and to the Party or Parties proposing the dissemination within 30 calendar days after receipt of the notice. If no objection is made within the time limit stated above, the publication is permitted.*

*An objection is justified if:*

- (a) *the protection of the objecting Party’s Results or Background would be adversely affected*
- (b) *the objecting Party’s legitimate academic or commercial interests in relation to the Results or Background would be significantly harmed.*

## D8.2.2 Master Dissemination and Communication Plan and Updates

*(c) The proposed publication contains Confidential Information of the objecting Party.*

*The objection has to include a precise request for necessary modifications.*

*If an objection has been raised the involved Parties shall discuss how to overcome the justified grounds for the objection on a timely basis (for example by amendment to the planned publication and/or by protecting information before publication) and the objecting Party shall not unreasonably continue the opposition if appropriate measures are taken following the discussion.*

*The objecting Party can request a publication delay of not more than 90 calendar days from the time it raises such an objection. After 90 calendar days the publication is permitted, provided that appropriate measures are taken that remove the justification of the objection.*

***A Party shall not include in any dissemination activity another Party's Results or Background without obtaining the owning Party's prior written approval, unless they are already published.***

The project partners will follow the open access principle, according to the article 29.2 of the Grant Agreement. They will publish their results based on the green model ([http://ec.europa.eu/research/participants/data/ref/h2020/grants\\_manual/hi/oa\\_pilot/h2020-hioa-pilot-guide\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hioa-pilot-guide_en.pdf)) and use their organisation's existing institutional repositories to offer free online access to scientific journal articles and reports to increase the visibility and availability of SIDERWIN output. The Dissemination manager (TECNALIA) has its own repository following the 'green' open access model. According to the Grant Agreement:

*The bibliographic metadata must be in a standard format and must include all of the following:*

- *the terms "European Union (EU)" and "Horizon 2020";*
- *the name of the action, acronym and grant number;*
- *the publication date, and length of embargo period if applicable, and*
- *a persistent identifier.*

According to the article 29.4 of the Grant Agreement, unless the Commission requests or agrees otherwise or unless it is impossible, it is necessary to include the European emblem and the following statement of financial support in all the dissemination documents and applications for protection of results:

*"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 768788".*



When displayed together with another logo, the EU emblem must have appropriate prominence. According to the article 29.5, any dissemination of results must include the following Disclaimer excluding Commission responsibility:

*"This [insert type of activity] reflects only the author's views and the Commission is not responsible for any use that may be made of the information contained therein"*

Finally, in addition to the acknowledgement to the EU, all the dissemination material will include:

- the acronym of the project: SIDERWIN.
- the logo of the project, if feasible.
- the project's website URL (<https://www.siderwin-spire.eu/>).

### 3.6.3 Dissemination activities planning and follow-up

As described in the previous sections, a key element for the dissemination of the project results is their presentation in: scientific and technical publications, trade journals and magazines, national and international relevant scientific conferences, workshops, exhibitions, fairs and the media (Press releases, radio, TV...).

For the planning and follow-up of these activities, a section in the SIDERWIN SharePoint has been designed in order to create and store the “Dissemination reports” of each activity. The goal of these reports is to collect the most relevant information of each activity and to allow its monitoring from the moment of its planning until its execution. In this way, the partners will start filling the report as soon as they decide to perform an activity and then, when the activity is finished, they will finish the report.

Five different types of reports have been defined depending on the type of activity: (i) paper on a journal/magazine, (ii) presentation in a conference, (iii) participation in an event (fair, workshop...), (iv) presence in the media (press, TV...) and (v) any other type of activity. The templates for each one of the reports are included in the Annex II, but mainly they include:

- general information about the event (name, type, scope, audience...).
- information about the action (title, topic, authors...).
- feedback gathered by the respective partners from the target audience (if applicable) and eventually gained contacts for further dissemination purposes.

### 3.6.4 Evaluation and assessment

The evaluation of the SIDERWIN dissemination activities and the assessment of their impact will be carried out through different means. On the one hand, the partners have set up several Key Performance Indicators (KPI), together with their main metrics and a numerical target. The target has been estimated taking into account the individual partner’s input and considering a minimum threshold to have proper dissemination. It is foreseen that the number of dissemination actions (papers, conferences, workshops, fairs,...) will increase as the project progresses and results are achieved. If needed, new KPIs/metrics could be defined along the project.

During the WP8 meetings and/or the Project progress meetings organised every 6 months, the real and planned values of the KPIs will be analysed, and, if needed, contingency plans could be defined in case the threshold is not reached. The update of the deliverable 8.2 Master Dissemination and Communication plan and Updates at month 36 and 48 will also analyse the real performance of the KPIs up to that moment and it will include new target values for the next period time. Finally, at the end of the project, the deliverable “D8.6. *Dissemination and communication actions survey*” will analyse all the activities performed and collect the final performance of the KPIs.

On the other hand, for the updates of the Dissemination and Communication plan, the partners will carry out an internal evaluation of the project dissemination effectiveness in order to detect the potential weaknesses and propose further actions to improve the dissemination plan. This internal evaluation will be performed through a specific questionnaire implemented in the SIDERWIN Sharepoint and based on questions like:

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1. Do the dissemination activities address all the relevant target groups?
2. Are the individual target groups addressed by means of proper communication channels and tools?
3. Are the dissemination activities carried out timely, in accordance with the schedule of principal project outcomes?
4. Is the dissemination material suitable and enough?
5. Does the website provide useful content to all the identified target groups (measured by the number of visitors and feedback provided by them)?
6. Are the number of dissemination activities towards research community sufficient (i.e. the number of papers in journals, workshop and conference proceedings etc.)?
7. Are the number of dissemination activities towards the industrial community sufficient (i.e. number of presentations at industrial events)?
8. Are the number of dissemination activities towards the general public sufficient (web activities, articles, papers, presentations)?

In addition, all events organised by the consortium will be evaluated afterwards by questionnaires to participants. These evaluations will be used as input to improve later such events.



## 4 Activities done during M19-M36

This section describes the main dissemination and communication activities carried out during the second 18 months of the project (M19 to M36).

The main activities done during this period have been:

- 6 papers on International Conferences have been presented and published
- 2 papers on Scientific Journals have been published
- 2 news on trade journals have been published
- Participation in 1 International Workshops
- A Roll-up poster has been produced
- 3 videos have been published on the web: Project Overview / John Cockerill 2020 Awards / Pilot Cell Construction
- 4 Newsletters have been produced and sent to the SIG members and available on the web
- The web page has been regularly updated. There have been 3.256 visits to the SIDERWIN web in this period (average: 181 per day)

### 4.1 Project Roll-up Poster

Two copies of a Roll-up poster of the project have been produced in order to be used for dissemination purposes y trade fair, workshops, conferences or any other public location. In the images below the roll-up poster can be seen at the main hall of TECNALIA headquarters.





Figure 2. Two pictures of SIDERWIN Roll-up Poster at TECNALIA main hall.

#### 4.2 Implementation and update of the SIDERWIN Web page

The SIDERWIN website <https://www.siderwin-spire.eu/> is available since month 3 of the project and it was described in the deliverable D8.1. Project website. Oriented to the dissemination, the website provides essential information related to the project and the partners through different sections (see Figure 2):

- *Home*: provides an overview of the project, updated with a direct access to the SIDERWIN video.
- *Objectives*: provides a description of project objectives and the background.
- *Workpages*: describes the eight WP and the relation between them.
- *Consortium*: present the involved partners and a link to their websites .
- *Documents*: provides access to public documents of the project (public deliverables, open access papers, etc.) and dissemination material (flyers, presentations, videos,...). In this section are also uploaded the newsletters sended to people registered to the SIG and shared through social networks.
- *Cocreation area*: provides a link to the Collaborative platform.
- *News*: provides general information (both internal and external) related to the project.
- *Events*: provides information about events organised/attended by the consortium (meetings and dissemination events).
- *Special Interest Group*: manage the subscription of the interested people/entities on being part of the SIG.
- *Contact us*: provides the public audience the contact points where asking for more information about the project.

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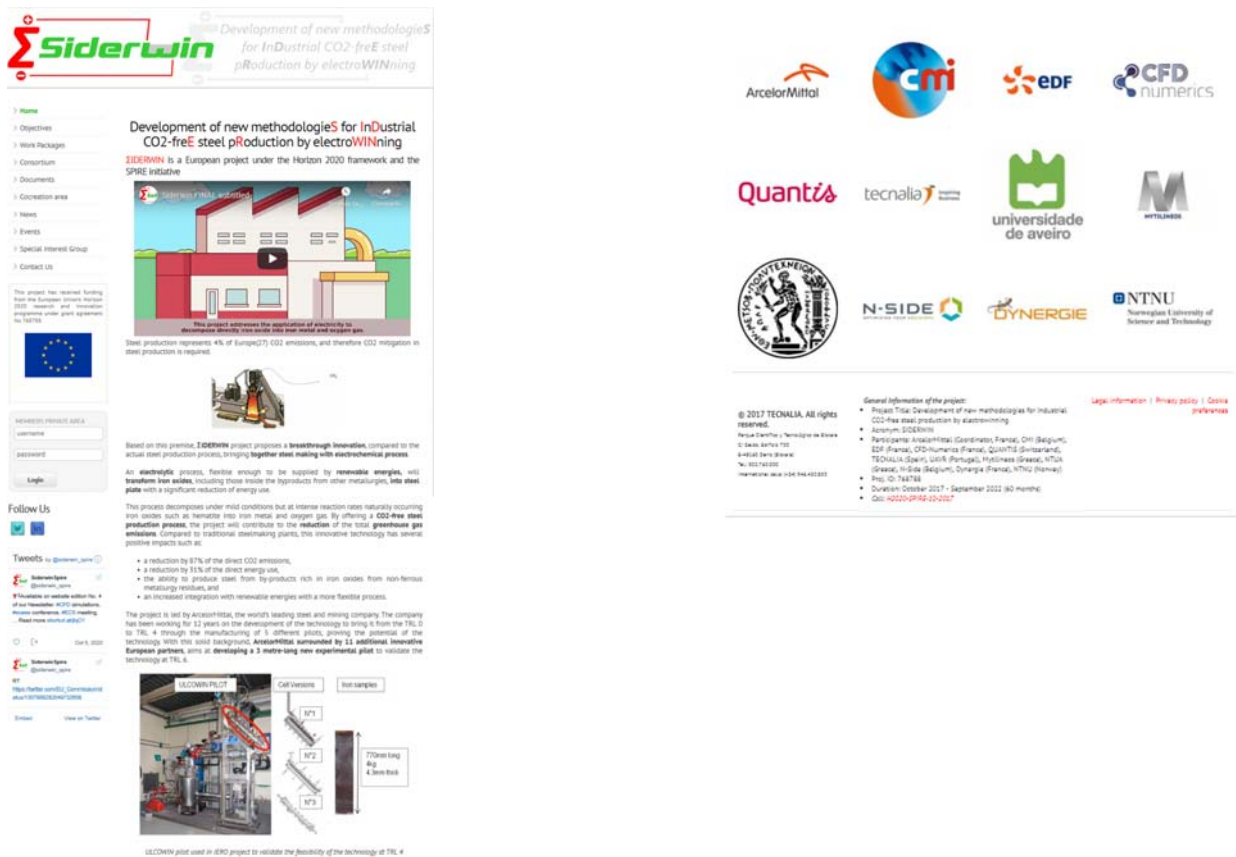


Figure 2. Screenshot of SIDERWIN updated homepage and footer

The SIDERWIN website provides links to H2020 and SPIRE websites and also to the SIDERWIN Twitter account and LinkedIn page. It also allows using the Google Analytics utilities in order to monitor the website access: number of visitors, duration of the visits, geographical area, pages of the website more visited...

The website is being updated regularly by the website-manager upon with inputs of partners.

### Analysis of the SIDERWIN website visits (until 30<sup>th</sup> September 2020)

SIDERWIN uses Google Analytics to monitor the behaviour of the website. This allows the project to steer the strategy with the main aim of reaching the right audience. From the analytics collected over a period of 18 months (March 2019 to October 2020) it can be seen that the total number of users of the SIDERWIN website is 3,236 of which 3,236 are new users. In total 4,395 sessions have been opened with an average of 1.34 sessions per user and an average duration of 00:02:26. Figure 3 shows the evolution of the number of users and sessions along this period and Figure 4 the channels used for the access to the website and the evolution of the number of users per month. Now about 58.6% of the visitors to the SIDERWIN website come through organic searches, 32.5% through a direct access, 5.6% through referral and 3.3% from the social networks.

Figure 5 shows the most visited pages of the website. After the homepage with the 26.21% of visitors, the second position corresponds to the page with the objectives of the project (12.43%) followed by the deliverables section (9.01%).

## D8.2.2 Master Dissemination and Communication Plan and Updates

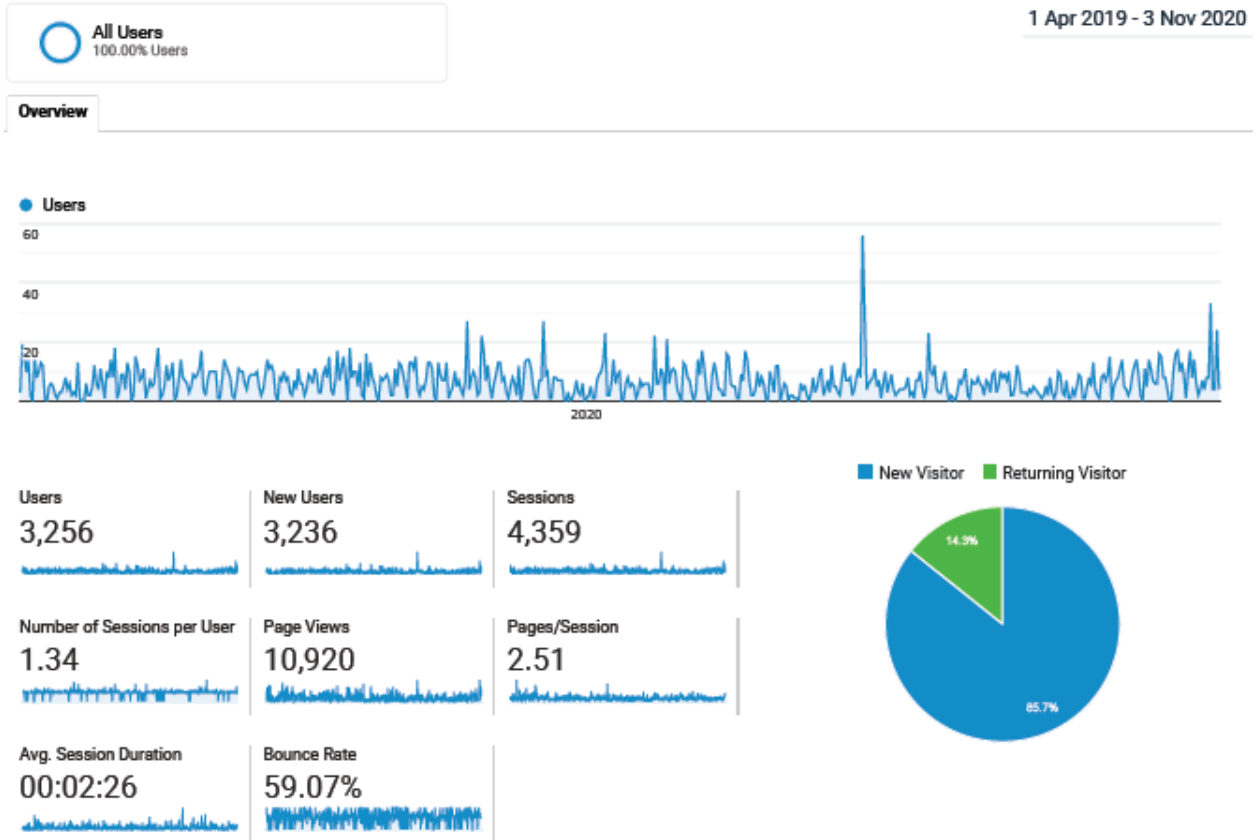


Figure 3. Users evolution to SIDERWIN website (1<sup>st</sup> April 2019- 31<sup>st</sup> October 2020)

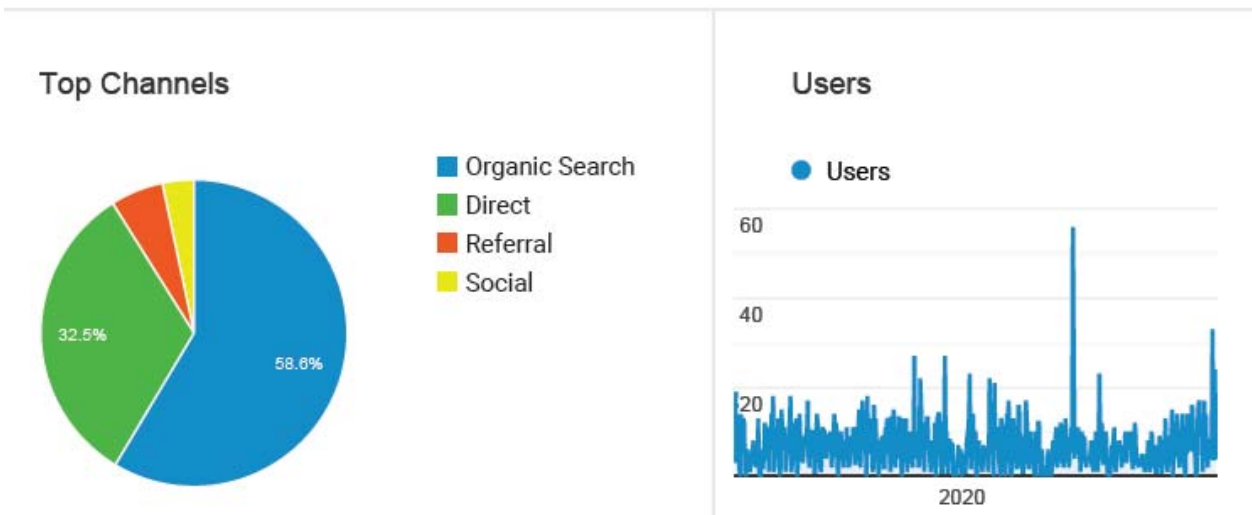


Figure 4. Traffic in SIDERWIN website

## D8.2.2 Master Dissemination and Communication Plan and Updates

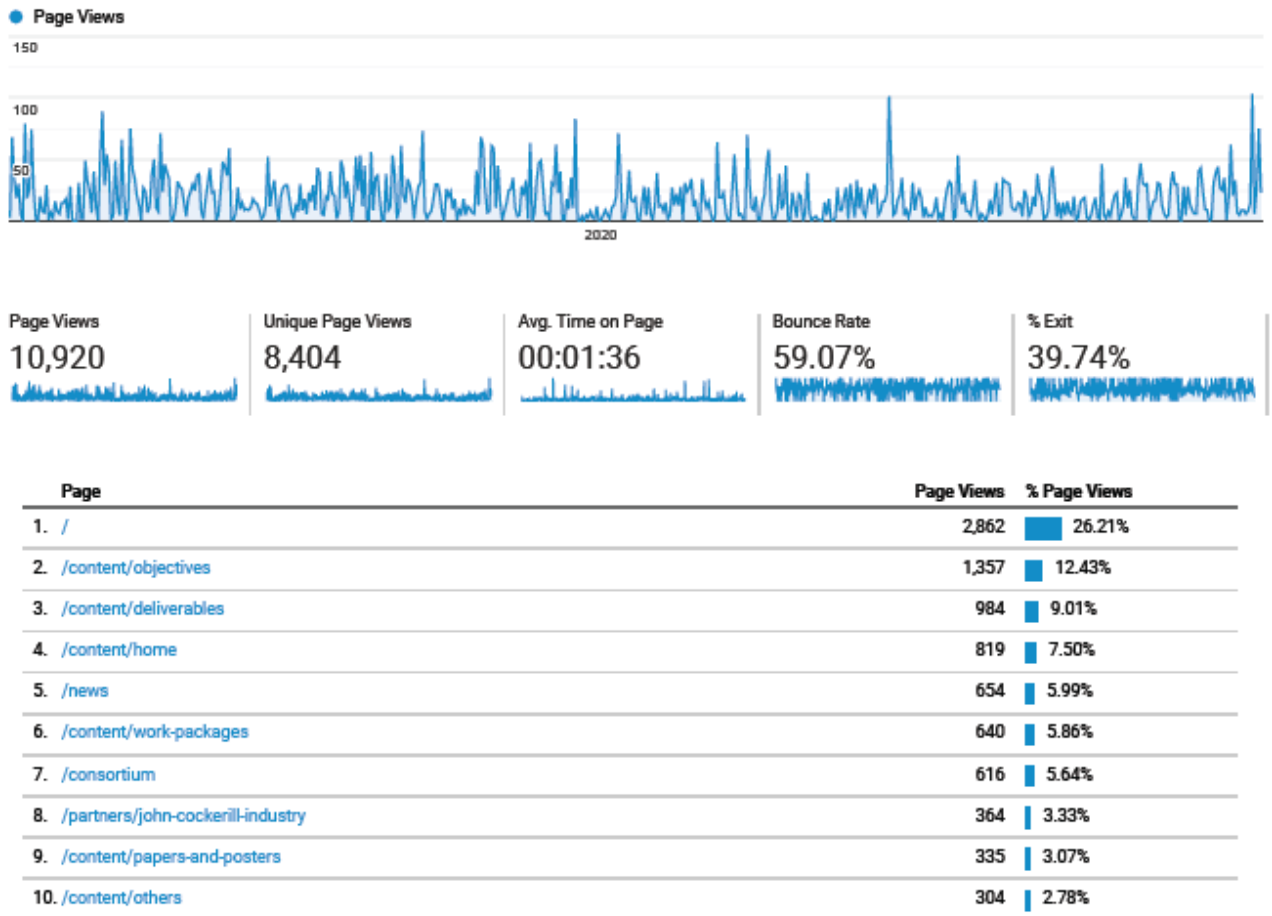
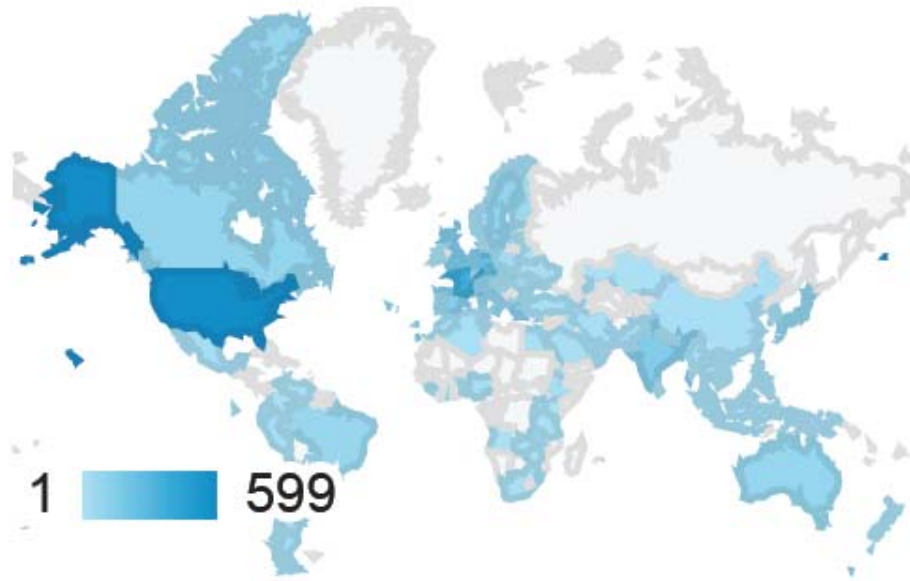


Figure 5. Most visited pages of SIDERWIN website

Figure 6 shows the percentage of visits per country. It is remarkable that the first position is occupied by USA (18.42%). The second, third and fourth positions are occupied by countries with partners involved in the SIDERWIN consortium: France (11.19%), Germany (7.563%) and Belgium (6.84%), respectively. Looking at the world map, it could be said that the visibility of the project website is spread to worldwide.

## D8.2.2 Master Dissemination and Communication Plan and Updates



Country	Acquisition			Behaviour		
	Users	New Users	Sessions	Bounce Rate	Pages/Session	Avg. Session Duration
	<b>3,256</b> % of Total: 100.00% (3,256)	<b>3,236</b> % of Total: 100.00% (3,236)	<b>4,359</b> % of Total: 100.00% (4,359)	<b>59.07%</b> Avg for View: 59.07% (0.00%)	<b>2.51</b> Avg for View: 2.51 (0.00%)	<b>00:02:26</b> Avg for View: 00:02:26 (0.00%)
1. <b>United States</b>	<b>599</b> (18.28%)	<b>596</b> (18.42%)	<b>652</b> (14.96%)	<b>83.28%</b>	<b>1.57</b>	<b>00:00:52</b>
2. <b>France</b>	<b>372</b> (11.36%)	<b>362</b> (11.19%)	<b>506</b> (11.61%)	<b>57.31%</b>	<b>2.26</b>	<b>00:01:28</b>
3. <b>Germany</b>	<b>250</b> (7.63%)	<b>247</b> (7.63%)	<b>350</b> (8.03%)	<b>50.00%</b>	<b>2.51</b>	<b>00:03:07</b>
4. <b>Belgium</b>	<b>224</b> (6.84%)	<b>217</b> (6.71%)	<b>291</b> (6.68%)	<b>57.73%</b>	<b>2.62</b>	<b>00:01:50</b>
5. <b>United Kingdom</b>	<b>163</b> (4.98%)	<b>160</b> (4.94%)	<b>226</b> (5.18%)	<b>62.83%</b>	<b>2.15</b>	<b>00:03:58</b>
6. <b>India</b>	<b>144</b> (4.40%)	<b>144</b> (4.45%)	<b>169</b> (3.88%)	<b>57.99%</b>	<b>2.02</b>	<b>00:01:39</b>
7. <b>Netherlands</b>	<b>142</b> (4.33%)	<b>142</b> (4.39%)	<b>193</b> (4.43%)	<b>60.62%</b>	<b>2.10</b>	<b>00:02:03</b>
8. <b>Spain</b>	<b>135</b> (4.12%)	<b>131</b> (4.05%)	<b>265</b> (6.08%)	<b>34.72%</b>	<b>4.93</b>	<b>00:05:44</b>
9. <b>Greece</b>	<b>123</b> (3.75%)	<b>123</b> (3.80%)	<b>171</b> (3.92%)	<b>49.71%</b>	<b>2.75</b>	<b>00:02:39</b>
10. <b>Japan</b>	<b>99</b> (3.02%)	<b>98</b> (3.03%)	<b>142</b> (3.26%)	<b>60.56%</b>	<b>2.77</b>	<b>00:02:32</b>

Figure 6. SIDERWIN website users by country

### 4.3 SIDERWIN at social networks

The Twitter account for the project @SIDERWIN\_Spire and the LinkedIn profile are already available (see Figure 7) and they are used to publish announcement and relevant information about the project.

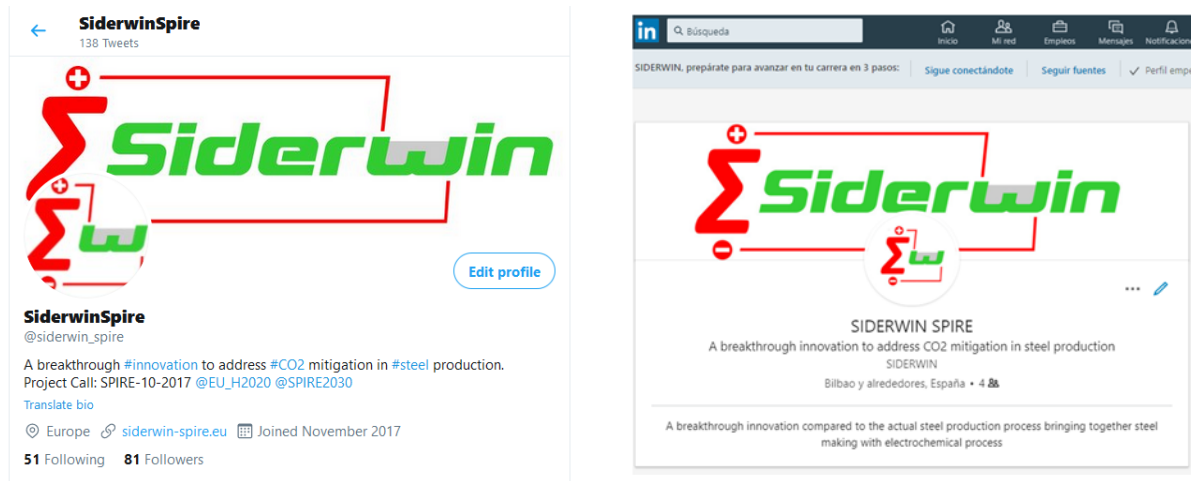


Figure 7. SIDERWIN Twitter account and LinkedIn profile

Official LinkedIn groups will be joined to raise awareness among interested stakeholders.

#### Analysis of the SIDERWIN Twitter activity (April 2019 till October 2020)

Figure 8 and Figure 9 depict the activity of the project’s Twitter account since April 2019 until the end of October 2020 and the list of top tweets with the largest number of impressions. There have been between 500-1.000 impressions per month, with an average of 800 impressions per month during this period. The first position is occupied by the tweet about the Pilot Plant Building construction (1.146 impressions), followed by the use of aluminium industry waste in steel electrowinning process (1.033 impressions), the M30 project General Assembly (997) and a publication of NTUA (737).

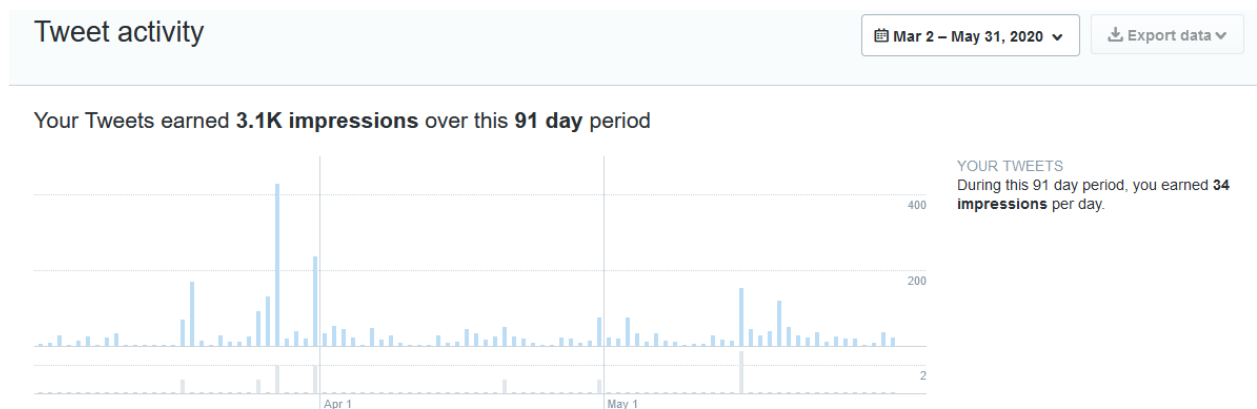


Figure 8. SIDERWIN Twitter activity register

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Tweets	Top Tweets	Tweets and replies	Promoted	Impressions	Engagements	Engagement rate
	<b>SiderwinSpire</b> @siderwin_spire · 23 May 2019			1,146	21	1.8%
	<p>@siderwin_spire pilot plant ever closer. Building's works have started.            #ClimateChange #ClimateAction #Steel #innovation            @EU_H2020 @SPIRE_EU pic.twitter.com/C6MKgHW0lg</p> <p>View Tweet activity</p>					Promote
	<b>SiderwinSpire</b> @siderwin_spire · 2 Apr 2019			1,033	18	1.7%
	<p>Creating Synergies in @siderwin_spire!! Aluminum Industry waste materials can be used as raw material for Steel Electrowinning . #CO2 #GlobalWarming #innovation #reuse #CircularEconomy #steel #ironore #bauxite @spire_eu @h2020_eu            Typical bauxite residue macrostructure👉            pic.twitter.com/EvTyfcNuKR</p>					Promote
	<b>SiderwinSpire</b> @siderwin_spire · Mar 26			997	14	1.4%
	<p>Yesterday @siderwin_spire General Assembly M30 by teleconference, due to #covid19.            Partners discussed the results of the last 6 months and faced how to continue working in this exceptional situation.            @SPIRE_EU @EU_H2020</p>					Promote
	<b>SiderwinSpire</b> @siderwin_spire · Jul 3			737	7	0.9%
	<p>👉Our partner #NTUA -NationalTechnical University of Athens- NTUA paper "Electrolytic iron production from alkaline bauxite residue slurries at low temperatures" will be published at the Johnson Matthey Technology Review. Great work!            #steel #GreenDeal            @EU_Commission @SPIRE2030</p> <p>View Tweet activity</p>					Promote

Figure 9. SIDERWIN Top Tweets

### 4.4 Preparation of dissemination material

The first flyer of the SIDERWIN project was available since M12. It presents the goals, the approach, the consortium and the main (expected) benefits. One-thousand copies were printed and distributed between the partners. The electronic version is available through the website (<https://www.siderwin-spire.eu/sites/template.drupal.pulsartecnalia.com/files/documents/flyer-siderwin%20FINAL.pdf>). A second flyer will be produced a few months before the end of the project.

A general presentation of the project was also produced and upload to the website ([https://www.siderwin-spire.eu/sites/template.drupal.pulsartecnalia.com/files/documents/SIDERWIN-Project%20Presentation%20-%20WEB\\_v0.1.pdf](https://www.siderwin-spire.eu/sites/template.drupal.pulsartecnalia.com/files/documents/SIDERWIN-Project%20Presentation%20-%20WEB_v0.1.pdf)). It describes the motivation and objectives, the approach, the pilot plant, the potential impact and the consortium of the project. New presentations will be produced during the project development.

During the second 18 months a total of 2 public deliverables (see Table 4) have been prepared and released for download through the website.



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Table 4. List of public deliverables produced by the SIDERWIN consortium during the first 18 months

Deliverable Title	Deliverable description
D8.2.2 Master Dissemination and Communication Plan and Updates (October 2020)	This deliverable includes the update of the SIDERWIN dissemination strategy, activities carried out during second 18 months and the action plan focused on the next 12 months of the project.
D8.3 Data Management Plan – Update (October 2020)	This deliverable includes the update of the data management plan of the SIDERWIN project.

Finally, 3 videos have been produced. A short animation video (around 2 minutes) was produced in the previous period in order to present the project in a way easily understandable by the general public and target end users. This video has been updated with subtitles now.

SIDERWIN project won the John Cockerill Awards 2020 and a short video was produced.

The third video shows the construction of the Pilot Plant building.

The videos are available through the website, YouTube, Twitter and LinkedIn. Some screenshots are presented in Annex II: SIDERWIN videos of this deliverable.

### 4.5 Creation and management of the Special Interest Group (SIG)

The rules for the management of the SIG have been agreed between the partners and the mechanism for the subscription of the members is available through the website, where a special section was created for this purpose in the vertical navigation bar (<https://www.siderwin-spire.eu/content/special-interest-group>). The SIG was launched by the month 7 and 18 people have registered at the time this report was written (M36).



Figure 10. SIDERWIN SIG registration form

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Currently, the SIG is composed of eighteen members from which EU (67%), USA (16%) and other countries (17%). They have been classified depending on the type of entity they belong to: members related with universities (33%), companies' management (22%), experts and researchers (17%) and the rest of members (28%).

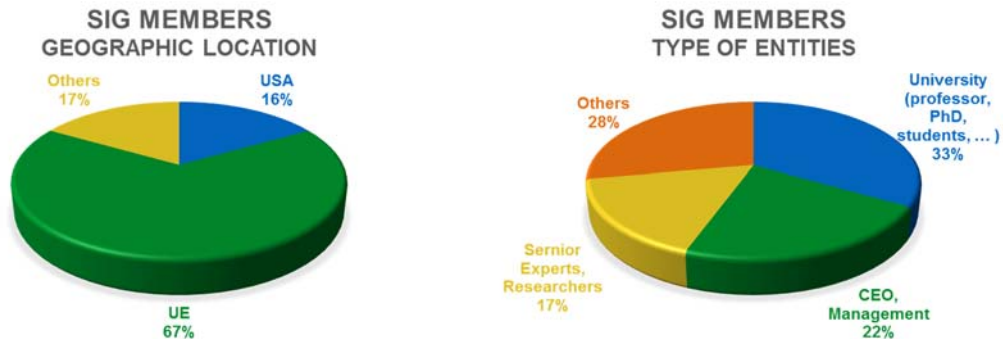


Figure 11. SIDERWIN SIG distribution (18 members)

## 4.6 Newsletters

A Newsletter of the project has been created and 4 issues have been launched: May and November 2019 and April and October 2020. Each issue has 3-4 pages with a summary of the most relevant activities of the project from the technical and dissemination point of view.

The Newsletters are available at the project web page and have also been distributed by email to the SIG members and interested contacts of each partner.

The Figure 12 shows the first page of each issue of the Newsletter.



Figure 12. Four issues of SIDERWIN Newsletter

## 4.7 Publications in scientific and trade journals

The partners will publish the project activities and results in different scientific and trade journals. Table 5 shows the publications that have already been published during this period.

## D8.2.2 Master Dissemination and Communication Plan and Updates

Table 5. List of publications done during the second 18 months

No.	Name	Date	Partner coordina	Comments
1	Johnson Matthey Technology Review Journal	M26	NTUA	Electrolytic iron production from alkaline bauxite residue slurries at low temperatures
2	Electrochimica Acta	M27	AU	Electrochemical reduction of hematite-based ceramics in alkaline medium: challenges in electrode design
3	Estrategia Empresarial	M19	TECNALIA	National Economic Newspaper
4	SIDERWIN - Producción de acero con bajas emisiones de CO2	M19	TECNALIA	TECNALIA Intranet
5	Empresa XXI	M20	TECNALIA	National Economic Newspaper
6	INTEGRATED SET PLAN Action 6	M27	AMMR	Meeting Brussels. Decarbonisation of steel production by electrification
7	Qué haces para luchar contra el cambio climático	M34	TECNALIA	TECNALIA Blog
8	Alkaline electrolysis in iron ores	M36	NTUA	Hydrometec Advanced Hydrometallurgy Seminar

### 4.8 Presentations at national and international scientific conferences

The partners will present the project activities and results at national and international conferences. Table 6 collects the main information of the presentations planned by the partners up to now at different national and international conferences, three in total.

## D8.2.2 Master Dissemination and Communication Plan and Updates

Table 6. List of national and international conferences identified for coming months

Conference Information			Presentation information					
Name of event	When	Scope	Presentation title	Presentation topics	Presentation type	Partner coordinating the activity	Other partners involved	Status
Industrial Efficiency 2020 Conference	2020	European	Electrification of primary steel production based on SIDERWIN process: simulation on the European power system in 2050	SIDERWIN results focused on Task 7.2	Paper and presentation	EDF		Done
BR2020 - Bauxite Residue Valorisation	2020	International	Production of metallic iron with alkaline electrolysis under low temperatures	SIDERWIN results focused on WP6	Paper	NTUA		Done
ESTAD - The 10th International Metallurgy Trade Fair (METEC)	2019	International	SIDERWIN project: electrification of primary steel production for direct CO2 emission avoidance	SIDERWIN project	Paper and presentation	AMMR		Done
7th Panhellenic Conference on Metallic Materials	2019	Greek	Electrochemical reduction of iron oxide from Bauxite Residue	First series of experiments with bauxite residue	Paper	NTUA		Done
Electrification Europe 2019 International Summit	2019	International	Decarbonisation of primary steel production by electrification	Track B : Decarbonizing Buildings and Industry Session 3B: Decarbonizing Industry	Paper	AMMR	EDF	Done
237th Electrochemical Society (ECS) Meeting	2020	International	Electrodeoxidation of Iron Oxide in Aqueous NaOH Electrolyte		Abstract and presentation	NTNU		Done

### 4.9 Other activities

Finally, the partners will conduct internal presentations/communications at their organisations to show the goals/progress of the project and will contribute to the project dissemination with communications in the media and in their day-to-day during visits with clients or meetings with other parties.

### 4.10 KPIs performance and evaluation

As it was explained in the previous section, some quantitative indicators have been defined for the purposes of evaluating the SIDERWIN dissemination activities. Table 7 shows the real values for each metric of the KPIs in the M1-M18 and M19-M36 period, as well as the target values for M48. A new KPI (KPI5) has been added to the initial ones for the first SIDERWIN webinar. The main deviation is related to the number of papers (both scientific and trade journals), although it is expected that the number of publications increases considerably in the next period, when the project progresses, and results were achieved.

## D8.2.2 Master Dissemination and Communication Plan and Updates

**Table 7. Key Performance Indicators and metrics for the evaluation of the dissemination activities, real values for M18, M36 and planned values for next period (M37-M48)**

ID	Indicator	Metrics	Real Value (M1-M18)	Real value (M19-36)	Target Value (M37-M48)
KPI1	General public awareness through the website and social media	Number of visits on the project website	108 visits per month	181 visits per month	200 visits per month
		Number of presentations upload to the Website/SlideShare	2	2	3
		Number of videos upload to Website/Youtube	1	2	2
KPI2	Awareness of the Scientific Community interest	Number of papers in scientific journals	0	2	6
		Number of presentations in scientific conferences/workshops	2	7	8
KPI3	Awareness of the industrial Community interest	Number of papers in trade journals	3	2	6
		Number of participations at events with industry (fairs, exhibitions, workshops...)	3	2	4
		Number of Interest expressions from industry to receive more information + industrial members of the Special Interest Group (SIG)	16	16	15
KPI4 <sup>1</sup>	SIDERWIN final workshop	Number of people attending the final SIDERWIN workshop	N/A	N/A	N/A
KPI5	SIDERWIN first webinar	Number of people attending the first SIDERWIN webinar (2021)	N/A	N/A	30

An internal evaluation of the project effectiveness was launched between the partners in order to detect the potential weakness and propose further actions to improve the dissemination plan. These questions are listed in section 3.6.4.

The questionnaire revealed that: i) sectors such as equipment providers, ceramic and cement industries that were not identified at the initial stage of the project should be also considered as target groups; ii) dissemination activities to industrial, general public and also between high and secondary schools' students should be increased; iii) the project is not understood and direct iron

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<sup>1</sup> This indicator is included to have an overview of all the KPIs defined for the project and it does not applied for the first months of the project.

## D8.2.2 Master Dissemination and Communication Plan and Updates

production is not always included in the map of CO<sub>2</sub> free steel production; iv) dissemination activities should be intensified with the production of results.

## **5 Activities planned for M37 to M48**

The activities planned for the next 12 months of the project (M37 – M48) are summarised below.

### **5.1 Maintenance of the SIDERWIN website, social media and SIG**

The SIDERWIN website will be updated periodically with new contents such as summaries of the new released deliverables, information about project meetings and dissemination events participated by the partners, new dissemination material, etc.

During this period, the project has kept a low activity in Twitter and LinkedIn. focusing mainly on disseminating the material available at the website and launching of the SIG and retweeting content considered of interest for the followers. During the next period, as soon as more results were available (especially the pilot plant), the project will increase its effort in these social networks as it is an excellent tool to show the project's achievements.

Finally, the maintenance of the SIG will include the management of the new members and the communication with all the members to provide them information about relevant news, events and results of the project. The mechanism to achieve this purpose will be a newsletter that will be sent to SIG members every 6 months or when relevant news were produced.

### **5.2 Preparation of dissemination material**

During the next reporting period, different dissemination material will be produced along the following 12 months of the project, such as short project presentations (electronic version) showing the main achieved results.

In addition, the partners will prepare material to be disseminated through the channels offered by the EC, SPIRE and other entities, such as: newsletters, bulletins, news, reports, etc.

### **5.3 Publications in scientific and trade journals**

The partners will publish the project activities and results in different scientific and trade journals. Table 5 shows the publications that have been planned up to now. The target of publications for this period (M37 to M48) is indicated in Table 7.

### **5.4 Presentations at national and international scientific conferences**

The partners will present the project activities and results at national and international conferences. Table 6 shows the presentations that have been planned up to now. The target of presentations at conferences for the second period (month 37 to 48) is indicated in Table 7.

### **5.5 Participation at exhibitions, fairs and workshops**

Finally, partners will attend different events such as workshops, exhibitions and fairs. The target of participations at events for the second period (month 37 to 48) is indicated in Table 7.

### 5.6 Events organised by SIDERWIN partners

The consortium considers suitable to carry out a first SIDERWIN webinar (1-2 hours) after the pilot plant starts to operate (second half of 2021) in order to increase the impact of the dissemination activities and define potential synergies and collaboration opportunities. This tool allows to achieve and spread the SIDERWIN project to the largest possible concerned audience. Announcement of the SIDERWIN webinar will be done through all the available channels (web, Twitter, LinkedIn, EU/SPIRE tools, SIG, related Platforms and Associations, ...) to reach the maximum audience as possible and direct invitations to the client networks of the partners.

At the end of the project, a SIDERWIN workshop will be organized to show the achieved results and to give the opportunity to meet potential interested clients (either on public or private field), investors, and researchers. Therefore, target audience could include different players in the scientific, industrial, financial and social fields, as well as journalists. Announcement of the SIDERWIN workshop will be done through all the available channels (web, Twitter, LinkedIn, EU/SPIRE tools, SIG, related Platforms and Associations, etc.) to reach the maximum audience as possible. In order to increase the impact of the workshop, if feasible, it could be organized jointly with the workshops of other SPIRE projects or in connection with any other relevant event (for example a well-known conference or exhibition).

The material of the final workshop could also be the basis to prepare a final SIDERWIN webinar (1-2 hours), describing mainly the objectives, approach and main achieved results. As the other webinar and the workshop, the emission of the webinar would be announced through all the available channels mentioned above and direct invitations to the client networks of the partners.



## 6 Conclusions

This report corresponds to the second release of the “Master Dissemination and Communication plan and updates” for the SIDERWIN project, and describes the key elements of the strategy that have been defined by the consortium for achieving proper project dissemination:

1. **the objectives** (*why*, mission & vision) → to spread the SIDERWIN’s results to the largest possible concerned audience (at the national, European and international level) in order to promote the implementation and use of the project results (exploitation).
2. **the subjects** (*what* will be disseminated) → the SIDERWIN project itself and its results together with the all the techniques/methodologies used for the project technical development.
3. **the timing** (*when* dissemination will take place) → three main phases are considered: 1) initial phase (*Awareness*) focused on increasing the project visibility and mobilising stakeholders and multipliers; 2) intermediate phase (*Interest/Desire*) focused on informing and engaging to the target stakeholders when preliminary results become available; 3) final phase (*Action*) focused on encouraging further exploitation of the SIDERWIN outcomes (transfer to other industries, replicability...).
4. **the target audience** (to *whom* it will be disseminated) → Industrial Community, Scientific Community, Financial Community, Policy makers, “Internal” Community (SIDERWIN partners) and General public.
5. **the tools and channels** (*how* to reach the target audience) → website, social networks, channels offered by the EC and SPIRE, dissemination material distribution, SIDERWIN Special Interest Group creation and mainly the presentation of the SIDERWIN results at scientific & trade journals, conferences, workshops and trade fairs. The report provides a list of potential journals, conferences and fairs where the SIDERWIN results could be presented.
6. **the responsible** (*who* will perform the dissemination) → all partners of the consortium will contribute to the SIDERWIN dissemination during the whole project lifetime
7. **the rules** for performing the dissemination activities
8. **the way to evaluate and assess the impact** of the dissemination activities, defining and monitoring KPIs for the different period of the project.

The report also includes a description of the actions carried out for the second 18 months of the project and the actions foreseen for the next 12 months of the project (M37-M48). The main results of the activities performed until the writing of this report are:

- 6 papers on International Conferences have been presented and published
- 2 papers on Scientific Journals have been published
- 2 news on trade journals have been published
- Participation in 1 International Workshops
- A Roll-up poster has been produced

## D8.2.2 Master Dissemination and Communication Plan and Updates

- 3 videos have been published on the web: Project Overview / John Cockerill 2020 Awards / Pilot Cell Construction
- 4 Newsletters have been produced and sent to the SIG members and available on the web
- The web page has been regularly updated. There have been 3.256 visits to the SIDERWIN web in this period (average: 181 per day)

## References

- [ 1 ] <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/2030-energy-strategy>
- [ 2 ] <http://www.spire2030.eu/spire-vision/spire-roadmap>
- [ 3 ] [https://ec.europa.eu/growth/sectors/raw-materials/industries/metals/steel\\_en](https://ec.europa.eu/growth/sectors/raw-materials/industries/metals/steel_en)
- [ 4 ] <https://www.european-aluminium.eu/>

## Annex I: Technological platforms and Associations with involvement of SIDERWIN partners

<b>Acronym</b>	Axelera	
<b>Name</b>	AXELERA	
<b>Web</b>	<a href="https://www.axelera.org/">https://www.axelera.org/</a>	
<b>Profile</b>	Cluster	
<b>Domain</b>	Chemical and environmental sectors	
<b>Scope</b>	French	
<b>Partners involved &amp; Type of involvement</b>	CFD – Numerics	Member

<b>Acronym</b>	CLUSTER TWEED	
<b>Name</b>	TWEED: Technology of Wallonia Energy, Environment and sustainable Development	
<b>Web</b>	<a href="http://clusters.wallonie.be/tweed-en/">http://clusters.wallonie.be/tweed-en/</a>	
<b>Profile</b>	WALLONIA Cluster (Belgium)	
<b>Domain</b>	Industry – Energy topics	
<b>Scope</b>	Belgium	
<b>Partners involved &amp; Type of involvement</b>	N-SIDE	Member

## D8.2.2 Master Dissemination and Communication Plan and Updates

<b>Acronym</b>	ESTEP	
<b>Name</b>	European Steel Technological Platform	
<b>Web</b>	<a href="https://www.estep.eu">https://www.estep.eu</a>	
<b>Profile</b>	Technological Platform	
<b>Domain</b>	Steel	
<b>Scope</b>	European	
<b>Partners involved &amp; Type of involvement</b>	AM	Member
	TECNALIA	Working groups (Automotive, Environment)

<b>Acronym</b>	EURELECTRIC	
<b>Name</b>	The Union of the Electricity Industry	
<b>Web</b>	<a href="http://www.eurelectric.org">http://www.eurelectric.org</a>	
<b>Profile</b>	European electricity association	
<b>Domain</b>	Electricity industry	
<b>Scope</b>	Europe	
<b>Partners involved &amp; Type of involvement</b>	EDF	Member

<b>Acronym</b>	EUROFER	
<b>Name</b>	The European Steel Association	
<b>Web</b>	<a href="http://www.eurofer.org/">http://www.eurofer.org/</a>	
<b>Profile</b>	Technological Platform	
<b>Domain</b>	Steel	
<b>Scope</b>	European	
<b>Partners involved &amp; Type of involvement</b>	AM	Member

## D8.2.2 Master Dissemination and Communication Plan and Updates

<b>Acronym</b>	European Aluminium	
<b>Name</b>	European Aluminium Association	
<b>Web</b>	<a href="https://www.european-aluminium.eu/">https://www.european-aluminium.eu/</a>	
<b>Profile</b>	Association representing the Aluminium industry in Europe	
<b>Domain</b>	Aluminium	
<b>Scope</b>	European	
<b>Partners involved &amp; Type of involvement</b>	Mytilneos	Member of the Alumina and Primary Aluminium Producers

<b>Acronym</b>	FEBELIEC	
<b>Name</b>	Federation of Belgian Industrial Energy Consumers	
<b>Web</b>	<a href="http://www.febeliec.be/">http://www.febeliec.be/</a>	
<b>Profile</b>	Belgian Business association	
<b>Domain</b>	Industry	
<b>Scope</b>	Belgium	
<b>Partners involved &amp; Type of involvement</b>	N-SIDE	Member

## D8.2.2 Master Dissemination and Communication Plan and Updates

<b>Acronym</b>	FoF / EFFRA	
<b>Name</b>	FoF - Factories of the Future EFFRA - European Factories of the Future Research Association	
<b>Web</b>	<a href="https://ec.europa.eu/research/industrial_technologies/factories-of-the-future_en.html">https://ec.europa.eu/research/industrial_technologies/factories-of-the-future_en.html</a> <a href="http://www.effra.eu">www.effra.eu</a>	
<b>Profile</b>	FoF – PPP of H2020 EFFRA - Association representing the FoF PPP Private Side	
<b>Domain</b>	Advanced manufacturing	
<b>Scope</b>	European	
<b>Partners involved &amp; Type of involvement</b>	TECNALIA	Member of the Advisory Group

<b>Acronym</b>	MANUFUTURE	
<b>Name</b>	Future Manufacturing Technologies	
<b>Web</b>	<a href="http://www.manufuture.org/">http://www.manufuture.org/</a>	
<b>Profile</b>	European Technological platform	
<b>Domain</b>	Process Industry, advanced manufacturing	
<b>Scope</b>	European	
<b>Partners involved &amp; Type of involvement</b>	TECNALIA	Member of the Steering Committee

## D8.2.2 Master Dissemination and Communication Plan and Updates

<b>Acronym</b>	SPIRE	
<b>Name</b>	Sustainable Process Industry through Resource and Energy Efficiency	
<b>Web</b>	<a href="https://www.spire2030.eu/">https://www.spire2030.eu/</a>	
<b>Profile</b>	PPP of HORIZON 2020	
<b>Domain</b>	Process Industry	
<b>Scope</b>	European	
<b>Partners involved &amp; Type of involvement</b>	AM	Member
	NTNU	Member
	N-SIDE	Member
	TECNALIA	Participant of the Steering Committee and all the working Groups (Feed, Process, Application, Waste)

<b>Acronym</b>	UFE	
<b>Name</b>	Union Française de l'Electricité	
<b>Web</b>	<a href="http://www.ufe-electricite.fr">http://www.ufe-electricite.fr</a>	
<b>Profile</b>	French electricity association	
<b>Domain</b>	Electricity industry	
<b>Scope</b>	France	
<b>Partners involved &amp; Type of involvement</b>	EDF	Chairmans of the following Commissions: Marchés et Système Electrique; Electricité Renouvelable et Territoire; Prospective et Innovation

## Annex II: SIDERWIN videos

This annex depicts some screenshots of the SIDERWIN videos.



Figure 13. Some screenshots of first SIDERWIN video with subtitles



Figure 14. John Cockerill Awards 2020 to SIDERWIN



Figure 15. Pilot Plant Building construction



### **Annex III: SIDERWIN Newsletter**

This annex depicts the four issues of the SIDERWING Newsletters.

# NEWSLETTER



May 2019 – No. 1

*Welcome to the first edition of SIDERWIN e-Newsletter. People registered to the Special Interest Group will receive periodically this email to be inform about the main challenges of the project.*

## SIDERWIN video

The first [video of SIDERWIN](#) project was launched in March. This short animation video offers a general overview of the project.

## M18 Steering Committee and Review Meeting


The 28<sup>th</sup> of March SIDERWIN partners attended to the M18 Steering Committee in Brussels where the main achievements of the different work packages during the last 6-month period were discussed. The next day the Project Officer, Cristina Fernández-Ramos, and the Technical Expert, Margaride Pinto, joined the partners.

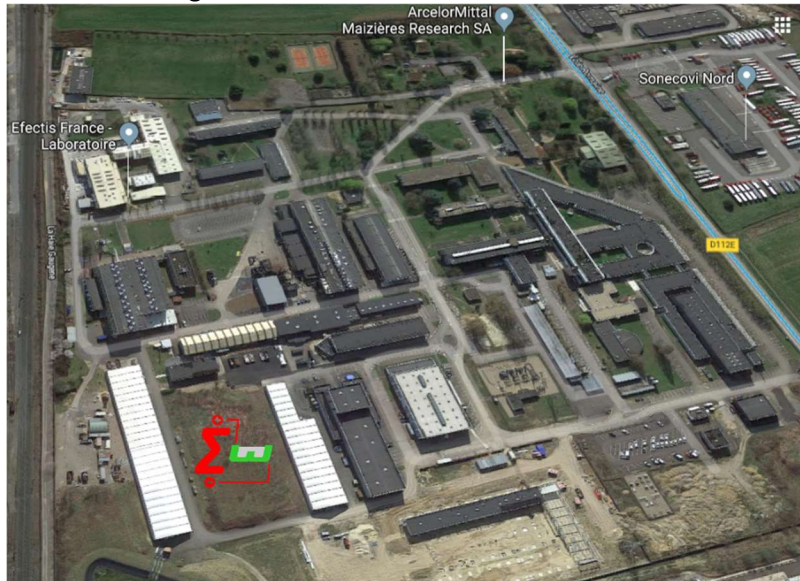
Several topics were addressed during the Steering Committee especially regarding the planning and possible deviations of the project. The goal was to emphasize the fact the delay that impacted the early stages of the project would not impact the upcoming tasks and workpackages. The huge developments undertaken during the first 18 months of the project allowed the consortium to actually dig deeper and to secure furthermore the choices to be made regarding the development of the cell.

At the end of the 2 days, the Project Officer and Technical Expert were relieved to see the project going forward in a sound state. A few recommendations were issued regarding the periodic report as well as the ongoing amendment. All of the recommendations have been heard and are already implemented.



## Pilot Plant Building Construction

A new building to locate the SIDERWIN pilot  is being constructed at ArcelorMittal facilities in Maizières-lès-Metz (France). The works will finish in 6 months when it is expected to start with the pilot commissioning.



## SIDERWIN in Estrategia Empresarial

In the 16<sup>th</sup> – 30<sup>th</sup> April 2019 edition of Estrategia Empresarial (Spanish business newspaper) an article about SIDERWIN was published. [Link](#)

## Upcoming SIDERWIN webinar

At the end of 2019 it will organised the first SIDERWIN webinar. The date of the event will be communicated by social networks and also in the next eNewsletter.

## SIDERWIN in ESTAD-METEC 2019

The Project Coordinator, Hervé Lavelaine de Maubeuge, will attend the [METEC - ESTAD 2019](#) in Dusseldorf with his lecture “SIDERWIN project: electrification of primary steel production for direct CO2 emission avoidance”

## DELIVERABLES

Now accessible through website the public deliverable:

[D8.2.1 MasterDisseminationAndCommunicationPlanAndUpdates SIDERWIN v1.0](#)

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## NEWSLETTER




Development of new methodologies  
for InDustrial CO<sub>2</sub>-freE steel  
pRoduction by electroWINning

November 2019 – No. 2

*Welcome to the second edition of SIDERWIN e-Newsletter. People registered to the Special Interest Group will receive periodically this email to be informed about the main challenges of the project.*

### Pilot Plant Building Construction

Works for the new building that locates the SIDERWIN pilot  at ArcelorMittal facilities in Maizières-lès-Metz (France) have been progressing during these months. Our partners ArcelorMittal and John Cockerill met there at the end of August to validate the design. Detailed drawings and purchase order start being issued.



### New insight on the electrification of iron oxides is given by the Universidade de Aveiro

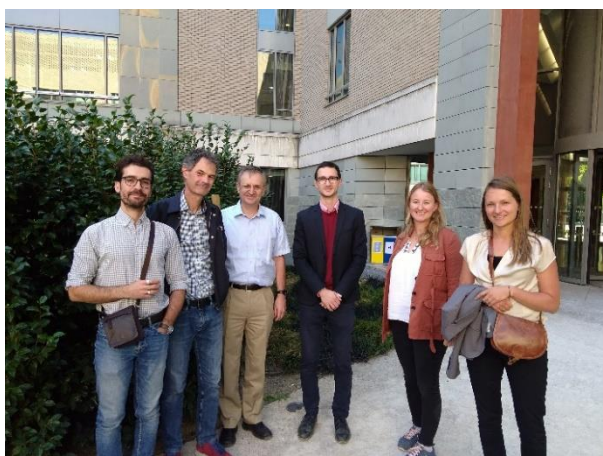
The article “Electrochemical reduction of hematite-based ceramics in alkaline medium: Challenges in electrode design”, published in *Electrochimica Acta* Volume 327 (December 2019), could be considered a milestone in the knowledge building up to run the SIDERWIN pilot.

The study focuses on the direct electrochemical reduction of aluminium-containing hematite in strong alkaline media. Within this scope, the reduction mechanisms of porous and dense cathodes, with 60%, 37% and 3% of open porosity, were investigated using different types of electrodes configurations. The results highlight the importance of electrolyte access to the interface between the metallic current collector and ceramic cathode for attaining reasonable electroreduction currents. And it shows that the necessity to find a compromise between mechanical strength of the electrode and its open porosity is essential for the electrolyte access.

<https://doi.org/10.1016/j.electacta.2019.135060>

### WP7 meeting

Our colleagues from WP7 attended on 19<sup>th</sup> of September to a meeting at ArcelorMittal offices in St Denis (Paris) to update on task developments, discussion on first results, data exchange and planning of next steps.



### WP6 meeting

Our colleagues from WP6 attended on 26<sup>th</sup> of September to a meeting at NTNU (Trondheim) focused on the reduction mechanism of iron oxides, contained in iron ore and Bauxite Residue, in caustic solution and low temperature. Results with pure iron oxide seems very promising in terms of current efficiency. The results of experiments with Bauxite Residue with different cathode materials and the effect of temperature were also studied. The partners agreed the next steps for the experiments.

### M24 Steering Committee

The 9-10<sup>th</sup> of October SIDERWIN partners attended to the M24 Steering Committee in Antikyra (Greece) where the main achievements of the different work packages during the last 6-month period were discussed and the activities for the next months were planned. During the meeting they visited the alumina and aluminium plant of Mytilineos, Metallurgy BU. The bauxite residue produced there, as a by-product of the alumina refinery, has proven to be a promising raw material for iron production through the SIDERWIN process. An exciting and rare chance for industrial symbiosis between two traditional competitive metal sectors!



### ELECTRIFICATION EUROPE

Our partner EDF organized in Paris (France) the conference: “[Electrification Europe 2019 International Summit](#)” for companies, policy makers and financial responsables. The SIDERWIN project coordinator Hervé Lavelaine participated on the breakout session 3B “Decarbonizing Industry” of Track B “Decarbonizing Buildings and Industry” that was held on October 17<sup>th</sup>: “[Decarbonisation of primary steel production by electrification](#)”

### SIDERWIN video updated

Subtitles have been included in the [video of SIDERWIN](#), a short animation offering a general overview of the project.

### SIDERWIN in ESTAD-METEC 2019

The paper and presentation of Project Coordinator, Hervé Lavelaine de Maubeuge, who attended the METEC - ESTAD 2019 in Dusseldorf with his lecture “SIDERWIN project: electrification of primary steel production for direct CO2 emission avoidance” are now available through the [website](#).

### John Cockerill (former CMI)

Our partner CMI has changed its name to [John Cockerill](#).



### SIDERWIN webinar postponed

Although announced for the end of 2019, finally SIDERWIN webinar will be postponed till more results could be shared with all interested people. We will keep you informed.

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Did this eNewsletter get forwarded to you? [Sign up](#) to our SIG to receive the SIDERWIN eNewsletter.

To unsubscribe, please send an email to [monica.serna@tecnalia.com](mailto:monica.serna@tecnalia.com) with the subject “Unsubscribe SIDERWIN eNewsletter”

*Welcome to the third edition of SIDERWIN e-Newsletter. People registered to the Special Interest Group will receive periodically this email to be informed about the main challenges of the project.*

### SIDERWIN building up of the pilot plant

The building is ready for commissioning of the SIDERWIN pilot at ArcelorMittal facilities in Maizières-lès-Metz (France). We are working on a video showing the building up of the pilot. As soon as it was ready, it will be share on our website and social networks. In the hope that the exceptional situation caused by #Covid19 will not delay the work too much.



SIDERWIN pilot plant building

### M30 General Assembly

The 26-27<sup>th</sup> of March SIDERWIN partners were intended to attend to the M30 General Assembly in Lausanne (Switzerland) where the main achievements of the different work packages during the last 6-month period were going to be discussed and planned the activities for the next months. Finally, due to the health decisions related to the evolution of the Covid-19 virus force us to reduce travel, and the physical meeting in Lausanne was cancelled. Instead, a teleconference Steering Committee took place on the 26<sup>th</sup> of March, while the Executive Committee for reviewing **in detail** the WP developments will be postponed until a safely face to face meeting could take place. We hope it would be as soon as possible.

### SIDERWIN webinar (2020/09/22)

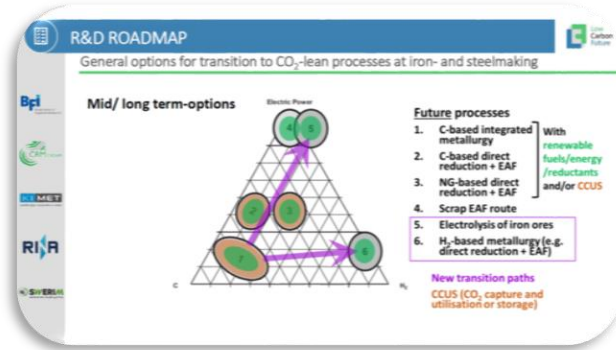
The SIDERWIN webinar is announced for **Tuesday 22<sup>nd</sup> of September 2020**. Soon it will be available in the web and social media the link to register for this interesting event, where the different partners will explain the developments made until date. Stay alert and save the date in your calendar

### Low Carbon Future RFCS Final Webinar

The 24<sup>th</sup> of March 2020 took place the final webinar of the RFCS project *Low Carbon Future* where short-mid and mid-long term-options were identified for the transition to CO<sub>2</sub>-lean processes at iron and steelmaking.

The *electrolysis of iron ore* was identified as one of the main technologies in the mid-term industrial deployment for carbon direct avoidance (CDA).

The target scenario for 2050 is the reduction of the Greenhouse Gas Emissions (GHG) by 80-85% compared to 1990 levels.



Source: RFCS LowCarbonFuture - Final Webinar - Summary and Roadmap\_20200324

### WP6 meeting

Our colleagues from WP6 had a technical meeting in Aveiro on the 11<sup>th</sup> of February 2020 where a thorough discussion on mechanism of iron electroreduction from iron ore and Bauxite Residue\* (BR) suspensions in aqueous NaOH solutions were taken place. They scrutinized, from thermodynamic point of view, all the potential routes of iron electroreduction from ores and BR, discuss the results of “synthetic” BR as a raw material for iron production as well as the electroreduction from Bauxite Residue pellets. Then, the bottlenecks on iron production from BR suspensions were identified and some possible routes that could be helpful on increasing the process efficiency were proposed. The results from some of them were showed and it was realized that, possibly, the application of magnetic field on cathode has a positive effect on electrolysis efficiency.

The general conclusion is that Bauxite Residue has been proved to be a possible raw material for iron production and the milestone MS6 was validated, achieving in lab scale iron electrorecovery from BR with a current efficiency higher than 60%.



Mytilineos's Bauxite Residue storage area

*\*Bauxite Residue (BR) is produced as a red slurry (hence the common term “red mud”) from the Bayer process cycle. It is estimated that for each ton of alumina produced 0.9- 1.5 tons of solid residue is generated depending on the initial bauxite ore grade and alumina extraction efficiency. The current BR production level in the EU is 6.8 Mtpa (million tons per year); while the cumulative stockpiled level is a staggering >250 Mt (dry matter). In Europe, alumina refineries operate in Bosnia Herzegovina, France, Hungary, Germany, Greece, Ireland, Romania, Spain and Ukraine, while significant BR deposits from refineries that have stopped their operations (legacy sites) exist in Italy, France, Germany, Hungary and other countries. The large volume of BR is an ever-growing concern to all alumina producers. In cases where land availability is becoming limited, the ever-growing demand for BR disposal space, ultimately threatens the longevity of established alumina refineries.*



### WP7 meeting

The 6<sup>th</sup> of February 2020 took place in Paris, the WP7 meeting, where our partner N-Side communicated its decision of phasing out of the SIDERWIN project, because of strategic considerations. Recoy – a partner company of N-SIDE – was suggested as the best candidate to continue the significant work started by N-Side in developing the economic model of the SIDERWIN plant.

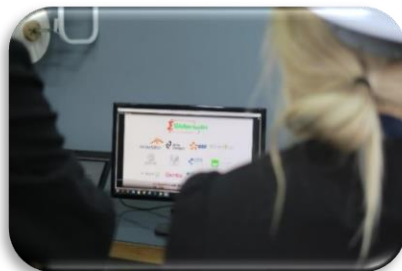
Recoy is a Dutch company based in Amsterdam (The Netherlands) and focuses on valorizing flexibility within the production processes of mainly large industrial sites. Flexibility has a value against the background of volatile electricity prices. Recoy provides a range of short-term electricity forecasts as well as analytical modelling techniques. It has a varied portfolio of customers such as Tata Steel, Nouryon, Nyrstar, Gasunie, Paper-manufacturers, Horticulturists, Equipment manufacturers, Renewable electricity producers etc.

Last week the consortium organized the M30 Steering Committee by teleconference due to #Covid19. The partners approved the joining of Recoy into the Consortium. The corresponding amendment will be sent to the EC.



### Visit of the European Investment Bank

At the beginning of March, our Project Coordinator, Hervé Lavelaine, explained the representatives of the European Investment Bank: Maria Lundqvist, Marc Tonteling and Hervé Lescoeur, the main developments behind the SIDERWIN project. They had the opportunity of visiting the SIDERWIN building at ArcelorMittal facilities.



Visit of European Investment Bank representatives

### SIDERWIN in ECEEE conference

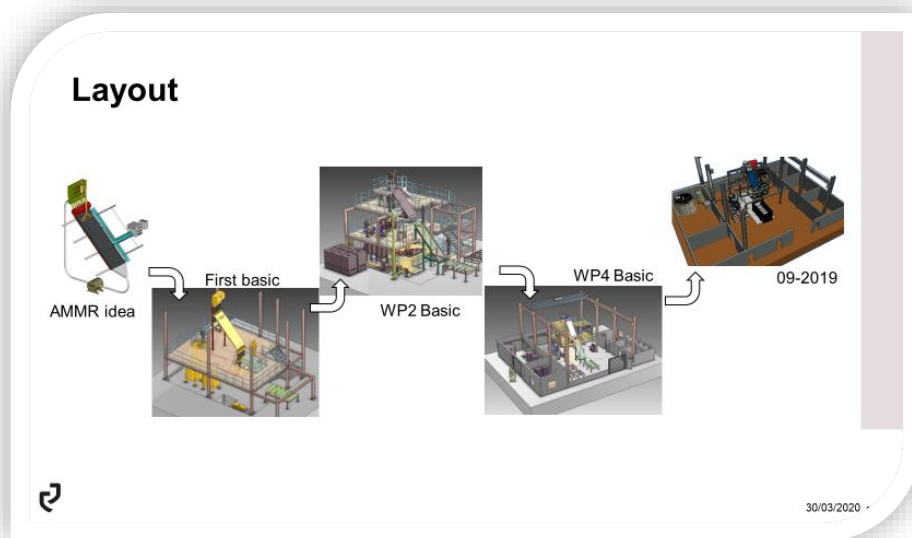
Our colleagues from EDF will attend the Industrial Efficiency 2020 conference organized by the European Council for an energy efficient economy, initially scheduled for June and finally postponed till the 14–16 September 2020, in Gothenburg (Sweden) due to the difficult situation because of the COVID-19 virus and the resulting travel restrictions. The conference paper will communicate the potential benefits, the methodology and the data used in its study about the integration of SIDERWIN industrial development in the future European power system.



Logo linked to ECEEE

### WP4 closing meeting

The WP4 closing meeting scheduled for 16/03/2020 at Maizières Les Metz (France) was replaced by a teleconference due to #Covid19 situation. A very interesting meeting took place on the 25<sup>th</sup> of March, where the main achievements of each task were summarized. The figure below shows the evolution of the layout of the pilot plant, from the first idea to the final design that will be commissioned.



Evolution of the layout of the pilot plant from the initial idea

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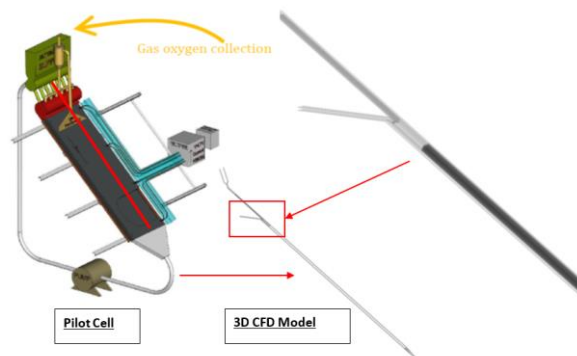
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 768788



Welcome to this new edition of ΣIDERWIN e-Newsletter. People registered to the Special Interest Group will receive periodically this email to be informed about the main highlights of the project.

### CFD simulations of the pilot cell confirm the operability of the cell

Workpackage 3 of the ΣIDERWIN project was devoted to the simulation and design of the optimal prototype of the electrolysis cell for Iron production. With that purpose in mind, and before assembling the pilot cell for experiments, many CFD simulations have been performed to assess the efficiency of the cell. Thus, a comprehensive 3D CFD model of this cell has been built as depicted on the figure below:

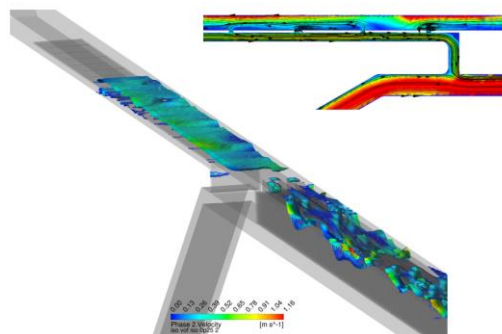


ΣIDERWIN electrolysis pilot cell – 3D CFD model definition

A major issue is to ensure a proper degassing process. Indeed, a large quantity of oxygen is generated close to the anode walls that needs to be properly removed from the cell to avoid a dramatic loss of efficiency.

The cell design has been defined using 3D CFD simulations to be sure that the **generated oxygen gas is properly driven to the cell degassing outlet with no accumulation**, validating ΣIDERWIN concept.

The figure below depicts some simulation results showing gas pockets colored by velocity in the operating cell.



CFD model results

The final design proposed does not show any gas bubbles accumulating or flowing down to the cathode. This is achieved using specific CFD-designed devices.

The 3D, detailed, full length simulations of the pilot cell have been accomplished and confirm the operability of the cell.

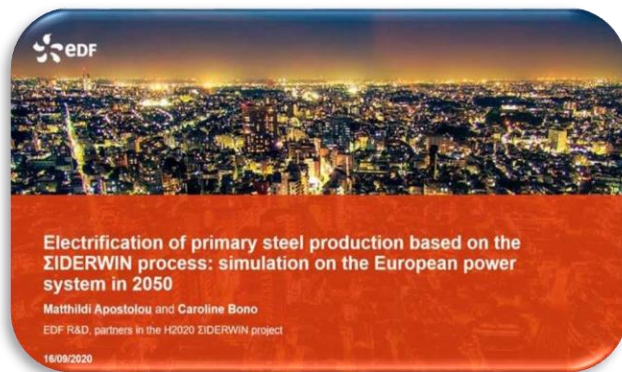
## Participation of our partner EDF in the ECEEE conference

The theme of this year's ECEEE virtual conference (14<sup>th</sup> - 17<sup>th</sup> September 2020) was the decarbonisation of the Industry. Our colleagues from EDF presented the article «**Electrification of primary steel production based on ΣIDERWIN process: simulation on the European power system in 2050**», valorizing the contribution of ΣIDERWIN in reducing the carbon footprint of steel industries.

The modelling of an electricity mix scenario for 2050 with ΣIDERWIN's electricity demand at a European level, as well as the ΣIDERWIN's Demand Side Response (DSR) flexibility was realized. Different scenarios were studied including scenarios where ΣIDERWIN's demand is satisfied by offshore wind turbines, by 50% offshore – 50% nuclear, and by 100% nuclear power. A detailed technical and economic analysis of DSR was also performed.

The main results of the study are the following:

- ΣIDERWIN should offer a **great flexibility capacity, of up to 39 GW in a European scale**, with great responsiveness and without duration or repeatability constraints.
- **This flexibility represents a real asset for the European Power System**: it could contribute to the **balance of the power system**, by replacing a large part of the peaking OCGT (Open Cycle Gas Turbine) plants. That means:
  - A reduction in CO<sub>2</sub> emissions.
  - Financial gains (higher than the cost of flexibility activation).
- **The deep decarbonation of steel industry enabled by ΣIDERWIN is not jeopardized by the impact on power system**:
  - The European power system is able to meet the additional ΣIDERWIN demand with carbon-free means.
  - Despite a strong increase in electricity demand, the impact on CO<sub>2</sub> emissions of the European power system is very low and depends on the choice of technologies used to meet the additional demand of ΣIDERWIN.
  - In all scenarios studied, the carbon intensity of electricity generation (g/kWh) decreases.
  - The flexibility offered by ΣIDERWIN allows for additional CO<sub>2</sub> savings, by replacing part of the peaking OCGT plants: direct savings in thermal generation but also savings due to OCGT plants not built.



EDF's presentation cover slide and speakers

## ΣIDERWIN webinar postponed

Unfortunately, the ΣIDERWIN webinar announced for the **22<sup>nd</sup> of September 2020** has been finally postponed till the beginning of 2021, due to the delays on the building commissioning because of the exceptional situation of Covid19 pandemic. Soon it will be available in the web and social media the link to register for this interesting event, where the different partners will explain the developments made until date. Stay alert and save the date in your calendar.

### ECS Spring Meeting

This year, the Electrochemical Society Spring Meeting that should be held in Montreal in May 2020, was finally cancelled due to Covid19.

Our colleagues from NTNU were going to participate in the event with the paper «*Electrodeoxidation of Iron Oxide in Aqueous NaOH Electrolyte*» published in the proceedings.

This paper summarizes some of the recent results obtained under ongoing studies in the ΣIDERWIN project for the development and optimization of this electrochemical process. Experiments were carried out in NaOH-H<sub>2</sub>O (50-50 wt%) electrolyte with a suspension of Fe<sub>2</sub>O<sub>3</sub> particles at ~100 °C, using a rotating disk electrode as cathode and different cathode substrates.

**Silver** was found to be an **excellent substrate for good quality deposits**. It was also demonstrated that, in addition to Fe<sub>2</sub>O<sub>3</sub>, **bauxite residue** (red mud) from Bayer process may be used as a **raw material** in this process and **iron can successfully be recovered**.

### M36 Review Meeting

The next ΣIDERWIN Review Meeting will be held virtually on the **30<sup>th</sup> of November**.

Wishing that the situation improves and limitations to travel allow all the partners to attend a face- to-face meeting at ArcelorMittal facilities to see the progress of the pilot plant, that continues despite of Covid19 pandemic. Find below some pictures of the new tanks and control systems installed.



ΣIDERWIN pilot plant progressing

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