



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N 656760

BioEnergyTrain Project

Buying-in Strategy

WP5 - Analysis, Standards, Dissemination, Innovation, and Exploitation

Task 5.3: Disseminate Strategies and Modes for Long-Term Cooperation Between Industry and HEI



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1. Introduction

The objective of BioEnergyTrain (BET) is to create cooperative educational formats and training materials that will eventually be transferred to a large number of educational institutions and business actors in order to meet the human resource requirements for implementing the SET-Plan. The developed cooperative educational formats include the two European master curricula at the Graz University of Technology and University of Twente, the 20 BET courses that will be available on the e-learning platform, the three Professional Educational Formats (Interdisciplinary Student Camp, International Summer School and Pilot Plant Lab Course), vocational trainings, study cases, internships and master theses. The cooperative educational formats are in detail described in chapter 3 in this document.

The aim of this Buying-in Strategy is **to support the recruitment of HEIs, businesses and regional partners by the consortium** to join in the BET cooperative educational formats. This document answers to the following questions:

1. What does *Buying-in* in BET mean and why is there a need?
2. What are the cooperation models for the different stakeholder groups to join in BET?
3. How, when and by who will new potential partners be recruited for their involvement in BET?

2. Impact of Buying-in in BioEnergyTrain

To create project sustainability, BET efforts are focused on the continuing development of teaching and training materials to fill gaps corresponding to emerging innovation community needs, and to make these materials as widely available as possible. By inclusion of the materials in educational programmes of academic partners, the further development and updating of the materials will be a common and on-going effort. By this, Buying-in Strategy will support the following objectives of BET:

- to create long-lasting, innovative and efficient networks on bioresource utilisation;
- to increase the number of graduates with skill sets required in the developing bioenergy sector and to fill the gap in knowledge and training as noted in the SET-Plan Roadmap on Education and Training;
- to increase the involvement of industry in higher education and vocational training;
- to increase the use of the BET course materials through the e-learning platform;
- to generate know-how support actions for stakeholders within their regional contexts using the ability of HEIs to focus students' theses on problems of urgent regional importance.

BioEnergyTrain focuses on the training of qualified personnel in the emerging areas of biorefinery engineering and bioresource value chain management directly impacting a primary focus of the call: *to support the provision of an appropriately skilled workforce to implement the SET-Plan by identification of needs and gaps, and by improving and accelerating the existing education and training activities in the vocational and in the university sector.*



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The impact of BioEnergyTrain efforts will be analysed by an Impact Analysis Team. As stated in the Proposal, BET has established the following Key Performance Indicators:

By 2018:

- 100 BRE and BVM students
- 400 students reached through BET cooperative educational formats
- 5 Core HEIs involved
- 21 HEIs in extended network
- 4 regional outreach networks

By 2030:

- 19.000 biorefinery engineers and 16.000 bioresource value chain managers
- 50.000 students reached through practice oriented training on bioenergy
- 50 HEIs involved

3. BET Cooperative Educational Formats

BioEnergyTrain has developed and implemented multiple cooperative educational formats to become role-models for practice-oriented education. These include the two master curricula BRE and BVM with the BET courses, the developed Professional Educational Formats, as well as internships, master theses and design case work.

- **BET curricula: Biorefinery Engineering at TU Graz; Bioresource Value Chain Management at UTwente.**

The M.Sc. Curriculum “**Biorefinery Engineering**” (BRE) is implemented at the Graz University of Technology in Austria, and it has a clear engineering focus. The master program will provide the education to understand problems alongside the value chain of bioresources in European regional contexts and to optimize resource utilization within the framework of a bioeconomy. The aim of the program is to **scientifically educate professionals to analyse, develop, manage and innovate existing process route in a European regional context.**

The programme “**Bioresource Value Chain Management**” is a specialization of the master programme Sustainable Energy Technology (SET) at the University of Twente in the Netherlands. The SET-BVM program will be **multidisciplinary and focused on bioresource value chains** as object of study. Resources, technologies and economics are not studied as independent topics, but as specific features and characteristics of Bioresource value chains.

- **20 BET courses**

As part of the two BET curricula, the BET consortium has developed 20 new courses that are either compulsory or elective courses. All 20 courses will be provided on the e-learning platform. The courses have been divided into topical units, also called nuggets. See Annex I for a list of all the BET courses and their nuggets.

- **Professional Educational Formats**

Interdisciplinary Student Camp

The Student Camp is an interdisciplinary format that allows students to access industrial infrastructures, get acquainted with the day-to-day working of a business, and get exposure and work in real world problems. These problematics proposed to the students were both in the direction of



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purely engineering/bioenergy issues, as well as questions dealing with innovation, business cycles, products and product lines, entrepreneurship, LCA, market, etc. Definitions of the problems were provided between academic lecturers and business partners, in accordance to the curricula needs as well as the specific characteristics of the hosting company.

The first student camp, implemented by BRP Powertrain with support of eseia, took place 7-11 March 2016 on the BRP-Rotax premises in Gunskirchen, Austria.

International Summer School

The BET summer school format is a 2-week activity that focuses primarily on bioenergy topics. Thanks to its format and duration, it allows the approach of a large range of topics as well as the opportunity to tackle them in-depth. Yet, in order to not lose one of the differentiating characteristics of the BioEnergyTrain project, topics other than the ones bioenergy-related should be included. The programme is practice oriented through lab experiments, modelling, technical site visits, workshops and study cases. The first BioEnergyTrain Summer School was held in Lisbon, in July 2016, organised by eseia and LNEG in collaboration with InnoEnergy.

Pilot Plant Course

This format aims at providing students with access to industrial installations and processing plants working in the field of bioengineering, and to understand first hand one of the key dimensions of the bioresource value chain. It allows students to operate and experiment the available technology at one of BioEnergyTrain's business partners, supervised by both academic and business experts. Pilot Plant courses aim, therefore, at providing students with real world technical experience. The first pilot plant takes place outside the scope of this first reporting period. It will take place at the premises of :metabolon, in October 2016.

Design Case Work / Internship / Master thesis

At the Design Case Work small student teams will work on a design/development project on a topic supervised jointly by experts from an industrial partner and their academic instructors. BET students have the possibility to work at industry or research organisation on a longer term through internships or master theses.

4. Target Groups

In which level stakeholders can join in the BET Cooperative Educational Formats depends on the type of stakeholder. For joining BET activities, this Buying-in Strategy focus on five types of stakeholders:

1. Industry
2. Higher Education Institutions & Research Organizations
3. Vocational Training Providers
4. Regional Authorities
5. Regional and Business Networks on Bioenergy

The most important stakeholders by BET partner regions that will be targeted are listed in Annex I.

5. Cooperation Models

In table 1 are the possibilities for cooperation listed for each target group and each pilot activity.



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Table 1. Cooperation possibilities by target group for each BET pilot activity

Stakeholder Cooperative Educational Formats	HEIs + ROs	Industry	Vocational Training Providers (VTP)	Regional Actors	Networks
BET curricula: BRE at TU Graz; BVM at UTwente.	<ul style="list-style-type: none"> Partnership with BET consortium for developing a multiple or joint degree programme through Erasmus + funding programme Send students to BRE and BVM programme 	<ul style="list-style-type: none"> Include the industry into developing the curricula Provide practice-oriented education in align with the needs of the industrial actors 	<ul style="list-style-type: none"> Dissemination of Master programs by using the already existing programs 	<ul style="list-style-type: none"> Involve them in disseminating the Master programmes Use their contacts with the industry 	<ul style="list-style-type: none"> Interact with educational networks like EUA-EPUE to involve HEIs outside BET consortium
20 BET courses	<ul style="list-style-type: none"> Uptake BET courses or modules in own educational programme by cooperating with course developer. Send students to take part in BET courses 	<ul style="list-style-type: none"> Host a technical site visit for BET students; Organize a study case / student project Give a guest lecture for BET students, physical or online (MOOC) 	<ul style="list-style-type: none"> Create vocational trainings based on BET courses 	<ul style="list-style-type: none"> Organize a study case / student project Give a guest lecture for BET students, physical or online (MOOC) 	<ul style="list-style-type: none"> Interact with educational networks like EUA-EPUE to involve HEIs outside BET consortium
Selected nuggets	<ul style="list-style-type: none"> Take up nuggets for own courses 	<ul style="list-style-type: none"> Take up nuggets for own trainings 	<ul style="list-style-type: none"> Integrate nuggets in own vocational trainings 	<ul style="list-style-type: none"> Take up nuggets for own trainings 	<ul style="list-style-type: none"> Take up nuggets for own trainings
Vocational Educational Trainings	<ul style="list-style-type: none"> Workshops / in-house seminars designed for the need of the organisation 	<ul style="list-style-type: none"> Workshops / in-house seminars designed for the need of the company based on the content of curricula 	<ul style="list-style-type: none"> Include VETs in own VET programme 	<ul style="list-style-type: none"> Workshops / in-house seminars designed for the need of the organisation based on the content of curricula 	<ul style="list-style-type: none"> Workshops / in-house seminars designed for the need of the organisation based on the content of curricula



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Stakeholder	HEIs + ROs	Industry	Vocational Training Providers (VTP)	Regional Actors	Networks
Cooperative Educational Formats					
Interdisciplinary Student Camp	<ul style="list-style-type: none"> • Send lecturers to the Student Camp • Select students to participate 	<ul style="list-style-type: none"> • Host an Interdisciplinary Student Camp • Send participants to the Student Camp 	<ul style="list-style-type: none"> • Select vocational trainees to participate 	<ul style="list-style-type: none"> • Host an interdisciplinary Student Camp 	<ul style="list-style-type: none"> • Host an interdisciplinary Student Camp
International Summer School	<ul style="list-style-type: none"> • Host BET Summer School • Give lecture at BET ISS • Select students to participate 	<ul style="list-style-type: none"> • Give a lecture at the BET Summer School • Send participants to the ISS 	<ul style="list-style-type: none"> • Give a lecture at the BET Summer School • Tailor the ISS for vocational trainees 	<ul style="list-style-type: none"> • Give a lecture at the BET Summer School 	<ul style="list-style-type: none"> • Send academic or professional expert to lecture at ISS
Pilot Plant Lab Course	<ul style="list-style-type: none"> • Select students to participate • Send academic expert to supervise the experiments 	<ul style="list-style-type: none"> • Host Pilot Plant Lab Course • Send participants to the PPLC 	<ul style="list-style-type: none"> • Tailor the PPLC for vocational trainees and send participants 	<ul style="list-style-type: none"> • Send participants to the PPLC 	<ul style="list-style-type: none"> • To reach out and involve new partners to host PPLC
Design Case Work	<ul style="list-style-type: none"> • Send academic instructor to supervise the project • Integrate case study at own educational programme 	<ul style="list-style-type: none"> • Provide a topic and send an expert for the project 	<ul style="list-style-type: none"> • Integrate case study at own educational programme 	<ul style="list-style-type: none"> • Provide a topic and send an expert for the project 	<ul style="list-style-type: none"> • Provide a topic and send an expert from their network for the project
Internship / Master thesis	<ul style="list-style-type: none"> • Select students for internships • Define research topics for theses 	<ul style="list-style-type: none"> • Facilitate Master Theses and internships to BET students 		<ul style="list-style-type: none"> • Facilitate Master Theses and internships to BET students 	<ul style="list-style-type: none"> • Involve companies to organise internships • Involve companies to provide the research topic of master thesis



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6. Work Plan

By 2018 the following Key Performance Indicators (KPI) are to be reached:

1. 5 Core HEIs involved
2. 21 HEIs in extended network
3. 4 regional outreach networks
4. 100 BRE and BVM students
5. 400 students reached through BET cooperative educational formats

In order to reach these KPIs the BET Consortium is planning to make the following actions:

6.1 Involve 5 group of core HEIs

In the autumn of 2017, Graz University of Technology has implemented the master program Biorefinery Engineering and University of Twente implemented the program Bioresource Value Chain Management as a specialisation to the existing master Sustainable Energy Technology. Together with University of Ljubljana, Transilvania University of Brasov and Technical University of Hamburg, who all developed a least one course, **in total five HEIs have contributed to the development of the courses and implementation of the BET curricula**. Therefore, BET achieved the first KPI: to include 5 core Higher Education Institutions by 2018.

6.2 Involvement of Higher Education Institutions

eseia has distinguished four possible pathways to involve a minimum of 21 HEIs in the BET extended network that would lead to a wider use of the developed educational materials and support the provision of an appropriately skilled workforce in the bioenergy sector.

6.2.1 Extended use of BET materials by the BET HEIs

The BET HEIs, as well as other educational training providers interested in using the BET learning materials for their own educational and vocational programmes, should define to what extent their institution will (1) support the continuously updating of the BET learning materials and (2) how they would use the developed learning materials until and after the end of the BET project for their own educational or vocational programmes. eseia has identified the following steps for the BET HEIs:

1. Research and analyse the needs at their institution
2. Define interest in BET learning materials
3. Negotiate and reflect with BET consortium
4. Confirm use of BET materials through cooperation agreements

To Do

- In table 2 the BET Partners are listed with their actions for the upcoming months.



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Table 2. BET HEI and RO partners and actions to confirm the use of BET learning materials until and after the BET project period

BET Partner	Contact	Action
BRP and GreenTech	Nigel Foxhall, Maria Ortner	Negotiate and prepare cooperation agreement to use BET learning materials for vocational training courses at the Rotax Academy
LNEG	Luis Duarte	Negotiate and prepare cooperation agreement to use BET learning materials for PhD course at LNEG in cooperation with University of Twente and New University of Lisbon
TUB	Ion Visa	Negotiate and prepare cooperation agreement to use BET learning materials for Bioenergy Track in new Master Programme at TUB
TUHH	Ina Körner	Research and analyse the potential use of BET learning materials at TUHH
UL	Andrej Gubina	Research and analyse the potential use of BET learning materials at UL

6.2.2 eseia will approach potential partners among her members

eseia has among its members 15 potential partners for the BET project, see table 3. After researching and analysing the profile and the activity of the partner, a tailor made offer will be made based on the needs of the HEI and build upon the cooperation models listed in table 1. After negotiation between the respective partners and reflection with the BET consortium, the level of cooperation will be conformed through **cooperation agreements**. eseia as Coordinator will support and monitor this process.

To Do

- eseia will analyse the needs of potential partner in her network and approach them with tailor made offers
- The BET partners will negotiate and prepare cooperation agreement with potential partners to use BET learning materials
- Level of cooperation confirmed by signing cooperation agreements



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Table 3. Potential BET partners from the eseia membership

#	Country	Institution	Contact
1	Austria	Bioenergy2020+	Walter Haslinger, CEO
2	Austria	Energieinstitut an der Johannes Kepler Universität Linz	Robert Tichler, Deputy Director
3	Austria	FH Joanneum, Institute of Energy, Transport and Environmental Management	Uwe Trattinig, Head of Institute
4	Austria	Karl-Franzens University, Institute of Systems Sciences, Innovation and Sustainability Research	Rupert Baumgartner, Head of Institute
5	Austria	TU Wien, Research Coordination Centre "Energy and Environment"	Gudrun Weinwurm, Head of Research Centre
6	Croatia	University of Zagreb, Faculty of Food Technology and Biotechnology	Božidar Šantek
7	Cyprus	The Cyprus Institute	Costas Papanicolas, Rector
8	Finland	XAMK - South-Eastern Finland University of Applied Sciences	Kirsi Tallinen, Research Manager
9	Finland	Savonia University of Applied Sciences	Markku Huhtinen, Vice-rector
10	Germany	TH Köln - University of Applied Sciences	Michael Bongards
11	Ireland	DIT - Dublin Institute of Technology	Brian Norton, President
12	Ireland	UCC - University College Cork, College of Science, Engineering and Food Science	Niall Dunphy
13	Lithuania	VGTV - Vilnius Gedminas Technical University	Gintaras Stauskis
14	Poland	IMP PAN	Jan Kicinski, Director
15	Slovenia	Jožef Stefan Institute	Gregor Papa

6.2.3 Linking BET with similar existing study programmes on Bioenergy

The BET Consortium would seek cooperation with other HEIs in Europe that offer bioenergy related graduate programmes. The BET consortium will be facilitating the development of joint or multiple degree programmes, which is further described in paragraph 6.5 *Sustainable continuation of BET activities*. The most prominent study programmes are listed in table 4.



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Table 4. Graduate Programmes in Europe with a focus on bioenergy

#	Country	Institution	Title	Contact person
1	Denmark	Technical University of Denmark	MSc Sustainable Energy	<i>Tbd</i>
2	Finland	Lappeenranta University of Technology	MSc Energy Technology	Antti Pinomaa, LUT
3	Finland	University of Jyväskylä	MSc Renewable Energy	Markku Huhtinen, XAMK
4	France	Grenoble INP Pagora	MSc Sustainable Industrial Engineering	Dominique Lachenal, INP
5	France	Grenoble INP Pagora	Post Master Degree Biorefinery: bioenergy, bioproducts & biomaterials	Dominique Lachenal, INP
6	France	L'Ecole Supérieure de Metrologie and Ecole des Mines d'Albi	MSc Clean Energy from Waste and Biomass	Dominique Lachenal, INP
7	Germany	University of Hohenheim	MSc Bioeconomy	Ina Körner, TUHH
8	Italy	University of Florence	MSc Bioenergy and Environment	<i>Tbd</i>
9	Nordic countries	Developed by the Nordic Council of Ministers, implemented by Aalto University (FI); KTH Royal Institute of Technology, Stockholm and Chalmers, Gothenburg (SE); DTU (DK); Norwegian University of Science and Technology, and University of Iceland	Nordic Master's Degree in Innovative Sustainable Energy Engineering	Joan-Marc Joval, KIC IE
10	Sweden	Linnaeus University	MSc Bioenergy Technology	Joan-Marc Joval, KIC IE
11	Trans-European	Coordinator: EUREC; academic recognition: MINES ParisTech (FR), Zaragoza University (ES), Loughborough University (UK), and Oldenburg University (DE)	European Master's Degree in Renewable Energy	Paola Mazzuchelli, EUREC
12	UK	University of Leeds	Doctoral Training in Bioenergy	<i>Tbd</i>
13	UK	University of Nottingham	MRes Biotechnology and Bioenergy	<i>Tbd</i>

6.2.4 To approach European educational networks

In particular, KIC InnoEnergy and EUA-EPUE, the European Platform of Universities Engaged in Energy Research, Education and Training, will be approached to create collaboration opportunities with external HEIs. The EUA-EPUE platform comprises of 171 universities from across Europe that demonstrate research and training capacity in the similar fields as in the BET project. EUA-EPUE can support BET as it has a strong focus in the promotion and support on establishing and reinforcing



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existing university, industry and business links and collaborations. The Director for Research and Innovation for EUA, Lidia Borell-Damián, is member of the BET External Advisory Board.

The BET Consortium will seek to collaborate with a number of European projects that have significant overlap with BET and could provide input or join in offering (parts of) the BET curricula. BET is collaborating with the [UNI-SET](#) project, coordinated by EUA, that gathers and analyses empirical evidence from Europe's universities in the field of energy research, education and training. The BET partners have attended UNI-SET Clustering events and will attend future EUA-EPUE events that could lead to new collaborations with external Higher Education Institutions.

To Do

- KIC InnoEnergy to research and analyse the potential use of BET materials by the HEIs in their network, and approach them and define offer.
- eseia with support of EAB member Lidia Borell-Damian would screen the HEIs in the EUA-EPUE network for their needs and define offers for collaboration.
- Level of cooperation confirmed by signing cooperation agreements

6.3 Involving Regional Outreach Networks

According to the BET KPIs BET will have 4 regional outreach networks established by 2018. BET currently has 8 active project regions and each region is led by one BET partner with one Regional Coordinator, see table 5. The **BET Regional Coordinators will support the recruitment of HEIs, businesses and regional partners** to join in the BET cooperative educational formats by act as a broker to actively approach potential partners and provide them with all necessary information. A pre-selection of potential partners in each region is listed in Annex 1. For example, eseia is will negotiate cooperation with WIFI Austria, the largest vocational education training provider in the country. The aim of the cooperation is to foster the possibilities of taking up BET nuggets for vocational training.

To recruit new partners, the following steps should be made by the BET Regions Coordinators:

1. Analyse the needs of the stakeholders in the regions
2. Approach potential partner and define offer
3. Discuss and reflect offer with BET Consortium
4. Negotiate offer with partner
5. Confirm cooperation by signing an agreement

The first step has been implemented by the BET partners by sending out questionnaires and conducting interviews. As a second step, the BET partners have reached out to the partners by organizing or attending various outreach activities¹. However, concrete offers for cooperation models have not yet been defined for most partners, and they have not been confirmed through cooperation agreements. The BET Regions Coordinators have the responsibility to approach the potential partners with concrete offers based on the outcome of the questionnaires and interviews. eseia can support the Regions Coordinators by developing cooperation agreements.

¹ BET WP4 Activities Monitoring Table, available on: Dropbox\BioEnergyTrain\WP4 - Creating Regional Outreach Networks\Monitoring Table WP 4_v3.xlsx



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Table 5: BET project regions and their contact points

Styria, Austria	Upper Austria	Bergisch Region, Germany	Hamburg, Germany	Centru, Romania	Lisbon, Portugal	Eastern Netherlands	Zahodna Slovenia
EAS, Christian Sakulin	RIC, Josef Furlinger	BAV, Katharina Gerdes	TUHH, Ina Körner	Bio-C, Boglarka Vajda	LNEG, Luis Duarte	Utwente, M. Arentsen	ELES, Maša Repež

To Do

- The BET Regions Coordinators approach potential partners with concrete cooperation offers
- The BET consortium have the cooperation with external stakeholders confirmed by cooperation agreements.

6.4 Student Acquisition

According to the KPIs, in the frame of the BioEnergyTrain project by 2018 **100 BRM and BVM students** and **400 students in practice oriented education will be trained** as a result of the developed BET professional educational formats. After the end of the project period, the BET cooperative learning formats will be used as a role model to be implemented by the BET partners and other SET Plan sectors.

In 2016 and 2017 the BET consortium has organized two International Summer Schools, one Professional Training, one Student Camp and two Pilot Plant Courses, with a total of 86 participants. Until the end of the project, April 2019, BET will organize another seven training activities, including two International Summer Schools, two Student Camps, one Pilot Plant Courses and two Professional Trainings. The events are listed in the timetable, see table 8. With an average of 20 participants BET would reach another 140 participants, resulting in a total of 230 students that will have received BET practice oriented education.

To increase student interest in the BET training events and master programmes, the BET consortium will seek to have the BET project presented and materials distributed at the most prominent career fairs listed in table 6. Also, eseia has created a distribution list with contact information of the press department, international offices and dean's offices of BET partners and the HEIs in the eseia network for distributing promotion materials for BET training events.

Furthermore, with support of eseia, **marketing teams at TU Graz and at University of Twente will be established to intensify the promotion of the BRE and BVM master programmes.** The UT marketing team consists of Prof. Maarten Arentsen, Carolien Vos-Robaard from Marketing and Communications at UTwente, and a SET-BVM student. The TU Graz marketing team consists of Prof. Wolfgang Bauer, Barbara Gigler, Head of Communication and Marketing Department at TU Graz, and a BRE student.

To Do:

- Each BET Partner presents the BET Master Programmes at one or more study fairs
- Each BET Partner assigns a minimum of two students to get enrolled in the BRE and BVM master programmes for the academic years 2018/2019 and 2019/2020.
- Each BET Partner assigns a minimum of one student to participate in each of the BET training events till the end of 2019.



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Table 6. Student Outreach Events and Career Fairs 2018

Date	Location	Event	Description	BET presented by
18-20 Jan. 2018	Budapest, Hungary	International Trade Fair for Education	The event promotes international studies. 200 exhibition pavilions, 30,000+ visitors, representation from nearly all Hungarian higher education institutions.	eseia
26-27 Jan. 2018	Ljubljana, Slovenia	International Student Recruitment Fair	The Slovenian Education and Career Fair enables students to overview all educational programmes in one or two days.	UL
27 Jan. 2018	Münster, Germany	Masters and More Fair	The largest master fair in Germany	TUHH
3 Feb. 2018	Zurich, Switzerland	Studyrama	Study fair for international education and/or career path abroad.	TUG
22-27 Feb. 2018	Bukarest, Romania	World Education Fair	Large scale fair for Romanian students of all ages.	TUB
28 Feb. – 4 Mar. 2018	Barcelona, Spain	The Education Show in Spain	The Masters and Postgraduate Show offers a wide range of options for young graduates and professionals interested in specialization.	LNEG
1-4 Mar. 2018	Vienna, Austria	The Job, Training and Education Fair	The largest education fair in Austria, presenting a wide range of educational and training programmes and jobs.	TU Graz
14-17 Mar. 2018	Lisbon, Portugal	Futuralia - Youth, Career Training and Job Fair	The largest Education Fair, Training and Counselling in Portugal, with more than 64,000 visitors offering a broad range of national and international education offers.	LNEG
15 Mar. 2018	Enschede, Netherlands	Masters Open Day at Utwente	Open Day with information of all international master programmes taught at University of Twente.	UT
17 Mar. 2018	Paris, France	Studyrama Masters, MBA, Business & Engineering Fair	Postgraduate studies: Masters, MBA, and special programmes. More than 50 prestigious schools presenting more than 250 courses and programmes.	INP Grenoble
5 Apr. 2018	Graz, Austria	Open Day Graz	Open Day for study programmes at all universities in Graz	TU Graz
Oct. 2018	Brussels, Belgium	Studyrama Go Abroad Fair	Fair for international Bachelors, Masters, MBA, Internship, Job and Employment opportunities, with over 400 post-high school educational offers	EUREC
Oct. 2018	Beijing, China	China Education Expo	The leading event in China for education overseas. From the 50000 visitors yearly, two-thirds are college students with a bachelor degree that want to go abroad.	<i>tbd</i>
Nov. 2018	Zagreb, Croatia	The Zagreb University Fair	Fair aims to inform students about various courses of study, curricula, undergraduate, graduate and postgraduate programmes of study.	University of Zagreb
Nov. 2018	Prague, Czech Republic	Central European Study Abroad Fair Gaudeamus	Top event by the most prestigious Czech and EU universities. 8 000+ visitors from the Czech Republic and Slovakia, 150+ exhibitors from EU, USA, Asia and all around the world.	TU Graz
Nov 2018	Amsterdam, Netherlands	Masters Fair	Event with information on masters in Europe	UT



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6.5 Sustainable continuation of BET activities

6.5.1 EC Funding

To support the take up of the BET curricula by other HEIs and to provide funding for creating sustainability of the BET project, the submission of EU funded projects is fostered among the members of eseia. eseia identified three opportunities to exploit the results of the BioEnergyTrain project, namely:

1. MSCA-ITN-2018
2. LC-SC3-CC-5-2018 CSA Research, Innovation and Educational Capacities for Energy Transition
3. ERASMUS+ Key Action 1- Erasmus Mundus Joint Master Degrees

The **MSCA Innovative Training Networks (ITN)** aim to train a new generation of creative, entrepreneurial and innovative early-stage researchers, able to face current and future challenges and to convert knowledge and ideas into products and services for economic and social benefit. ITN supports competitively selected joint research training and/or doctoral programmes, implemented by partnerships of universities, research institutions, research infrastructures, businesses, SMEs, and other socio-economic actors from different countries across Europe and beyond.

The call **LC-SC3-CC-5-2018 CSA Research, Innovation and Educational Capacities for Energy Transition** would focus on cooperation networks with universities and industries, creating modules for university programmes which are replicable and scalable in Europe, and respond rapidly to urgent European industry needs and the rapidly evolving European energy landscape.

With an **Erasmus Mundus Joint Master Degrees (EMJMDs) Programme**, international study programmes are delivered by a consortium of higher education institutions from different countries and where relevant with other partners with specific expertise and interest in the study programme. The Consortium must include HEIs from at least three different Programme Countries. Two proposal workshops were organized in 2017, and in Brussels. eseia will further support the submission process in 2019 and will organize additional proposal workshops. The proposal should be led by the HEIs in the BET consortium.

To Do:

- Proposal preparation on **MSCA-ITN-2018**. Submission deadline 17 January 2018
- Proposal preparation on **LC-SC3-CC-5-2018 CSA Research, Innovation and Educational Capacities for Energy Transition**. Submission deadline 6 September 2018
- Proposal preparation for **ERASMUS+** for developing EMJMDs Programme, submission in Jan/Feb 2019.

6.5.2 Indirect funding – continuation of BET activities

To ensure the sustainability of the implementation of BET activities, such as hosting the Pilot Plant Course, the Student Camp and the International Summer School, all official elements of the BET Curricula, the BET partners can search for other funding opportunities. For example, EAS has found funds via the government of Styria for the organization of the Regional Student Camp 2018. Such funding makes it possible to host training events after the end of the BET project period. The BET partners that are envisaged to organize BET training events should analyze the possibilities for



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organizing these events after the project period. The BET partners and their respective actions for the upcoming months are listed in table 6.

Table 6. BET partner's and eseia members' actions for ensuring implementation of BET Training events as part of the BET curricula after the end of the project period, April 2019

BET Partner	Contact	Action
BAV	Katharina Gerdes	Negotiate and prepare cooperation agreement to implement Pilot Plant Course after end of the BET project, and analyse other cooperation possibilities
Bio-C with UTBv	Boglarka Vajda, Ion Visa	Negotiate and prepare cooperation agreement to implement International Summer School within and after end of the BET project period, and analyse other cooperation possibilities
EAS	Christian Sakulin	Negotiate and prepare cooperation agreement to implement Regional Student Camp after end of the BET project, and analyse other cooperation possibilities
LNEG	Luis Duarte	Negotiate and prepare cooperation agreement to implement International Summer School after end of the BET project, and analyse other cooperation possibilities
RIC	Nigel Foxhall	Negotiate and prepare cooperation agreement to implement Industrial Student Camp after end of the BET project, and analyse other cooperation possibilities
Wood K Plus	Birgit Kamm	Negotiate and prepare cooperation agreement to implement Student Camp after end of the BET project, and analyse other cooperation possibilities
eseia members		
Bioenergy 2020+	Christoph Strasser	Negotiate and prepare cooperation agreement to implement Pilot Plant Course at Bioenergy2020+ and analyse other cooperation possibilities
Torbel	Miguel Horák	Explore the possibilities to implement an Industrial Student Camp at Torbel and analyse other cooperation possibilities

7. Actions and Timeline

The BET Activities that will contribute to start or intensify the cooperation between the BET partners and HEIs, Industry, ROs, Regional Actors and EU Networks are listed in the timeline, see table 7. As you can see in the table below, the BET consortium fosters the involvement of HEIs, companies, research organizations, regional actors and also students in its activity for the remaining 18 months in the project. Actions include implementation of the BET cooperative educational formats, participation at clustering events, preparation and submission of EU funded project proposals, Buying-in Events and other outreach activities. The workflow is illustrated in the gantt chart, see table 8.



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Table 7: Timeline with List of Activities

Month	Activity	Led by	Targeted stakeholders
Nov-17	Workshop <i>BET Courses and Nuggets</i> in Graz, Austria	eseia, EAS, GreenTech	HEIs, Industry, ROs, Regional Actors, VET Providers
Feb-18	Student Camp 2 hosted by EAS, in Graz, Austria	eseia, EAS	HEIs, Industry, ROs, Regional Actors, Students
Mar-18	Each BET HEIs has registered 2 students for the BRE and BVM for academic year 2018/2019	HEIs	Students
Apr-18	BET Conference in Dublin, Ireland, back to back with BET project meetings, Regional Outreach Workshops and proposal workshops on Erasmus+ and LC –SC3-CC-4-2018	DIT, eseia	HEIs, Industry, ROs, Regional Actors
		All BET partners	
May-18	Submission of project proposal Erasmus+	eseia, TU Graz and UTwente	HEIs, Industry, ROs, Regional Actors
Jun-18	Buying-in Event at UTwente (<i>tbc</i>)	eseia, UTwente	HEIs, Industry, ROs, Regional Actors
	eseia Professional Training on the Development of Bioresources and Bioproducts	eseia	HEIs, Industry, ROs, Regional Actors, students
Jul-18	ISS 3 hosted by LNEG back to back with Buying-in Event, in Lisbon, Portugal	eseia, LNEG	HEIs, Industry, ROs, Regional Actors, students
Aug-18	ISS 4 organized by Bio-C in cooperation with the University of Twente, back to back with Buying-in Event (<i>tbc</i>)	Bio-C, University of Twente	HEIs, Industry, Regional Actors, students
Sep-18	2 nd Buying-in Event in Graz, Austria	eseia, TU Graz, EAS	HEIs, Industry, ROs, Regional Actors
Oct-18	Pilot Plant Lab Course 3 hosted by BAV back to back with Buying-in event (<i>tbc</i>), in Germany	eseia, BAV	HEIs, Industry, ROs, Regional Actors, students
Nov-18	BET Project Meetings and Regional Outreach Workshops in Brussels	eseia	HEIs, Industry, ROs, Regional Actors
Jan-19	Student Camp 4 organized by UTwente and hosted by one of the regional partners (<i>tbc</i>)	Utwente	HEIs, Industry, ROs, Regional Actors, students
Feb-19	Student Camp 3 hosted by Wood K Plus, in Linz, Austria	eseia, Wood K Plus	HEIs, Industry, ROs, Regional Actors, students
Mar-19	Pilot Plant Lab Course 4 hosted by Bioenergy2020+ (<i>tbc</i>)	eseia, Bioenergy2020+	HEIs, Industry, ROs, Regional Actors
Apr-19	Each BET HEI has registered 2 students for the BRE and BVM for academic year 2019/2020	BET HEI partners	HEIs
	Final BET Event	eseia	HEIs, Industry, ROs, Regional Actors, EU Networks



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Table 8. Gantt Chart for buying-in activities

ACTIVITIES & STAKEHOLDERS	DURATION		YEAR 2												YEAR 3			
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Spet-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19
Involving HEIs in BET extended network																		
Research and analyse the needs of HEIs and RO for potential use of BET materials			●															
Approach potential HEIs with offers and confirm interest in BET learning materials through cooperation agreements		●						●			●	●						●
Involving 4 regional outreach networks																		
Approach potential partners in the BET regions with offer and develop cooperation agreements																		●
Student Acquisition																		
Promotion of BET master programmes, attending Study Fairs			●	●	●							●	●					●
Promotion and implementation BET cooperative educational formats	●			●				●	●	●		●				●	●	
Sustainable Funding																		
Proposal generation for MSCA-ITN-2018, LC-SC3-CC-5-2018 and ERASMUS+			●			●									●			
Establish agreements with BET partners for continuation of BET activities																		●

Task duration
 Output to deliver



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Annex 1. Stakeholders within each project region

Pre-selection of stakeholders by BET project regions

I - Austria: Styria and Upper Austria

Industry

- Andritz
- ARCon GmbH
- AUSTROPAPIER
- BDI - BioEnergy International AG
- BIOENERGY2020+
- BIOS BIOENERGIESYSTEME GmbH
- Borealis Polyofine GmbH
- Energie Steiermark
- Komptech GmbH offers leading technology for the mechanical and biological treatment of solid waste and for the treatment of biomass as a renewable energy source.
- KWB Kraft und Wärme aus Biomasse.
- Mondi Styria GmbH
- Papierholzaustria
- Sappi Austria Produktions-GmbH & Co KG
- Saubermacher
- TDZ Ennstal
- Zellstoff Pöls AG

Research Organisations

- Joanneum Research
- Energieinstitut an der Johannes Kepler Universität Linz

Higher Education Institutions

- FH OÖ Wels
- FH Joanneum
- Karl-Franzens Universität Graz
- JKU Linz
- Montanuniversität Leoben

Vocational /Continuing Training Providers

- CVET - continuing vocational education and training
- WIFI Austria
- BFI
- Rotax Academy



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II - Germany, Bergische Region

Industry

- Buderus (www.buderus.de), the 'Bosch Thermotechnik GmbH' is dedicated to the development of innovative heating technology.
- Bioflamm GmbH (www.bioflamm.de), is a regional company situated in Overath which specializes in environmental engineering.
- AVEA GmbH & Co. KG (www.avea.info) is the local waste disposal company.
- ETA Heiztechnik GmbH (www.eta.co.at), specializes in the manufacture of biomass heating, meaning pellet and wood chip boilers.
- HDG Bavaria GmbH (www.hdg-bavaria.com), offers heating systems for wood.
- Holz-Richter GmbH (www.holz-richter.de), is a regional wood processing company situated in Lindlar.
- SOLARFOCUS GmbH (www.solarfocus.at), is a company which researches, develops, produces and sells solar and environmental technology products. It acts as a full-service provider of systems for private households, commerce and industry.
- Paradigma Deutschland GmbH (www.paradigma.de), is an organization for ecological heating systems.

Research Organisations

- Research alliance :metabolon, a cooperation between the "Bergische waste management association" and the "University of applied sciences Cologne"
- Fraunhofer Umsicht
- Research Center Jülich
- Wuppertal Institut
- AgroHort, Science-to-Business Center, Campus Klein-Altendorf, University of Bonn

Higher Education Institutions

- Technische Hochschule Köln

Vocational /Continuing Training Providers

- The Bergisches Energiekompetenzzentrum
- zdi-Zentrum BeST (Bergisches Schul-Technikum):

III - Germany, Hamburg

Industry

- BUHCK GmbH
- ETH Umwelttechnik
- Hamburg Wasser (HW)
- Stadtreinigung Hamburg (SRHH)
- Veolia GmbH



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Research Organisations

- Thünen-Institut:

Higher Education Institutions

- Centre of wood science Hamburg University (UHH)
- Hamburg University of Technology (TUHH):
- Hafen City University Hamburg (HCU): www.hcu-hamburg.de
- Hamburg University of Applied Science (HAW): www.haw-hamburg.de
- Helmut Schmidt University (HSU): University of the Federal Armed Forces Hamburg www.hsu-hh.de

Vocational /Continuing Training Providers

- TUTECH: www.tutech.de

IV - Portugal: Lisbon Region

Industry

- Algar: Company responsible for the waste treatment in Algarve region (www.algar.com.pt)
- AmarSul: Company responsible for the waste treatment in the south of Lisbon area (www.amarsul.pt)
- ANPROMIS - Associação Nacional de Produtores de milho e Sorgo – Corn Growers Association: National association of corn farmers, one of the major farmers association in Portugal (www.anpromis.pt)
- ANPEB – Associação nacional de pellets energéticos de biomass – Pellet Producers Association: National association of industrial pellets producers (www.anpeb.pt)
- APPB – Associação Portuguesa de Produtores de Biocombustíveis – Biofuels Producers Association: National association of biofuels (mostly biodiesel) producers (www.appb.pt)
- CELPA – Associação da Indústria Papeleira- Pulp and Paper Industrial Association: National association of pulp and paper mills (www.celpa.pt).
- FIPA – Federação das indústrias Portuguesas Alimentares – Agro-food Industrial Association: The major National association of agro-food companies (www.fipa.pt)

Research Organisations

- LNEG - National Laboratory for Energy and Geology (www.lneg.pt)
- INIAV - National Institute for Agriculture and Veterinary Research (www.inia.pt)
- CEBAL-Alentejo's Center for Agriculture and Agro-food Biotechnological Research (www.cebal.pt)
- ITQB Chemical and Biotechnological Technology Institute(www.itqb.unl.pt)

Higher Education Institutions

- Technical University of Lisbon
- Universidade NOVA de Lisboa
- Ulisboa – University of Lisbon



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Vocational /Continuing Training Providers

- New University of Lisbon (Faculdade de Ciência e Tecnologia da Universidade Nova de Lisboa)
- Lisbon University Technical School (Universidade de Lisboa, Instituto Superior Técnico)
- Portalegre Polytechnic School (Instituto Politécnico de Portalegre)
- SIADEB – IberoAmerican Society for the Development of Biorefineries (www.siadeb.org)
- SPQ - Chemistry Portuguese Society (Sociedade Portuguesa de Química)
- SPB - Biochemical Portuguese Society (Sociedade Portuguesa de Bioquímica)

V - Romania: Centru Region

Industry

- Ariadne
- ASIMCOV
- Association of ESCO type Energy Services Companies in Romania
- Erpek Ind Srl
- GOSCOM:
- Green Building & Development Cluster
- ISPE - Institute for Studies and Power Engineering
- Kontrastwege SRL
- Renerg Cluster
- TEGA
- TREFOREX

Research Organisations

- National Institute of Research - Development for Machines and Installations Designed to Agriculture and Food Industry – INMA.
- National Research and Development Institute for Energy - ICEMENERG Bucharest.
- Romanian Academy's Centre for Organic Chemistry.

Higher Education Institutions

- Babeş-Bolyai University, Sfantu Gheorghe Extension
- Polytechnic University of Bucharest
- Sapientia Hungarian University of Transilvania
- Transilvania University of Brasov
- University of Bucharest, Faculty of Chemistry

Vocational /Continuing Education Providers

- German Economic Club, German Professional School Kronstadt
- ISPE - Institute for Studies and Power Engineering
- Puskas Tivadar Vocational High-School
- Romanian Academy's Centre for Organic Chemistry
- Romanian Academy's Institute For Economic Forecasting



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VI - Slovenia: Zahodna Slovenija

Industry

- Algen
- Artim
- Biomasa d.o.o.
- Biomasa Jakoša
- Biomasa Kostanj
- ECOS – Storitve pri varovanju okolja d.o.o
- Koto
- Panvita EKOTEH
- Tehnosol
- Vaillant
- Zarja Kovis

Research Organisations

- Jožef Stefan Institute, Energy Efficiency Centre (EEC)

Higher Education Institutions

- University of Ljubljana:
 - Biotechnical Faculty, University of Ljubljana.
 - Faculty of Civil and Geodetic Engineering
 - Faculty of Chemistry and Chemical Technology
 - Faculty of Electrical Engineering

Vocational /Continuing Training providers

- Centre of the Republic of Slovenia for Vocational Education and Training
- The Slovenian Institute for Vocational Education and Training

VII - The Netherlands: Eastern Netherlands

Industry

- BEON
- BIC-ON Het Bioeconomy Innovation Cluster Oost Nederland (BIC-ON)
- BTG Biomass Technology Group BV (BTG)
- BVA Biogas Vereniging Achterhoek:
- E-kwadraat:
- GreenTech Alliance
- LTO North
- Nyhuis water Nijhuis Water Technology
- Platform Bioenergy
- Royal FrieslandCampina
- Stichting Biomassa



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- Stimuland
- Twence

Research Organisations

- TNO Innovation for Life:
- Energy Center Netherlands (ECN)

Higher Education Institutions

- CAH Dronten:
- HAN University for Applied Sciences:
- Radboud University
- Saxion University for Applied Sciences:
- University of Twente:
- Van Hall Larenstein:
- Wageningen University:

Vocational /Continuing Training providers

- AOC Oost
- Graafschapcollege
- ROC Twente