



Erasmus+ KA2 Knowledge Alliances project
“Greening Energy Market and Finance – GrEnFln”

AGREEMENT NUMBER: 612408
PROJECT NUMBER: 612408 – EPP-1-2019-1-EPPKA2-KA

WP2 D2.6 - Best-practicing reports on the joint work of academies-enterprises for a green reconversion -Merge of several reports where the joint work of academies and industries is involved

The information and views set out in this publication are those of the authors and do not necessarily reflect the official opinion of the European Union. Neither the European Union institutions and bodies nor any person acting on their behalf may be held responsible for the use which may be made of the information contained therein.



With the support of the
Erasmus+ Programme
of the European Union



Work Package (WP)	WP2 - Stakeholders Consultation, Validation Activities and Survey
WP Leader	UNIBO
Deliverable Title and Number	D2.6 - Best-practicing reports on the joint work of academies-enterprises for a green reconversion -Merge of several reports where the joint work of academies and industries is involved
Release date	20/07/2022
Version	Final Version
Dissemination Level	Public
Author	UNIBO
Main Contributors	UNIBO, LMU, UEK, HERA, SPEED, MIWENERGIA
Revised and Approved by	UNIBO, LMU, UEK, HERA, SPEED, MIWENERGIA

INDEX

1. Elaboration of the Survey and Translations of the Survey results and needs into learning outcomes	3
SURVEY CREATION on the stakeholders' needs (WP2)	3
2. From learning outcomes to the educational path and curricular structure of the GrEnFln Master's course	5
3. From learning outcomes to the structure of the Professional module	6
4. Coordination between theoretical contents and Case studies within the Second Summer school and Full Immersion Experience	8
5. Involvement of SMEs in the definition of KPIs and the validation/ evaluation process	9

Executive Summary

The purpose of this deliverable report is to highlight the best practice procedures related to the collaboration between universities and enterprises, which we would like to enhance on the basis of project experiences.

It includes all the actions in which collaboration between the academic and corporate worlds was decisive and synergic. We should deal with our experience of cross-fertilizations and synergies between academy and the business world, here below a list of relevant points:

1. Elaboration of the Survey: the enterprises made it possible to identify the target groups to be addressed and the definition of the questions specifically tailored to the group. This collaborative work was carried out





with in-person workshops organised at the Kick-off in Bologna and subsequently with many virtual meetings (due to COVID);

2. Translations of the Survey results and needs into learning outcomes;
3. From learning outcomes to the educational path and curricular structure of the GrEnFin Master's course;
4. From learning outcomes to the structure of the Professional module;
5. Coordination between theoretical contents and Case studies within the Second summer school and Full Immersion Experience;
6. Involvement of SMEs in the definition of KPIs and the evaluation process.

1. Elaboration of the Survey and Translations of the Survey results and needs into learning outcomes

SURVEY CREATION on the stakeholders' needs (WP2)

In order to face the new challenges of a transforming world with an inclusive global view and collect all the necessary information, we have elaborated a map of our main target groups and we have implemented a consultation to catch the needs of the markets and identify the gap in the current educational offer. This very big target has been reached thanks to a coordinated work with the partnership and a synergic activity of industrial and academic contributions.

Despite the difficulties due to the COVID-19 pandemic, we implemented the foreseen consultation thanks to direct contacts of relevant stakeholders provided by the partners and the University Business cooperation network that we have used as channel of dissemination to reach a greater number of stakeholders.

The starting point for the consultation was the mapping of the energy market that has been discussed at the Kick-off meeting in Bologna, 27 – 29 November 2019: all the companies helped us in identifying the target groups to be addressed and the definition of the questions specifically tailored to the group.

The collaborative work took place for the first time during the Kick Off Meeting, where UNIBO had organised organised workshops, roundtables and specific joint projects with the aim of obtaining feedback from the entire consortium, especially those from the corporate world.

In the following months, due to the pandemic situation, the meetings took place only through virtual meetings, although characterised by active participation and involving discussion among the partners.

A solid assessment of the characteristics of the market would allow for a proper survey able to pass robust information concerning their needs, therefore we devoted several discussions to identify the best way to set the survey in a proper way. First of all, we classified the different stakeholders in macro-groups, that have been the target recipients of the survey and for each stakeholder, the main risks related to the energy transition were briefly discussed and assessed through specific questions.

At the highest level, four categories were identified:

1. Financials;
2. Energy producers;
3. Industry;
4. Governments & other policymaking entities.

More in detail the main steps concerning the joint work are described below.





Details of the activities:

The strong collaboration between academies and industries in the GrEnFln project can be identified in the following description (reported following a temporal order) of activities, we have developed:

- 1. Mapping the energy market and identification of the target group (WP2)** to be consulted in order to identify the market's needs: this is the first activity we opened at the Kick-off in Bologna (November 2019) where all the partners contributed as participant of several round tables and specific joint projects. In the following months the partners were asked to suggest how to define the questionnaires tailored to every target group in order to grab the peculiar information we needed. The industrial partners provided also a list of contacts which allow us to set up a database of 1410 contacts (for further information, please check the WP2 D2.1 - Building of the data base for the stakeholders consultation - list of contacts /number of submitted invitation per target groups). This activity can be seen as a model of innovative approach which favors the co-operation among the ecosystem in light of a faster transferring process of knowledge from and to the society.
- 2. Implementation of the Survey (WP2):** The questionnaires for the consultation, as agreed by all the consortium, were implemented in the GrEnFln platform and the invitations to take part to the survey were sent (available for one month, from 11/02/2020, but due to the COVID -19 emergency, we decided to leave the questionnaire on GrEnFln Platform until the 5th of April 2020). These activities are part of WP2, led by UNIBO. The methodology of submission was supported by the GrEnFln platform and its IT tools; it could be seen as one of the technological challenges of the pandemic era.
- 3. Evaluation of the Survey (WP2):** The collected answers were evaluated first via UNIBO; the extensive analysis conducted was aimed at getting an understanding of the status of the market in terms of challenges and opportunities from climate change, as well as its needs to adapt to a future transition. In fact, the first steps of the analysis targeted the market structure and the characteristics of respondents; then, we focused on the preparedness to, and the challenges emerged from, the energy transition; finally, we focused on understanding the business needs of organizations and on understanding what gaps need to be filled in order to shape the energy experts of the future. The results were presented to the consortium during the Second Online Partners' Meeting , 21 – 22 – 23 April 2020. Several focus groups were arranged in order to discuss and give the right interpretation to the received answers. The main highlights emerged from the survey can be summarized in the following points:

- 1) the energy transition is real and now for respondents across all categories (financial institutions, energy companies, industrials, and policymakers);
- 2) while there is an expectation that further challenges will arise from the energy transition, there is awareness that significant opportunities may materialize as well, especially in specific areas;
- 3) there is a need for professional figures able to tackle the energy transition, with a diverse skillset;
- 4) in order to close the gap between companies and academia, it is necessary to establish a stronger collaboration, and practices such as internships and guest lectures are seen as being most relevant for this purpose.

For a full overview of insights gathered from the survey, the complete report is available on GrEnFln Platform.





2. From learning outcomes to the educational path and curricular structure of the GrEnFln Master's course

One of the expected outputs of the GrEnFln project is the development of the Academic Path for master students, in order to provide the industry, the figure of the Sustainable Energy expert.

To achieve this goal, some testing events have been implemented during the three years of the GrEnFln project, with the aim of getting feedbacks from students and professionals. An important aspect has been therefore how to incorporate these feedbacks in the final design of the Academic Path. This is a point to which the academic and the industrial partners have worked in close collaboration: in the current report we want therefore to highlight the best practices that have been implemented during this joint effort.

In the following, we highlight the main best practices procedures that have taken place about the collaboration between academics and industrial partners in the design of the final GrEnFln Master Curriculum.

One of the most important testing events before the end of the GrEnFln project has been the GrEnFln Full Immersion Experience that took place in Bertinoro (Italy) in June 2022. As it was the last test before the start of the GrEnFln Master, it was crucial for the Consortium to implement here the feedbacks already got in other testing experiences as the past summer schools, in order to present an educational offer as close as possible to the final outcome. One of the main issues emerging from the first two GrEnFln Summer Schools was the need of providing a better link between the learning offer (both the E-learning material and the lectures in presence) and the case studies that students had to solve together with professionals. In order to fulfill the expectations of students in this sense, academic partners responsible to prepare the lectures and the industrial partners responsible of the case study under consideration have worked in close contact to be as aligned as possible in this sense. The same happened in Bertinoro when coming to provide assistance to professionals and students in the resolution of the case studies: academic and industrial partners have coordinated to help trainees, with their own skills.

This strict collaboration was made possible by the effort of the industrial partners responsible of each case study to educate the academics on the practical contents of the case study under consideration, so that the latter could help in the supervision stage of the teamworks. The choice of lectures provided by the academics was driven by the case studies themselves, and the lecturers' proposals were validated by all the partners taking into consideration the link with at least one case study.

Academic and industrial partners have closely collaborated also for what regards the elaboration of the feedbacks that have come from students, both directly via the Validation events organized by the academic partners and the questionnaires distributed in these occasions. In particular, the Sixth GrEnFln Meeting that took place in April in Munich has been a very good opportunity to discuss these topics together. After the partners of Unibo and LMU had presented the feedbacks and the results of the questionnaires, a discussion started involving both academic and industrial partners on how to implement these outcomes in the design of the final curriculum. Having the points of view of both have been an important added value to come up with an agreed strategy.

In general, the curricular structure has been always discussed between academic and industrial partners. The point of view of the latter has been fundamental in order to create an offer able to make the students ready to face real-world problems when finishing their academic path: this



should help addressing one of the most important requests emerging from the questionnaires submitted to stakeholders at the beginning of the GrEnFin project, that is, the necessity to reduce as much as possible the gap between the needs of the industry and the skills and knowledge of new graduates.

3. From learning outcomes to the structure of the Professional module

Professional module represents one of the expected outputs of the GrEnFin project addressed to professionals of the energy sector and aimed to create the new figure of the **Sustainable Energy Expert**. In the following, we explain the main best practices procedures that have taken place about the collaboration between academic and industrial partners in the design of the professional module.

During these three years of the project, consultation's actions and events have been implemented in order to gather feedbacks from stakeholders. In this context, we have seen a strong collaboration between partners of the Consortium (industrial and academic partners) to collect feedbacks useful to improve and finalize the design of the professional module.

As extensively described in the “D6.1 – Report on the Preliminary definition of learning outputs of the professional module”, the starting point to identify the competences required to the profile of “**Sustainable Energy Expert**”, that the GrEnFin project aims to create, was the stakeholder consultation. As a matter of fact, during the 2020 the Consortium submitted a Consultation survey in order to explore the needs of the labour market and to identify the relevant competences requested for the professional figure in the energy and sustainability field. Starting from the results of the stakeholders' survey, the design of the professional module, in term of contents and methodologies, represents the outcome of discussions and dialogues among the partners of the Consortium and stakeholders.

In terms of professional module development, the consultation's findings emphasize the complex, integrated and systemic nature of the core skills required, balancing hard (quantitative) and soft (more qualitative) scientific knowledge, paired with a lesser academic, more operational orientation. In addition, the uncertain, transformative and complex environment where we live today, demands a specific attention to a wider and more integrated trans disciplinary approach, focused on problem setting, problem solving and decision making.

Academic and industrial partners have also closely collaborated for the validation's activities: some brainstorming activities and events planned during the 2021 and 2022 in order to validate the most suitable and effective methodology for the professional module.

The aim of these events organized by the industrial partners is to collect, through the questionnaires submitted to participants, feedback about the professional module from the stakeholders.

Among the validation activities held between 2021 and 2022 we certainly remember the **Local Workshops** organized on remote basis by the SMEs of the Consortium, the **survey** submitted by Tauron and addressed to employees of 14 Tauron Group companies, and the **Umbrella Organization Meeting** organized by UNIBO with the participation of Hera. The results collected from these activities have been always discussed together between industrial and academic partners, exploiting the opportunities of comparison offered by the project meetings. These occasions have been allowed to define the professional module's structure and contents reflecting the findings collected.

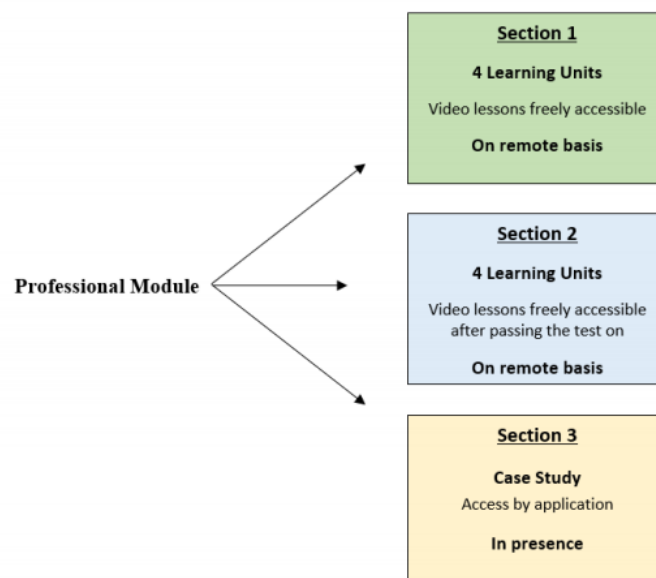
The final structure of the professional module, designed by the whole Consortium and approved firstly by the Consultation survey and then by the validation activities, has developed on three sections: the first two sections are composed by learning contents in the video lesson format, accessible on remote basis, while section 3 represents the part more applicative, in which professionals are involved in the resolution of a case study.

On these premises, the professional module has been designed following an ascending approach and a progression from individual to collective learning, moving:

- from a base (section 1) of 4 learning units addressed to introduce and reinforce the common ground of the “Green [R]evolution in the Energy Sector”. These units, strongly recommended but not compulsory – neither in itself, nor in their order of fruition – are accessible without limits via a digital platform, on demand. Following a MOOC approach, each unit is composed by up to 5 video-lessons of a time length between 30 and 45 minutes, integrated where relevant with a various knowledge resources. At the end of each learning unit, the user will have to perform a learning verification test and a satisfaction questionnaire; there is no threshold to pass the test, but our suggestion is to move to the next learning unit only if at least 60% of the questions has been answered correctly;
- through a middle block (section 2) specifically oriented to transfer operational skills and use of tools, composed by 3 learning units, each one composed by up to 5 video-lessons equally provided on a remote basis. Each video lesson lengths from 20 to 30 minutes, for a learning unit length between 60-120 minutes. The access to this block is allowed only for those who pass an entry test based on topics of section 1;
- to a final joint moment (section 3) consisting of a project work of 2-3 days to which professionals can participate by sending application.

In the figure below, we summarize the final structure of the professional module, which represents the result of the joint work of the industrial partners and academia explained above:

Figure 1 – The Structure of Professional Module





4. Coordination between theoretical contents and Case studies within the Second Summer school and Full Immersion Experience

Second Summer school – Katowice (online) 2021

After the first Summer School in Bologna (June 2020), when the first test of methodologies and innovative multidisciplinary features was done, the consortium analysed the criticalities that emerged. This is why during a Second Summer school the Consortium decided for a slightly different structure with an applied part and a theoretical one to achieve a closer interrelation between science and business. For the 2021 edition we started from a case study developed and delivered by business partner and then through a theoretical approach (based on lectures from university partners), students were able to solve the case study with the business partner support (and progress check).

In December 2020 the industrial partners were asked to propose case studies for the summer school (within 15th of January 2021). Among the submitted cases, the consortium selected two:

- (1) *REC: How they contribute to the local sustainable energy system* (proposed by JF Digital Energy, Portugal) and
- (2) *Innovations in RES: Adaptation to the climate change*, (proposed by Tauron Polska Energia, Poland).

The choice was mainly driven by the need of “real life” example, this is why the cases delivered by business partners were preferred. Then the meetings with the business partners were organised to clarify the idea of expected interrelation between industry and universities during the Summer School (10.02.2021 with Tauron; 11.02.2021 with JF Digital Energy). As an effect of the meetings the business partners prepared the short notes with research questions of the case studies, starting conditions, main challenges and expected theoretical knowledge (lectures) that would be sent to all partners to facilitate the choice of the lecture’s topics. All Partner Institution (but mainly HEI lecturers) were asked to send the proposals of their lectures. The topic of the lecture should be related with the topic of the case studies and expected lectures. We received 7 proposals of lectures from university lecturers and 2 proposals from professional partners that let us achieve perfect mix of theoretical and practical know-how (it is worth to mention that several lecturers are tightly connected with the industry being involved projects in green finance as well as electric industry). Lectures were spread between cases, keeping in mind their functionality in the context of the two case studies. The proposal of lectures division between cases were sent to business partners responsible for the case studies to check the distribution of delivered lectures showing the openness for negotiations and readiness for changes. The business partners proposed some minor changes and the assumed schedule was applied.

Full Immersion Experience – Bertinoro 2022

After the assessment of participants of the Second summer school, the final check was planned in a form of Full Immersion Experience in Bologna-Bertinoro 2022 as a joint event scheduled for the last (third) year of GrEnFin project. This is why a slightly different structure with closer cooperation between Students and Professionals was assumed to achieve a closer interrelation between science and business. For the 2022 edition we started from developing three case studies that were prepared and delivered by GrEnFin business





partners. The idea of the Full Immersion Experience was that through a theoretical development (based on lectures from university partners), students would be able to solve the case studies with the Professionals and business partner support. Additionally, to achieve a synergy with scientific part, a possibility to participate in lectures was created for Professionals.

The main purpose of the Full Immersion Experience was to achieve a synergy effect between theoretical content and case studies as well as between two cohorts – students and professionals. A possibility to organise this event in presence enabled to reformulate a former idea and increase an overall satisfaction coming from the direct meeting.

There were three Case studies planned, representing the three Curriculum paths and prepared by Consortium Partners coming from the business area:

- Engineering track (Hera)
- Financial track (SMEs)
- Climate & Business track (Tauron)

In December 2021 the industrial partners were asked to propose case studies for the summer school (within January 2022). Among the submitted cases, the consortium has selected three that reflect three specialisations (track) planned in Joint Master:

- Track 1 – Renewable Technologies - Case Study: *A Biomethane Plant and Green Hydrogen* – proposed by Hera Group, Italy
- Track 2 – Environmental Finance - Case Study: *Greek and Iberian Electricity Markets* - proposed by Ego Energy
- Track 3 – Climate & Business - Case Study: *Construction of an Microgrid Cooperating with a Residential Estate and Installation for Refueling Buses with Hydrogen* – proposed by Tauron Polska Energia

As an effect of the case study choice the business partners prepared the short notes with research questions of the case studies, starting conditions, main challenges and expected theoretical knowledge (lectures) that would be sent to all partners to facilitate the choice of the lecture's topics. All university Partners were asked to send the proposals of their lectures. The topic of the lecture should be related with the topic of the case studies and expected lectures. We received 6 proposals of lectures from university lecturers devoted to cases assumed. Then with business partners responsible for the case studies the Consortium was able to assess the distribution of delivered lectures showing the openness for negotiations and readiness for changes. Till the end of April, we were able to create a preliminary schedule with the hours and send it to partners to check. After the confirmation of the lecturers the final schedule was created

5. Involvement of SMEs in the definition of KPIs and the validation/ evaluation process

The actual involvement of SPEED SA and MIWenergia in WP9/WP10 as a member of the Quality Board, started on January 2022. This newly assumed responsibility came as a mitigation action after the comments provided by EACEA in the evaluation of the submitted intermediate report.





The first task was to review the revised definition of the various KPIs to be used for each WP. The new version of the KPIs was implemented by WU (Dr Regis Gourdel) and SPEED SA and MIWenergia were asked to contribute to the proposed text pinpointing aspects that were not so clear/had ambiguities and/or were not so relevant to the scope of the KPIs from the point of view of the industrial partners/SMEs.

A continuous exchange of mails took place until the finalization of the relevant deliverable and the final version titled D10.0 Quality and Evaluation Plan Amendment, was uploaded beginning of March 2022. Moreover, this update evaluation method has been used to assess the deliverables produced since then, and also to review the following reports D10.2~Dec2021, D10.2~M20, D10.1~M18-M23 and D10.1~M18-M26 that were submitted again after a thorough review by WU.

The whole experience was very useful because the integration of the points of view of non-educational partners of the project helps the project to achieve its objective to close the gap between industry and HEIs. SPEED SA and MIWenergia, as part of the Quality Board, have performed the evaluation of the reports produced to describe the different activities of GrEnFin project such as the validation activities or project meetings, etc., supporting WU in this task. The procedure consists on an exchange of mails with comments and/or proposals on the various deliverables/outputs of each WP between the three partners and UNIBO.

Apart from the above-mentioned actions, the following actions requiring the collaboration between universities and SMEs were implemented.

- Creation of the database of possible stakeholders for participation in the survey, the validation activities, newsletter enrolment and all the actions of the project that might be of interest for the different types of stakeholders. This was achieved through the instructions/guidelines and the relative template given by UNIBO after the preliminary relative discussion during the kick off meeting.
- Organizational aspects on the validation activities. The aim of these events was to get feedback regarding the Professional Module structure developed during the project and first tested in the Summer Training in 2021. This task was achieved with the close cooperation of the 3 SMEs (SPEED SA, MIWenergia and JF Digital Energy) with UNIBO which provided explanations and guidelines on the content, and recommendations about the type of professionals that should be targeted, the logistics, the dissemination methodology, the validation tool and the follow up of the planned validation activities.
- Creation of questionnaire for the validation event (October 2021 – Portugal & Greece, December 2021 - Spain). The questionnaire was drafted by the SMEs with the intervention of HERA and mainly WU concerning the necessity of various questions and proposals on the most efficient methods (eg grading for preferences) to get answers that can lead to useful conclusions for the improvement of the professional module and the project outputs in general. The cooperation included also the analysis of the results obtained and the preparation of the relevant deliverables.
- One point that aroused in the analysis of the filled in questionnaires for D2.4 - Reports on the validation's activities M29, was that as there was not any question indicating the country in which the event was organized, it was not possible to specify the exact number of answers for Portugal and Greece as both events took place with a difference of 5 days (21/10/2021 in Greece and 26/10/2021 in Portugal) and there was an ambiguity concerning the origin of 2-3 questionnaires. After consultation between the relative SMEs and WU it was decided that what was really important concerning the valuation of the events, was the total number of filled questionnaires and not their country of origin.

