



BELENUS

Lowering Costs by Improving Efficiencies in Biomass Fueled Boilers: New Materials and Coatings to Reduce Corrosion

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Dissemination level		
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PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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Executive Summary

The Plan for the Exploitation and Dissemination of Results summarises the partners' strategy and concrete actions related to the protection, dissemination and exploitation of BELENUS results.

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1. Content of Deliverable

This Deliverable contains the plan for the exploitation and dissemination of BELENUS' results. It is a strategic document for the partners that will help them to establish the bases for their intellectual property strategy, dissemination and exploitation activities.

This Deliverable follows the evolution of the project from the initial stages until the submission of the final project report. Therefore, the PEDR will be updated during the implementation of the project.

2. Methodology

Taking into account that no results will be available at the beginning of the project, during the first months the plan and strategy will focus on raising awareness of the project among the different stakeholders. The aim of this first period will be to create a wide base of audience for the future disseminative activities. Once the initial results and deliverables are available, the disseminative activities will include technical content.

The BELENUS Plan for Exploitation and Dissemination of Results (PEDR) is a practical tool to be used by all partners to develop their individual and collective dissemination activities efficiently and contribute to the global objective of the project. It has been made on the basis of the “Guidelines for your dissemination and exploitation activities”¹, made available by the European Commission.

This Plan will be developed through the interaction among all the partners as most of the partners have access to relevant networks that can be used to reach different target audiences and will help to better disseminate the project deliverables and exploit the project results.

In addition, the PEDR will be updated as the project gets underway and partners will be requested to send their feedback about the results achieved and the next planned activities. Thus, Figure 1 gathers the main steps to be taken for the development of the PEDR.

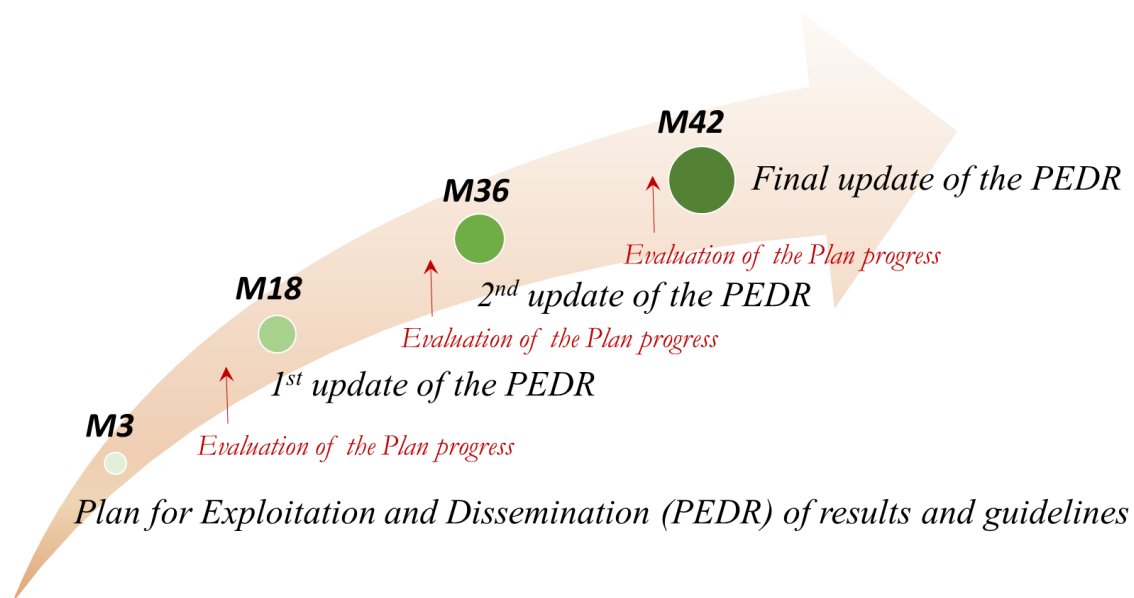


Figure 1. Steps for the development of BELENUS' Plan for dissemination and Exploitation of Results.

The International Advisory Board (IAB) and Stakeholders will provide regular feedback from the community perspective concerning the BELENUS results, progress and effectiveness and acceptance level reached. The project IAB and the Project Officer will be regularly informed about the project progress and achievements. This IAB will meet at least once a year with the BELENUS consortium to receive a presentation of results and provide input and feedback to the project.

A list of key stakeholders and policy makers, institutions and organisations from EU related to project scope is being created and will be continuously updated, so that information about project progress and achievements will be directly delivered to them.

Project partners will be strongly encouraged to present their achievements in related conferences, workshops, meetings and exhibitions.

¹http://ec.europa.eu/research/participants/docs/h2020-funding-guide/grants/grant-management/dissemination-of-results_en.htm

In order to maximize the impact beyond the lifetime of the project, the backbone of the Plan for the Exploitation and Dissemination of Results (PEDR) consists of 3 different stages (Project, Follow-up and Market). This structure is based on the evolution of the project towards close-to-market results, essential in the energy sector. The PEDR strategy will articulate both dissemination and exploitation activities completely aligned and integrated, increasing their intensity when the results become more consistent technologically and economically. In addition, Intellectual Property Rights (IPR) and knowledge management strategies will be considered.

To be able to define and execute the Plan for Exploitation and Dissemination of Results, we will use the same media in relation with the project resources than those used in the Communication Plan (project website, conferences, workshops, congresses, newsletter, LinkedIn page, Twitter, etc.).

3. Dissemination strategy

3.1. Dissemination and Communication goals

The main principle of the dissemination activities is to use the results generated during the project to create value within the target communities/initiatives in the EU. This approach ensures that the public funding will lead the progress and the positioning of EU Industries as benchmark players within the global marketplace. In summary, dissemination concerns the communication of the project and its results targeted to external audiences including potential end users of the products/services developed, the energy sector, the scientific and the industrial community as well as the general public.

Dissemination is needed to ensure that large industries, energy companies (RWE, EDF and UNIPER) and solution providers (DBL, VAL and SMT) as well as multiplier entities (public entities, initiatives, clusters, R&D centres), directly or indirectly involved in the project, count with unquestionable positioning and capacity to influence and increase the project's impact. The participation of their internal dissemination strategies will allow involving their complementary research and business units with the aim of increasing the impact of the project research. BELENUS will promote awareness creation and knowledge building within the targeted audiences.

This PEDR will identify and quantify the most useful dissemination activities. The dissemination approach and strategies will be tailored to each partner's expertise (Table 1).

Table 1. DISSEMINATION APPROACH.

Partners	Dissemination targets
Companies: RWE, EDF, UNIPER, VAL, DBL, SMT, TEandM	Large capacities to impact the bioenergy market and complementary sectors through their client networks and commercialization channels. Dissemination efforts will focus on identifying and engaging potential users interested in exploiting the generated products. Holistic pan-European impact will be achieved via the involvement of dissemination/sales channels and clients/suppliers of large companies. Mid-caps and SMEs will be targeted in order to incorporate their specific technologies in the value chain.
SMEs: TEandM and ZAB	Attract new clients and reinforce the loyalty of customer portfolio as a result of the new competitive advantages acquired in terms of boosting current products and services with new high-tech solutions, while making available to BELENUS their existing client networks.
R&D/Academia: UCM, CIEMAT, CHAL, TUC, INTA, VTT, VAL and EIFER	To engage the scientific and industrial communities across Europe to raise awareness about the project and contribute to knowledge generation. Introduce new research lines and training programs aligned with the key pillars of excellence in science established in H2020. Involvement of research groups and communication departments at universities in dissemination activities. To inform students about the research involved in the project.

3.2. Targeted audiences

BELENUS results will be disseminated through different targeted groups according to the objectives of each work package, always keeping in mind the main purpose of contributing to the general scientific community, bioenergy community, stakeholders, end users and general public. Thus, depending on the needs and interests of these target groups, BELENUS consortium will use various dissemination tools and activities. These activities will extend from the most specific biomass area going through other fields of knowledge such as materials engineering or renewable energies.

The project will promote the research results and benefits within the targeted industry, end users and academia communities belonging to the whole value chains of the EU bioenergy sector already identified on Table 2. This table will be continuously updated throughout the project.

Table 2. BIOENERGY TARGET GROUPS AND COMMUNICATION STRATEGY.

Target Group	Communication Channels	Type of information	Aim
Bioenergy Industry <ul style="list-style-type: none"> Technology providers EPC companies Industry associations and representatives at the European level 	Market and sector fairs, industry Workshops.	End users participation in workshops and main results communication.	Project involvement and commercial exploitation.
Material sector <ul style="list-style-type: none"> Manufacturers/Suppliers Coaters Industry associations and representatives at the European level 	Web and social media; Press releases; Scientific journals, conferences; Industry events (market fairs); dedicated workshops; specialised communication channels.	End users participation in workshops and main results experience reports.	Project involvement and commercial exploitation.
European Policy actors and decision makers (sector-specific) <ul style="list-style-type: none"> Relevant DGs – Energy, Internal Market, R&I, Connect Regulators Relevant committees National representation 	Web and social media; Policy Workshops in Brussels Specialised communication channels (EU Community, etc.).	Importance of new solutions, challenges and outlook. End users participation in workshops and main results.	Project involvement, policy dissemination.
National Decision-makers (sector-specific, selected countries) Ministries, regulatory bodies and Relevant MPs	Web and social media. Policy Workshops in European capitals.		General awareness, policy dissemination
Research and academia (Relevant research institutions & teams)	Web and social media; Scientific journals, conferences.	Experience reports	R&D cooperation.
Other target groups <ul style="list-style-type: none"> Interest groups at European level Media & journalists Energy NGOs Citizens and consumers organisations 	Web and social media. Press releases.	Basic facts. Importance of solutions, challenges and outlook.	General awareness.

3.3. Communication channels, tools and actions

During the project, a common framework will be established for the exploitation and dissemination of the project results covering all communities involved (industrial users, biomass plant owners, research organizations...) based on their presence and positioning in multiple networks. Both dissemination and exploitation activities will be focused on a unique strategy for the products/services developed within the project. BELENUS partners will disseminate the results through a set of dissemination channels in order to reach the targeted audiences, considering the best media planning for each audience. Some examples are gathered in Table 3; however, beyond these examples, the Consortium will keep a close eye on future events and conferences in which to participate.

Table 3. DISSEMINATION CHANNELS.

Scientific Conferences and International Journals. - “Contribute to an excellence of science in EU”	
As BELENUS is a RIA, it is expected to develop a significant amount of research results which will be disseminated to key scientific communities. Thus, the research partners (mainly) will dedicate strong efforts in publishing scientific papers under the framework of global recognized scientific conferences and journals that count with high impact index.	
Scientific Conferences Targeted	[1] EPRI Conference; [2] Eurocorr Conference; [3] International Conference on Renewable Energy and Resources; [4] International Congress on Biofuels and Bioenergy; [5] European Biomass Conference & Exhibition; [6] International Biomass Congress & Expo; [7] International Conference on Metallurgical Coatings and Thin Films; [8] the High Temperature Corrosion Gordon Research Conference; [9] the International Symposium on High temperature Oxidation and Corrosion.

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International Reference Journals Targeted	[1] Corrosion science; [2] Energy & Fuels; [3] Energy for Sustainable Development; [4] Surface and Coatings Technology; [5] Fuel; [6] Bioresource Technology; [7] Renewable Energy; [8] Fuel Processing Technology; [8] Renewable and Sustainable Energy Reviews; [9] Applied Energy; [10] Oxidation of metals.
Dissemination Performance Indicator	Average for industry – 1 conference contribution/year Average for combined R&D Institutions 3 top conference contributions/year – a minimum of 15 journal publications during the project
Positioning of the Consortium in European initiatives/communities - “90% of world energy demand will come from outside Europe in the next decade. This offers a unique economic opportunity for Europe to position itself as a leader in low carbon technologies” (Carlos Moedas – SET Plan 2016¹)	
<p>Presently, the efforts of the EC in the policy context are focused on meeting the RES targets set in order to help achieving the ambitious mitigation and adaptation targets outlined in the current COP21 Paris Agreement². Several partners are extensively involved in strategic policy initiatives and communities at regional, National and European level. The Partners of BELENUS will carry out a continuous observatory to follow-up the main agreements achieved, as well as the evolution of key indicators established by EC in the field of the project. Some relevant activities follow:</p> <ul style="list-style-type: none"> ■ As result of the presence of several partners of BELENUS in key “bioenergy initiatives” and “policy advisory committees”, they will establish significant connections with on-running initiatives/projects. ■ Members of the consortium participate in the International Institute of Welding, the European Creep Collaborative Committee and the Energy Materials Industrial Research Initiative. ■ Some partners participate in H2020 projects, such as NexTower, RAISELIFE and GEMMA related to low or zero carbon technologies and high temperature corrosion. ■ Some members collaborate as core members and associate members of the European Virtual Institute on Knowledge-based Multifunctional Materials AISBL and in the GfKORR working group "Corrosion Protection at Elevated Temperatures" ■ Yet some other partners participate in EURELECTRIC; EeB PPP; ETIP-SNET and BUSINESS EUROPE. 	
EU events, trade fairs and workshops	
<p>BELENUS's partners will present the project's results in EU events organized by EU Research Initiatives and International Trade Fairs to establish synergies and start commercializing the outputs generated within the project. Additionally, BELENUS partners will be involved in the events and workshops associated to on-going EU initiatives previously identified. The consortium will organise 2 workshops and a Young Researchers Training School to promote the BELENUS results. Some examples of events to present BELENUS advances are WasteEng 2018; Powergen Europe, VGB workshop on materials, (knowledge change between scientists and industry), EUBCE (leading platform for the collection, exchange and dissemination of scientific and industrial know-how in the field of biomass); GENERA (International fair on energy); Expobiomasa: (International fair on energy); High Temperature Corrosion Centre based at CHAL; Annual assembly of the International Institute of Welding (networking and knowledge exchange among scientists, researchers, and industry related to welding and joining); IEA Clean Coal Center workshop on advanced ultrasupercritical power plant; ASME Boiler Code Week.</p>	
Performance indicators	Average for Consortium: 3 Events, 1 Fair /year.

In addition, some other channels outside the consortium will be used for results dissemination (such as website, social media, newsletters, etc.). All these channels will be described in the following sections.

3.3.1. Project Website

The website is aimed to reach all the audiences of the BELENUS project, although a greater number of visits is expected from those groups that are more technical and related to the subject matter of the project. The main communication objectives of the BELENUS website are:

- To provide relevant and current information to a wide audience
- To ensure information is provided in an accessible and usable manner
- To be a common documentation database for all the partners, containing the main project documentation and deliverables

² <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

- To be an information database of all the activities and deliverables carried out by BELENUS project and its partners.

The deliverables of the project will be available at the project website (www.belenus-project.eu). All of them will be accessible for the consortium members in the private section, while the public ones will be available for anyone interested in them in a public section created for this purpose. These public deliverables will be available for reviewing or downloading.

Also, on the website there will be newsletters informing about the project progress and its outcomes. The responsible of these newsletters will be UCM, who will require the collaboration of every partner for the elaboration of the news.

Additionally, the website will inform about upcoming events related to the project, including not only the bioenergy sector, but also the materials sector and the energy sector in general.

3.3.2. Project brochures and other disseminative materials

As described in WP8, and aiming at contributing to the promotion and communication of the project objectives and its outcomes, promotional material like leaflets, flyers, brochures, posters, etc. will be produced and distributed widely in all key events and through a regularly updated database of contacts (including newcomers registering through the website). Press releases will be delivered directly to the email address of the project stakeholder's contacts. These materials will be part of Task 8.1, being UCM the leader and main promoter of their design.

3.3.3. Project newsletters

A quarterly newsletter will be shared with newcomers interested the achievements/news of the project. Newsletters will be uploaded in the website and an internal calendar will be shared with all project partners for receiving their feedback and the final approval about the content and appearance of the newsletters.

The responsible of managing and delivering these newsletters is UCM, as Task 8.1 and WP8 leader, who will ensure the existence of enough materials to be included in the document and will ask other consortium members for their contribution.

3.3.4. Social networking communication tools

Social networks are a powerful tool to achieve a multiplier promotional effect on communication activities. That is why the project achievements will be constantly updated to show BELENUS as an active and interesting project. Viral marketing strategies will be implemented based on social networks like LinkedIn, YouTube, Twitter, etc. These platforms will be employed in order to reach the young generation and to feed followers with public, validated and fresh data. Additionally, these channels will allow attracting the interest of stakeholders and general public. The social media management will be developed following the Social media guide for EU funded R&I projects³.

The presence of the project on social media is fundamental to accomplish some of the objectives and it will be used as a relevant tool to reach third parties, the research community and to interact with the general public.

³ http://ec.europa.eu/research/participants/data/ref/h2020/other/grants_manual/amga/soc-med-guide_en.pdf

UCM will be responsible of the social media management and will generate the content together with the collaboration of other consortium members, who will also publish the relevant information in their social networks. This communication channel is expected to be rather efficient in communicating project evolvments and stabilising strong presence.

3.3.4.1. LinkedIn

LinkedIn, as professional social network, will be used to reach a scientific audience, including end-users and experts in different fields. This platform will be used for sharing news and articles related to the project, informing about the progress and outcomes reached.

LinkedIn will be used as key tool to disseminate the outstanding achievements of the project and will be constantly updated by UCM.

3.3.4.2. Twitter

Twitter will be used to inform about the existence of project events such a conference and workshops, make a follow up of them and disseminate the results. BELENUS profile on Twitter will also make mentions of partners assistance to third parties events, contributing to their dissemination and exposing their point of view about the topics discussed. Additionally, Twitter will be used to create a community with experts in different fields related to the project and share with them the results of the project.

3.3.4.3. Partners social media

The partners will be asked to disseminate and communicate the relevant achievements made during the progress of the project, including also their participation in project events, on their social media profiles (website, LinkedIn, Twitter, etc.).

Table 4. LIST OF SOCIAL MEDIA CHANNELS OF CONSORTIUM MEMBERS.

Partner	Website	LinkedIn	Twitter
UCM	www.ucm.es	https://www.linkedin.com/school/universidadcomplutense/	@unicomplutense
CIEMAT	http://www.ciemat.es	https://www.linkedin.com/company/ciemat/	@CIEMAT_Moncloa
CHALMERS	https://www.chalmers.se	https://www.linkedin.com/school/chalmers-university-of-technology/	@chalmersuniv
TUC	https://www.tu-chemnitz.de	https://www.linkedin.com/school/chemnitz-university-of-technology/about/	@TUChemnitz_
DBL	http://www.doosanbabcock.com	https://www.linkedin.com/company/doosan-babcock/	@doosan_babcock
INTA	www.inta.es	https://www.linkedin.com/company/instituto-nacional-de-t%C3%A9cnica-aeroespacial-inta/	@intaespana
RWE	https://www.rwe.com	https://www.linkedin.com/company/rwe/	@RWE_AG
SMT	https://www.materials.sandvik	https://www.linkedin.com/company/sandvik/	@SandvikGroup
VTT	https://www.vtt.fi/	https://www.linkedin.com/company/vtt/	@VTTFinland
VAL	http://www.vallourec.com	https://www.linkedin.com/company/vallourec/	@Vallourec
UNIPER	https://www.uniper.energy/	https://www.linkedin.com/company/uniper-se/	@uniper_energy
EIFER	https://www.eifer.kit.edu/	https://www.linkedin.com/company/european-institute-for-energy-research/about/	-
TEandM	http://www.teandm.pt	https://www.linkedin.com/company/teandm/	-
ZABALA	https://www.zabala.es/	https://www.linkedin.com/company/zabala-innovation-consulting---europe/	@zabala_eu

In addition, after every relevant milestone of the project, every consortium member who took part in it will be asked to make a mention on their owned media channels and/or profiles making proper reference to the project, that is, project name, EU funding status, and role in the project. Afterwards, BELENUS's media channels and profiles (website, newsletter, social media) will mention these publications to increase the impact of every communicative action.

3.4. Project deliverables

A number of public deliverables will be produced throughout the project, all of them being made available in the project website. Table 5 gathers the 18 public deliverables that will be produced along the execution of BELENUS.

Table 5. LIST OF BELENUS PUBLIC DELIVERABLES.

No.	DELIVERABLE NAME	WP	RESP.	TYPE	DISS. LEVEL	DUE DATE
D1.1	Review of resource data for selected biomass	1	DBL	R	PU	M3
D1.2	Collation of data sources: coatings performance	1	DBL	R	PU	M4
D1.3	Collation of data sources: welding and bending	1	TUC	R	PU	M9
D3.7	Final results of erosion tests	3	DBL	R	PU	M42
D3.8	Final results of the long-term mechanical test	3	TUC	R	PU	M46
D3.9	Final results of the long-term testing under fire- & steam-side corrosion	3	INTA	R	PU	M48
D4.1	Biomass fuels characterisation	4	CIEMAT	R	PU	M6
D4.8	Comparison of lab and pilot scale tests results	4	UCM	R	PU	M48
D5.7	Welding and bending strategies summary	5	TUC	R	PU	M41
D6.7	Impact of BELENUS solutions in CAPEX and OPEX Summary	6	UCM	R	PU	M48
D7.5	Lab test protocol	7	UCM	R	PU	M47
D7.6	Comparison of results from lab, pilot and real-plant scale	7	UCM	R	PU	M48
D8.1	Project website	8	UCM	DEC	PU	M3
D8.2	Plan for the Exploitation and Dissemination of Results (PEDR)	8	UCM	R	PU	M3
D8.6	First BELENUS Workshop	8	UCM	R	PU	M18
D8.8	Young Researcher Training School	8	UCM	R	PU	M24
D8.10	Second BELENUS Workshop	8	CHAL	R	PU	M42
D9.2	Final Report Summary	9	UCM	R	PU	M48

3.5. Events and networking

BELENUS will schedule a number of events, including workshops, training and educational activities for the right performance and success of the project. Although led by UCM as Task 8.1 leader, all partners will contribute to the diffusion of these events in order to increase their impact.

3.5.1. BELENUS Workshops

The consortium will organize two workshops on coatings and lifetime prediction in order to promote the BELENUS results. The first of these workshops will be organized to enhance scientific exchange and to promote networking on service lifetime modelling of materials with researchers and relevant stakeholders. The second workshop will address the newly developed coating systems and the tests results targeting mainly industrial stakeholders.

These workshops will be promoted in both BELENUS website (www.belenus-project.eu) and social networking communication tools (Twitter and LinkedIn), these media being also used to disseminate the results of these events.

3.5.2. Training and educational events

The organization of this type of events will include the participation of High School students in Open days that will be organized at different partner sites, the promotion of the involvement of researchers in PhD programs and the development of internships of final year university students (undergraduate students) and Master thesis (postgraduate students).

A Training School will be organized to train young researchers from Europe in materials issues related to bioenergy.

3.5.3. Attendance to conferences, seminars and workshops

Members of the Consortium will attend conferences, workshops, seminars and congresses related to the project scope, where they will carry out project-related speeches. Thus, relevant research results generated in the project will be disseminated during the whole project lifetime. This will allow contacting stakeholders and market leaders, as well as learning about current tendencies in the bioenergy industry.

Examples of key conferences world-wide are: the International Conference on Metallurgical Coatings and Thin Films (California), Eurocorr (Europe), the High Temperature Corrosion Gordon Research Conference (USA), the Dechema European Federation of Corrosion Workshop (Germany), the International Symposium on High-Temperature Corrosion and Protection of Materials (France), the International Symposium on High temperature Oxidation and Corrosion (Japan), Microscopy of Oxidation (United Kingdom), Annual European Biomass to Power Conference, Global Power – Energy Exhibition and Biomass and Bioenergy Conference. Beyond these examples, the Consortium will keep a close eye on future events and conferences in which to participate.

3.6. Scientific publications

Project results will be also disseminated in the form of scientific publications targeted at peer-review high impact factor International Journals/Magazines. The publications shall include acknowledgements to the project. Prior to publish any scientific publication, the partner involved shall contact the Project Coordinator and Exploitation and Innovation Board (EIB), following the regulations stated in the Consortium Agreement (CA) for protection of project results and Intellectual Property Rights (IPR). The partners will have to provide open access to all peer-reviewed scientific publications relating to its results according to Article 29.2. of the Grant Agreement and H2020 Guidelines on OA to Scientific Publications (European Commission, 2013). In agreement with the "Open Science" strategy encouraged by the European Commission, open access publication of project results in peer-reviewed Journals (gold open access) will be promoted. Additionally, joint publications from different partners are encouraged.

The main scientific journals identified as potential disseminators of BELENUS results are Oxidation of Metals, Energy Fuels, Surface and Coatings Technology, Corrosion Science, Materials Physics and Chemistry, Journal of Alloys and Compounds, Materials and Corrosion, Biomass and Bioenergy Journal and Bioenergy Research among others.

To complement the appearance in specific media, the major achievements of the project will be released and published in the project website and delivered to mass media around Europe. These articles may be written by UCM, or any partner interested, with the technical contribution of the BELENUS consortium, if needed, and reviewed by the Project Coordinator before their distribution. In addition, the project website will provide access

to a ZENODO repository containing the publications as well as the data and meta-data needed to validate the results (green open access). Work package leaders will maintain the database.

3.7. Monitoring

Although BELENUS has an overall evaluation strategy, the project has a separate monitoring focused on communication activities. This monitoring ensures a high-quality dissemination and communication strategy execution and a high impact on the successful implementation of the project. The consecution of this plan will be measured according to the different indicators, such as level of acknowledge of the project around Europe (stakeholders and general public), number of publications, both scientific and non-scientific ones, as well as number of attendants to the project events.

The monitoring is a continuous process that can be outlined as follows:



Figure 2. Monitoring process of dissemination and communication activities.

3.8. Reporting

Aiming at enabling a proper monitoring and assessment of the dissemination activities, all partners will register the dissemination and communication activities that they carry out. To this end, a section for reporting each activity will be available within the private area of the BELENUS website.

3.9. Planning

The global planning or action plan includes the main events and actions to be carried out during project execution, most of them involving all the partners. The first version of the action plan for dissemination and communication is provided below and will be regularly updated.

	Year / Month	2019											2020												2021												2022												2023	
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	
Actions / Tools / Events	Leader	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
BELENUS website	UCM																																																	
Update BELENUS website	UCM																																																	
Project newsletters	UCM																																																	
Launch Twitter and LinkedIn accounts	UCM																																																	
Update Twitter and LinkedIn accounts	UCM																																																	
Develop project brochures	UCM																																																	
Project leaflets, posters, etc.	UCM																																																	
BELENUS workshops	UCM / CHAL																																																	
Training and educational events	All																																																	
Participation in Conferences, seminars and workshops	All																																																	

Figure 3. Global planning action for dissemination and communication activities.

4. Exploitation strategy

4.1. Exploitation plan

The exploitation plan will be designed with the aim of multiplying the impact of the proposed solutions and preparing the transition towards industrial and commercial uptake, trying to fully achieve the expected impact. This exploitation plan will describe the activities to be performed (how and by whom) and will be built according to the market trends, potential users (selected on the basis of the specific needs) and financial sustainability. The exploitation activities will be coordinated by the Exploitation and Innovation Board (EIB) together with the Steering Committee, which will be composed by a representative of each partner. A value chain and an assessment of the market potential will be performed in order to determine product opportunities in relation to the customer/product requirements.

Thus, the exploitation strategy will be implemented during and after the end of the project. The consortium intends to turn their participation and the project outcomes into profit, building a common strategy and launching new activities on the basis of the increased knowledge. A step-by-step methodology will allow defining the exploitation strategy based on two approaches:

- **Joint Exploitation Plan:** A common exploitation plan will be defined and implemented according to the position of each partner within the value chain, as well as the existing background and foreground generated. This exploitation plan will articulate the main synergies among the individual exploitation plans through the definition of a global framework for action within the market stage of commercialization.
- **Individual Exploitation Plan:** Each member of the consortium will build its individual exploitation plan according to its own exploitation strategy and capacities. Each Partner will define its own market-oriented strategy to cover all results developed in the project, with a clear roadmap to continue with the follow-up and market phases of the PEDR. The starting point will be the key exploitable results identified in the table below. This table will be updated throughout the project in case of identifying any other exploitable result.

Table 6. KEY EXPLOITABLE RESULTS IDENTIFIED.

Partner	Key exploitable Results	Potential users	Impact on the Entity
UCM	New on-line corrosion monitoring system for biomass plants.	Biomass CHP plant owners/operators	New service line for Industry
CIEMAT	[1] Protocols for gas and for trace metals analysis. [2] Biomass feeding systems	Industry	New services
CHAL	New results on materials corrosion	[1] Scientific community in Materials and Processing area. [2] Industry	Enhanced R&D services offered to external customers
TUC	Welding strategies for coated boiler structures	[1] Scientific community in Materials and Processing area; [2] Industry	[1] New R&D projects [2] Additional services to industry
DBL	[1] More cost-competitive solutions to bid to the biomass CHP plant tenders; [2] More cost-competitive OPEX	[1] Biomass CHP plant owners [2] Other renewable power stations	[1] Increase market share and revenues. [2] Market leadership
INTA	New coatings	[1] Scientific community [2] Biomass CHP plant owners/operators	[1] Enhanced R&D services to customers; [2] Offer new coatings to customers
RWE	[1] Energy from co-firing process [2] Develop new small and medium biomass CHP plants	[1] Society. [2] Large industry	[1] Increase clean power [2] Increase presence in energy mix
SMT	[1] Iron base coatings for corrosion protection [2] Validation of alternative base-materials for biomass CHP application	Biomass CHP plant owners/operators	[1] Offer new coating material to customers [2] Offer alternative base materials to customers
VTT	Development of predictive models for boiler design and materials/components lifetime	Biomass CHP plant owners/operators	Enhanced R&D services to external customers

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VAL	Translation of knowledge into product	Power plant owners and operators	[1] Improve knowledge [2] New products
UNIPER	[1] Energy from in-service biomass plants [2] Build new small and medium biomass CHP plants	[1] Society [2] Large industry	[1] Increase clean power produced [2] Increase share in energy mix
EIFER	Consultancy for energy companies	Biomass CHP plant owners/operators	Enhanced R&D services to internal and external customers
EDF (LTP of EIFER)	Expected OPEX and CAPEX reduction because of BELENUS solutions	CHP owners or investors including in waste incineration field	Lower CAPEX & OPEX, thus optimized offers and business case
TEandM	Development of innovative coatings anti-corrosion	Biomass CHP plant owners/operators	Increase coating solutions for customers
ZAB	Social innovation advisory	[1] Biomass CHP plant owners; [2] Other renewable power plants	Offer social innovation services to new clients

The exploitation approach will follow the following route:

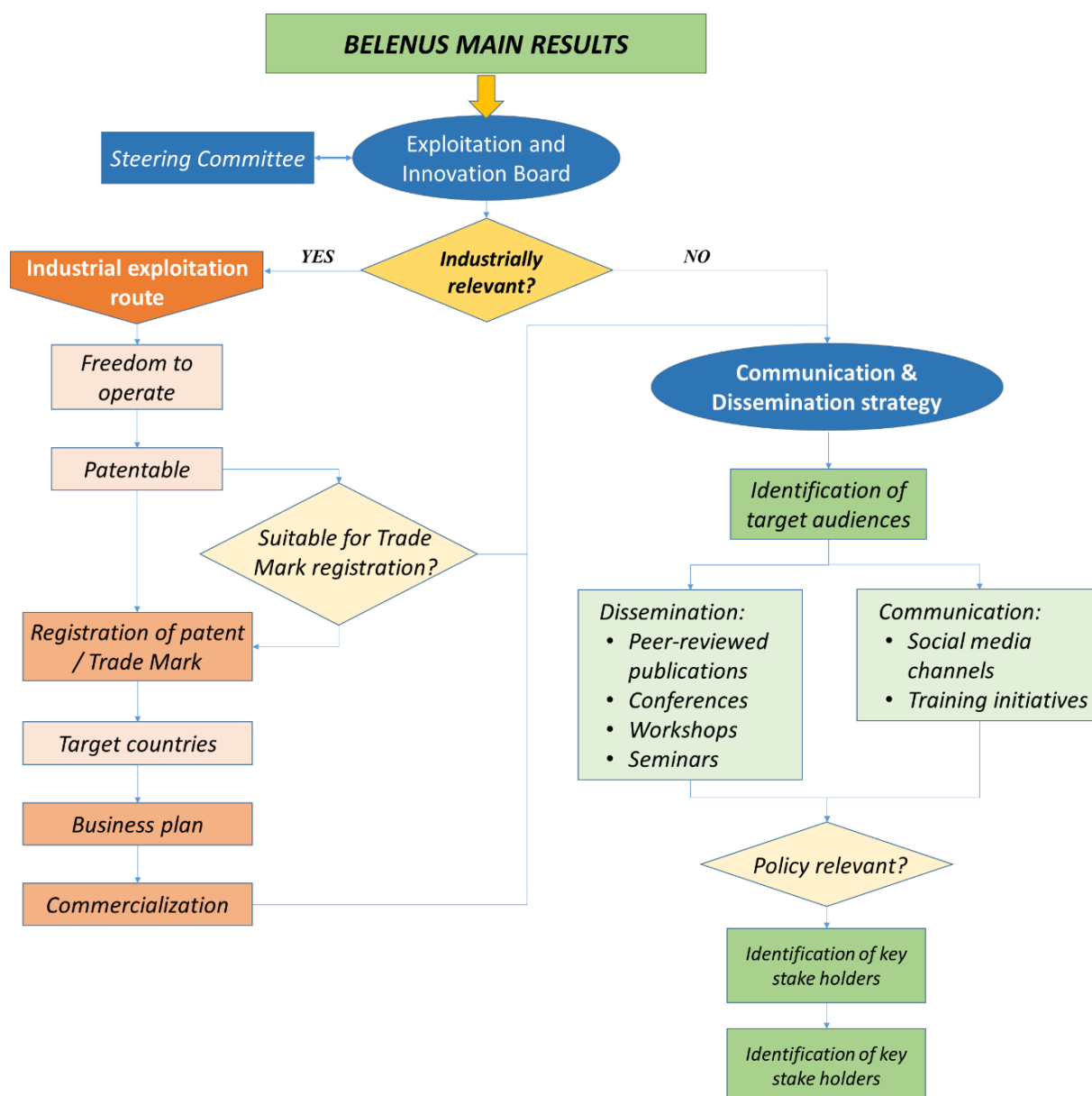


Figure 4. BELENUS exploitation route.

4.2. IPR Management Strategy

BELENUS proposes a complete range of activities leading to the optimal visibility of the project and its results, increasing the likelihood of market uptake and ensuring a smooth handling of the individual Intellectual Property Rights (IPR) of the involved partners, thus paving the way to knowledge transfer. Internal knowledge management will be facilitated through a web-based secure collaborative space for information and document sharing. For greater consistency, IPR protection and strategy tasks are managed by the Exploitation and Innovation Board (EIB) throughout all steps of PEDR. The consortium counts on solid individual IPR strategies preserving their background under diverse mechanisms.

Management of IPR deriving from the project results will be developed in BELENUS in accordance with the guidelines described in the European IPR Helpdesk Fact Sheet “IP Management in Horizon 2020”. The Project Coordinator will ensure reporting rules and procedures to protect these results from early disclosure, following the regulations stated in the Consortium Agreement (CA).

The management of IPR is strictly ruled by the CA, which include all provisions related to the management of IPR including ownership, protection and publication of knowledge, access rights to knowledge and pre-existing know-how as well as questions of confidentiality, liability and dispute settlement. Additionally, the CA regulates de ownership of the results and the transfer of results ownership.

In the Consortium Agreement, the Partners have identified the background knowledge included and excluded.

4.3. First contents generated in the Exploitation and IPR Management Strategy

This section will be updated for each beneficiary during the second, third and final release of the PEDR.

4.3.1. Identification of background

4.3.2. Identification of foreground

4.3.3. Mapping of existing patents and potentially IPR overlapping for the future Foreground

4.3.4. Mapping of standards related to the project