A holistic and Scalable Solution for research, innovation and Education in Energy Transition

D1.1 ASSET Stakeholders Engagement Strategy

Work Package	WP1 - ASSET ecosystem and networking
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Executive Summary

ASSET - ***A holistic and scalable solution for research, innovation and education in energy transition*** - is an EU project funded under the Horizon 2020 programme.

The goal of the project was to create a sustainable and scalable **community**, which brings together all energy transition and education stakeholders (companies from the energy sector, universities and training actors, authorities and policy makers and the society at large), so as to enable a continuous bottom-up creation of research, innovation and educational (RIE) services and capacity pooling.

The **aim of this document** is to describe the **methodology** that has been developed in order to set up and implement the **Public Outreach Strategy (POS),** as an effective and efficient tool to reach and engage the target groups of the ASSET community.

Since the **community building and engagement strategy,** mainly addressed to the target groups, are significantly interconnected with the **communication and dissemination strategy (D5.2),** which essentially determines how the project communicates its key results to a multitude of audiences, including the media and the general public, **synergies** between the two approaches have been examined since the beginning of the project and have been constantly ensured during the project execution.

The **consistency** of the two documents has been assured particularly with reference to the target audiences, the key messages and the ASSET value propositions.

The **Public Outreach Strategy has been intended as a** "**living document**": a first version of the document was released at the beginning of the project (M2), then the document has been regularly updated and integrated every 6 months (M6, M12, M18).

This final version (v5) is particularly focused on the results of the monitoring and evaluation activity and on the drafting of some conclusions.

It is necessary to mention that the COVID-19 emergency situation, started at the end of February 2020, impacted on the communication and dissemination activities planned in the second year of the project and this required to implement some corrective measures and to revise the planning of some activities, in order to comply with the ASSET targets and KPIs.

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List of Acronyms

Abbreviation / acronym	Description
KPI	Key Performance Indicator
KSC	Knowledge, Skills, Competences
POS	Public Outreach Strategy
REC	Renewable Energy Community
RES	Renewable Energy Sources
RIE	Research, Innovation and Education
WP	Work Package

1. Introduction

1.1 ASSET overall scope

ASSET - *A holistic and scalable solution for research, innovation and education in energy transition*- is a Horizon 2020 project, financed under the topic LC-SC3-CC5 "Research, innovation and educational capacities for energy transition".

The overall scope of the project is to create a **community** which brings together all energy transition and education stakeholders (companies from the energy sector, universities and training actors, authorities and policy makers, research centres, associations and society at large) and to deliver the framework and means for continuous **collaborative definition of the knowledge-competencies-skills-capacities** required for the energy transition. Resource pooling, interdisciplinary approach and bottom-up creation of innovative educational services are the core of the ASSET platform, which allows to efficiently train a new generation of energy-sensitive citizens as actors of the energy transition process.

1.2 Deliverable's scope and contents

Community building is a stimulating but also complex activity, which requires specific expertise and implies a tailored and iterative approach: identification of the targets, communication and awareness raising, stimulation of a dialogue, members' affiliation and active engagement, dissemination and experience of the benefits of being parts of the community, network expansion. At an overall level:

- **Communication** and **Dissemination** are aimed to inform, to share knowledge and to influence the general public and specific stakeholders,
- **Engagement** is aimed to involve target groups and create a bidirectional relationship.

In order to set-up the ASSET community, a targeted **Public Outreach Strategy (POS)** is needed, which envisages the stakeholder identification, the analysis of their needs and motivations and the definition of tailored engagement strategies, which includes key messages and specific communication channels.

Deliverable D1.1 defines the ASSET stakeholders' engagement and community building strategy and outlines the ***messages***, ***channels*** and ***activities*** to be put in place throughout the project to ensure large participation and support to the ASSET community.

1.3 Relation with other WPs

The **community building and engagement strategy** is significantly interconnected with the **communication and dissemination strategy**, and thus synergies between the two approaches have been ensured since the first elaboration of D1.1 and D5.2. In particular, the **consistency** of the two documents has been assured with reference to the **target audiences**, the **key messages** and the ASSET **value propositions**.

Additionally, the last version of D1.1 has been enriched on the basis of the results of the research activities carried out within Task 2.1 "**Societal challenges in the energy sector**" under the coordination of the University of Naples Federico II.

2. Public Outreach Strategy

2.1 Purpose and objectives

ASSET's goal is to create a sustainable community to increase the awareness, the knowledge and the skills to support the energy transition. Misconceptions still exist around renewable energy systems and the energy transition process. Potential stakeholders, in particular citizens and local communities, may not be fully aware of how energy systems could be innovated, and of their potential economic, social and environmental benefits. This lack of general awareness and specific competences is a barrier to the energy transition process. It diminishes political leadership and the development of effective policies or incentives to foster greater deployment.

The ASSET community aims to connect different actors across the EU, with complementary interests, technological and non-tech competencies to be offered and resources to be employed, creating a European wide network. This network can offer target groups a substantial knowledge support to accelerate the energy transition in terms of policies implementation, development of innovative models and design of new products and services, through an overall enhancement of the ***social and collaborative dimension of learning***.

The **Public Outreach Strategy** is the crucial first step into building the ASSET community. Its **purpose** is to introduce guidelines for the involved stakeholders, partners and general public on how the ASSET community will be created and managed during and after the project lifespan.

In order to ensure compliance with the ASSET objectives and their respective KPIs, mainly those relating to "***Strategic Objective 1***" [" To attract and engage all different actors (universities, training organisations, energy industry actors, policy makers and society) to the ASSET community offering them tangible motives and supporting multiple forms of direct communication and interaction within the community"], this strategy aims to engage a vast audience, while addressing the main needs that are pertinent to them.

More specifically, the POS aims to achieve the following main **objectives**:

- **Set-up** of the ASSET EU-wide community (website, platform, stakeholders list and contacts, forum etc.);
- **Attract** a sufficient number of stakeholders to join the community;
- **Showcase** to potential beneficiaries the importance of obtaining access to ASSET offerings (tolls, programmes, services and business opportunities);
- **Raise awareness** of a wide range of stakeholders on the role of citizens and local communities in promoting the energy transition.

The following graph recaps the overall structure of the POS.

Fig. 1 Overall structure of the POS

2.2 Methodology

In order to collect useful information and references to set up and tailor the Public Outreach Strategy, a twofold methodology has been employed:

- ➔ **Desk analysis**:
  - a bibliometric analysis of scientific literature using the *VOSviewer* [1] software tool;
  - a web mapping of the European projects related to energy transition;
  - a web mapping of the international institutions involved in energy transition.
- ➔ **Interviews**: representatives of the target groups of stakeholders were identified in the consortium networks and interviewed in order to: a) detect their interest in the ASSET project, b) identify their educational and training requirements and expectations, c) define suitable communication strategies, and d) explore their potential commitment to ensure the ASSET community sustainability.

The implementation and the outcomes of these activities are described in the following paragraphs and in Annexes 1, 2, 3, 4.

2.2.1 Desk analysis

The overall objective of the desk analysis was to identify the most important ***actors***, the relevant ***sources***, the connected ***disciplines*** and the main ***references*** in the field of energy transition. In order to give more effectiveness to this mapping activity, **three different analyses** have been carried out.

1) A **bibliometric analysis** of scientific literature has been performed through the *VOSviewer* [1] software tool, as a top-down approach.

The objective of this activity was to identify the most prominent research centers and universities, the most prominent researchers and their networks, the involved disciplines (fields and subfields) and the research trends around the field of energy transition.

A first preliminary analysis of the scientific body of literature was performed to explore the field, through the comprehensive query *"energy transition*" OR "green economy"*.

Based on the first results, the initial query was iteratively refined in order to explore sustainable energy sector from an educational perspective and thus to focus on the communities to be engaged in the ASSET project.

The main outcomes of this survey are the following:

- The leading EU countries in this research field are Germany, United Kingdom and Spain, followed by Italy, the Netherlands and Greece. Delft University of Technology is in particular the more active academic institution.
- European Commission is by far the main funding subject of the analyzed research works, followed by some national research institutions (Ministries, Foundations, Universities)
- engineering is understandably the main discipline entailed in the analyzed scientific publications, but many other disciplines (such as social science, environmental science, economics) are also involved, thus displaying that energy transition is not just a technical issue, but an interdisciplinary approach is needed;
- the increasing number of scientific publications related to education and training issues connected to the energy transition processes shows the growing interest of the scientific community for this topic;

A more detailed description of the performed bibliometric analysis is reported in Annex 1.

2) A **web search of past and on-going European projects** related to education, training, skills, competences and professional profiles definition in the field of the energy transition has been performed.

The objectives of this activity were:

- to collect contacts of other entities sensitive to and/or active in the education, training and up skill of students and professionals, in order to involve them in the ASSET community;
- to learn from the outcomes of these projects and to avoid duplication of efforts;
- to track the developments and changes in the definition of stakeholders needs and requests in terms of KCS (knowledge-competencies-skills);
- to create synergies when it comes to the common actions and activities.

The main outcomes of this survey are the following:

- when the energy transition process became established over ten years ago, EU projects were mainly focused on technical and technological research and skill issues (e.g. Windskill project was focused on wind energy plants worker and maintainer profiles), while in the recent years the overall focus shifted towards social and societal challenges and the role of energy citizens in the energy transition process (e.g. Reinassance)
- the concept itself of "energy transition" smoothly moved from the mere renewable energy production towards a more comprehensive approach, which involves energy efficiency, smart grids and sustainable mobility (e.g. Elviten);
- New subjects, such as energy communities and energy cooperatives, are progressively taking a leading role in the promotion of and participation to EU projects, directly involving their members in experimental study-cases and dissemination activities (e.g. Ielectrix).

For a complete list of the analysed EU projects, see Annex 2.

3) **A web survey of international and European institutions, entities, centres, networks** involved in research, innovation, dissemination and learning activities related to the energy transition issues has been performed. In this case, a top-down approach was adopted, starting from the most renowned institutions, in order to:

- identify the main hubs of competencies;
- collect contacts of other entities sensitive to and/or active in the education, training and up skill of students and professionals, in order to involve them in the ASSET community;
- assess the State of the Art and the existing “supply” of research, learning and dissemination activities on energy transition;

For a complete list of the identified entities and their main objectives and target audiences, see Annex 3.

2.2.2 Interviews with representatives of the target groups

The scope of the interviews was to better **identify** and **characterize** the stakeholder categories that could be involved in the project. For each identified target group of stakeholders, the specific **needs** in terms of knowledge, skills and competences have been analized.

Moreover, which of the ASSET's outcomes and expected results (service provider, problems solver, opportunities creator, matching platform) could represent an **added value** for their objectives and for their contribution to the energy transition process have been also detected.

An overview of the "raw" interviews results is presented in Annex 4.

All the replies were **processed**, **analysed** and **recast**, in order to extrapolate the relevant information, which were used as a direct input for the **Stakeholders mapping** (*Chapter 3*) and for the **Engagement Process** (*Chapter 4*) elaboration.

A second round of interviews was foreseen for M7, to gain more in depth and focused information. However, in order to optimize the partners' and respondents' efforts, it was decided, together with other partners, to join it with other surveys and interviews, which are foreseen within other ASSET activities.
In particular, it was agreed with UNINA to extrapolate the needed information from the questionnaires prepared by UNINA for the research currently underway within Task 2.1 "Societal challenges in the energy sector".

3. Stakeholders mapping

3.1 Stakeholders identification (target groups)

Before determining appropriate engagement methods and developing communication messages, it is important to first identify and characterize the key stakeholders.

The identification of the ASSET stakeholder groups was based on three different levels of evaluation (bottom up, top down, peer approach), described in paragraph 2.2:

1) Partners' evaluation (proposal, peer approach): according to their experience, specific competence and preliminary discussions, the consortium partners identified six main types of targeted actors in the project proposal;
2) Experts' evaluation (desk analysis, top-down): experts from ENOSTRA and UNINA carried out a desk research through a web survey and a bibliometric analysis of scientific literature;
3) Network evaluation (interviews, bottom-up): partners collaborated to submit more than 22 questionnaires to stakeholders, leveraging their strong networks with all types of targeted actors (Annex 4).

The mapping activity has taken into account both the needs of the project and the social characteristics of relevant stakeholder groups in the target sectors, such as existing competences, civil engagement, cultural background, age and network relationships.

As a result of the research activities, the following main stakeholder groups have been identified in the context of energy transition:

Tab. 1 Stakeholders Groups

Universities, research centres, training actors
Companies from the energy sector
Policy makers, authorities, public administrations, market regulators
Societal actors (NGOs, consumers' associations, professional associations, trade unions, industrial associations, chambers of commerce)
Energy citizens (individuals as potential energy citizens, prosumers (producer & consumer), Renewable Energy Communities - RECs, Renewable Energy Sources Cooperatives – Rescoops - and Rescoops federations)
Students (university) and new employees

During the first phase (M1-M5), the ASSET community was constituted by the ASSET consortium members and by some relevant stakeholders who already signed letters of support.

In the following months, the ASSET outreach has been based on the stakeholders' database, which was also used as a tool to track stakeholders' involvement and as an indicator of the community's growth. The database has been populated starting from the partners' networks and the contacts collected through the interviews. Incoming members are asked to fill in a form (Annex 5) to submit their membership request.

The continuous expansion of the community has been performed over the whole project lifetime and has been periodically monitored, in order to improve and adapt the outreach strategy.

3.2 Stakeholders analysis (specific needs emerging from interviews)

The interviews to representatives of different target groups (Annex 4) provided essential inputs to understand the stakeholders' interests, goals and motivations and to assess the expectations about the ASSET community. Table 2 recaps the specific needs and goals for each target group.

Tab. 2 KSC needs and goals for each target group

Target group	KSC needs and goals
Universities, research centres, training actors	**KSC needs:** Environmental science, software and IT technologies, communication, dissemination and advocacy, data science and big data, estimation and forecasting techniques, policy making, legislative framework and politics, economics, augmented reality, intellectual property rights, soft skills, social science, marketing, project management, decision making, negotiation and mediation, risk analysis, interdisciplinary approach, distribution grids and smart grids, modelling and optimization of complex energy systems. **Goals**: ▪ to share learning materials ▪ to identify educational needs ▪ to enhance the quality and interdisciplinarity of education and training programmes ▪ to gain visibility in front of industry sector and society ▪ to connect to prestigious European Universities and academic networks ▪ to strengthen relationships with industry through mobility mechanisms ▪ to raise awareness of public institutions (possible fallout in funding or support of programs for workers)
Students (university) new employees	**KSC needs:** All main KSC requested for new professional profiles. **Goals**: ▪ to acquire newly requested competences and interdisciplinary knowledge in the energy sector ▪ to upskill their own KSC in order to improve the current position ▪ to connect with industry and labour market through mobility support mechanisms (stages, internships)
Companies from the energy sector	**KSC needs:** Environmental science, communication, dissemination and advocacy, financial resources and incentives **Goals**: ▪ to find educational/training programmes to up skill employees ▪ to express KSC needs to academic and training institutions ▪ to ask for targeted educational/training programmes ▪ to strengthen relationships with universities through mobility mechanisms ▪ to create new market opportunities

Policy makers, authorities, public administrations, market regulators	**KSC needs:** Communication, dissemination and advocacy, sustainable finance, data science and big data, policy-making, legislative framework and politics, economics. **Goals**: ▪ to express KSC needs to academic and training institutions; ▪ to have a tool for matching training needs and offerings
Societal actors (NGOs, consumers' associations, professional associations, trade unions, industrial associations, chambers of commerce)	**KSC needs:** Environmental science, climate change and related policies, energy efficiency in buildings, communication, dissemination and advocacy, software and IT technologies, Internet of things, digital energy, block chain, data science and big data, energy storage, energy markets functioning, negotiation and mediation skills, interdisciplinary approach, energy audit, entrepreneurship, peer-to-peer economy and new business models, integrated energy approach for electric energy, thermal energy and mobility. **Goals**: ▪ to gain significant visibility at high policy levels ▪ to enlarge their networks through new members or by partnering with new alliances or platforms ▪ to provide new benefits and training services to their members ▪ to upskill their staff ▪ to increase social awareness about energy transition.
Energy citizens (individual prosumers, citizens and renewable energy communities- CEC/REC, rescoops, rescoop federations)	**KSC needs:** Environmental science, climate change and related policies, energy efficiency in buildings, communication, dissemination and advocacy, digital energy, block chain, energy storage, energy markets functioning, negotiation and mediation skills, interdisciplinary approach, energy audit, entrepreneurship, peer-to-peer economy and new business models, integrated energy approach for electric energy, thermal energy and mobility. **Goals**: ▪ to increase social awareness about energy transition ▪ to better understand social, environmental and economic benefits of the energy transition ▪ to be informed about their rights and possibilities to participate ▪ to be actively involved in the energy transition.

4. Engagement process

4.1 Development of engagement strategies

To bring together actors from the targeted groups, promote networking within the community and exchanges among them, but also to raise deeper understanding of the benefits of ASSET community dynamics, best practices of engagement were adopted. The engagement strategy put ASSET in front of its stakeholders at the right moment when they are actually looking for what ASSET has to offer: an online educational programme marketplace and an ecosystem of knowledge, to enable each of them to effectively take part in the energy transition.

This approach involves strategic planning, content development and dissemination across the most meaningful channels available, including online, print and in-person, as well as metrics for monitoring the community building process. The overall purposes of the outreach efforts are to **attract** and **engage** relevant stakeholders, as well as to **maintain** and accelerate their interest in ASSET community.

To this regard, the following activities have been planned in the strategy:

- Definition of an **ASSET payoff**, a smart and incisive short message to present the project, which should be appealing, easy to remember and include key terms related to the project overall scope.

- Identification and involvement of **"ASSET Ambassadresses & Ambassadors",** who give their endorsement to the project, ease the contacts with strategic policy makers and experts and support the dissemination of project information and results. Ambassadors have been selected on the basis of these characteristics: credibility, expertise, renowned within academic, industrial and political/administrative environments.

- Definition of **ASSET tailored engagement strategy,** which includes **value propositions** to motivate stakeholders to engage with ASSET community and related **tailored key messages and communication channels** based on stakeholders own unique needs, values and motivations, once these are learned and clearly understood.

- **ASSET Roadshows**: in order to strengthen the network with industry, cities, regions and other key societal actors and attract and engage them in ASSET community, 3 roadshows were organised in **Italy**, **Spain** and **Belgium** at different levels – e.g. regional, national, EU-level – and with slightly different targets and objectives.

- **ASSET Forum**: this discussion space has been created to facilitate Academia-Industry dialogue and for the online community engagement. Through this tool, industrial actors and students can exchange information related to hot topics training, exchange or working opportunities..

4.2 Planning and management

The POS planning defined the tasks to be performed, the partners in charge (leader) of the different activities, the deadlines to be met and the resources to be employed.

This planning also allowed to track work progress towards goals and milestones.

In order to manage, coordinate and supervise all the POS activities, ÈNOSTRA appointed a **Community Manager** (*Mrs Sara Gollessi*).

Specifically, the Community Manager was in charge of:

- coordinating the outreach strategy key messages with the communication and dissemination messages, in order to ensure consistency;

- coordinating the outreach strategy actions (events, publications) with the communication and dissemination activities;
- monitoring of outreach results in comparison with corresponding KPIs.

Table 4 recaps the main activities implemented during the project lifespan.

Tab. 3 Activities foreseen from M1 up to M14

ACTION	Start date	End date	Leader	Tools
Analysis of the energy market needs (knowledge, skills and competencies) through desk research and interviews	M2	M2	ÈNOSTRA	Interviews, desk research, contributes from partners
Definition of ASSET value propositions to motivate stakeholders to engage with ASSET community	M1	M3	ÈNOSTRA, Logical Soft, all partners	Interviews, desk research, contributes from partners
Appointing a Community Manager	M1	M3	ÈNOSTRA	Agreement with partners
Definition of an "ASSET payoff"	M2	M5	ÈNOSTRA, Logical Soft, UNINA	Brainstorming, communication experts consultancy
Identification and involvement of "ASSET Ambrassadresses & Ambassadors"	M2	M10	ÈNOSTRA, all partners	List of contacts, letters of support, publication of names and profiles on the ASSET website
Embedding a subscription form on the project website	M1	M5	ÈNOSTRA, ATOS	Definition of the required fields and personal data management policies
Creation of the ASSET Community database	M1	M6	ÈNOSTRA, ATOS	Creation of a database and definition of GDPR rules to manage it
Second round of interviews	M6	M20	ÈNOSTRA, UNINA	Online questionnaires and personal interviews to experts
Creation, launch, management of the ASSET forum	M5	M24	ÈNOSTRA, ATOS, AUU, Logical Soft	Definition of the management rules and responsibilities, periodical posts publication
Organization of the 1st roadshow in Italy	M6	M7	ÈNOSTRA, EASE, Logical Soft, UNINA	Definition of the agenda, invitation of participants, realization of the event
Organization of the 2nd roadshow in Spain	M6	M10	ATOS, EASE	Definition of the agenda, invitation of participants, realization of the event

Presentation of the ASSET project within events and workshops	M5	M24	ÈNOSTRA, all partners	Participation of ASSET partners to events, distribution of ASSET brochures, personal engagement of targeted stakeholders
Presentation of the ASSET project and education/training offer through targeted webinars*	M12	M14	ÈNOSTRA, all partners	Organization of webinars involving university students and other stakeholders groups to present the ASSET Community and training offer.
Interviews to ASSET Ambassadors and Ambassadresses	M18	M24	ÈNOSTRA	Plan and perform interviews, publication of the interviews
Organization of the 3rd roadshow in Belgium	M14	M18	EASE, all partners	Definition of the agenda, invitation of participants, realization of the event

*Due to the COVID19 epidemic, many public events (workshops, conferences, expo) scheduled between March 2020 and April 2021, where ASSET partners were planning to present the project outcomes and launch the education and training offer, have been postponed or cancelled. In order to compensate the reduced visibility opportunities, ASSET partners agreed to organize some webinars.

4.3 Implementation

All the information gathered across the previous steps enabled to implement the ASSET Public Outreach Strategy, as described in the following paragraphs.

ASSET payoff

The designed payoff includes the project keyword "*energy transition*" and embed the message that ASSET will award its members the "licence" to become *drivers* of the energy transition, namely to have an active and mindful role.

Just for energy transition drivers

ASSET Ambassadresses & Ambassadors

All partners had the responsibility to select and appoint 1 or 2 ASSET Ambassadresses & Ambassadors (representing their country) on the basis of their acknowledged professional experience and personal commitment in relation to the energy transition processes and challenges.

ASSET Ambassadresses & Ambassadors were requested to:

- declare their endorsement to the project scope and objectives;
- give visibiliby to the ASSET project within their professional networks;
- support the dissemination of news and information related to the project activities and results;

The names and professional profiles of the selected Ambassadresses & Ambassadors were displayed on the project website, in order to give visibility to their endorsement to the ASSET project and to acknowledge their commitment.

In total, 13 Ambassadresses and Ambassadors have been appointed: Annalisa Corrado,Alberto Poggio and Antonio Disi (IT), Cristina Rioja, Alberto Sanchez, Raphael Bahamonde, Ignacio Chanza and Francisco Jose Mora (ES), Cleo Sgoupopoulou and Vassilis Nikolopoulos (EL), Otilia Kytölä (DE), Eva Sass Lauritsen (DK), Stefan Schauss (AT).

Within the 1st year of the project, ASSET Ambassadresses and Ambassadors were mainly involved in giving visibility to the project initiatives through their social media channels. Within the 2nd year of the project, ASSET Ambassadors were also invited as speakers in some events. For example, Annalisa Corrado attended the event "Girl Power: the role of women in the energy transition" on the 24th of March, Francisco Josè Mora attended the ASSET Final Event on the 15th of April.

Additionally, two interviews were performed to ASSET Ambassadors:

- a written interview to the Italian Ambassador Antonio Disi was published in the ASSET Newsletter 6, released in October 2020;
- a video inteview to the Spanish Ambassadress Cristina Rioja was published on ASSET youtube channel and social media channels in January 2021.

ASSET tailored engagement strategy

Based on the Stakeholders Mapping results (Chapter 3) and the inputs coming from D5.1 "Communication Plan", a tailored engagement strategy has been defined for each of the 6 identified stakeholder groups, which includes

- a ***key word*** which recaps the intrinsic challenge that the specific group has to face;
- a ***key message*** which explains why they should join the ASSET Community;
- some ***value propositions*** which describe what the ASSET project can concretely offert them to reach their objectives;
- some ***calls to action*** which describe what they are asked to do in order to join the ASSET Community and contribute to its future sustainability;
- the specific ***communication channels*** selected for each target group.

The identified #***Key words*** were mainly used as hashtags for the Social Media Channels communication strategy, in order to easily identify the main or specific target groups addressed within the different posts.

Tab. 4 Tailored engagement strategy per target group

Target group: **UNIVERSITIES, RESEARCH CENTERS, TRAINING ACTORS**	
Key word	#Challenge
Key message	Energy transition means to understand societal challenges and to address policy choices Join ASSET to provide the appropriate knowledge, skills and qualifications needed to answer these questions.
Value proposition	• Share high quality learning materials to accelerate programme creation in hot energy-relevant topics (also including societal and entrepreneurial aspects) • Exploit ASSET tools, community and materials to easily build interdisciplinary courses • Connect with industry across EU to enlarge “customer” basis • Connect with industry and engage in mobility support to increase the value of the programmes offered to students • Gain from synergies with other universities (e.g. through remote use

	of labs, openly available resources) • Gain visibility in energy research and education through ASSET community and events
Calls to action	➔ Become a member of the ASSET community ➔ Create and share education and training contents ➔ Update online material and courses ➔ Contribute to the debate on KSC needs
Communication channels	▪ Project website ▪ Newsletters ▪ Project brochure and leaflets ▪ Social media ▪ Workshops and dedicated events ▪ Project Roadshows ▪ e-MOOC-BOOK booklet ▪ Sectorial magazines ▪ Mailing lists ▪ Webinars ▪ Train-the-trainer programmes and tutorials ▪ General press

Target group: **COMPANIES FROM THE ENERGY SECTOR**	
Key word	#Competitiveness
Key message	Green energy transition represents a huge opportunity for European companies to improve their competitiveness in the energy markets. Join ASSET to strengthen synergies and collaborations between academia and industry.
Value proposition	• Find appropriate programmes to quickly up skill personnel in technological, innovation and business subjects in different formats (short programmes, MOOCs, lab training) • Demand specific programmes to the ASSET academic and training actors who will easily build them • Express education/training needs directly to the universities so that they will appropriately shape the new generation of energy experts • Connect with universities (through mobility support, invited lectures to be given by industry representatives, provide examples of operational problems) so that new engineers and energy experts are well prepared for the energy reality
Calls to action	➔ Become a member of the ASSET community ➔ Exploit shared education materials and attend online courses ➔ Ask for new tailored education programmes ➔ Contribute to the debate on KSC needs
Communication channels	▪ ASSET Blog ▪ Workshops and dedicated events ▪ Project Roadshows ▪ Project brochure and leaflets ▪ e-MOOC-BOOK booklet

	▪ Social media ▪ Mailing lists ▪ General press

Target group: **POLICY MAKERS, AUTHORITIES, PUBLIC ADMINISTRATIONS, MARKET REGULATORS**	
Key word	#Choice
Key message	Green energy transition means cleaner, smarter and efficient energy systems. It requires prepared, smart, and responsive policy makers to make the right choice. If you are the one, join ASSET to contribute ensuring that all key-elements for effective policy choices are guaranteed.
Value proposition	• Get information and data from pilot experiences to better design policy and regulations • Increase awareness of students and all citizens on energy policies and planning • Establish channels with the society through universities to shape behaviours • Reflect on societal impacts from the perspective of citizenship • Receive consultancy from universities and feedback from the society on energy policies
Calls to action	➔ Become a member of the ASSET community ➔ Exploit shared education materials and attend online courses ➔ Ask for new tailored education programmes ➔ Contribute to the debate on KSC needs
Communication channels	▪ Project website ▪ Newsletter ▪ Dedicated events ▪ Webinars ▪ Project brochure and leaflets ▪ Project Roadshows ▪ General Press

Target group: **SOCIETAL ACTORS (NGOs, *Consumers Associations, Professional Associations, Trade Unions, Industrial Associations, Chambers of Commerce)***	
Key word	#Action
Key message	Energy transition means a radical change of the economic system that needs the engagement of active citizens. Join ASSET to raise awareness and to turn on citizens power.
Value proposition	• Increase social awareness about energy transition • Increase social awareness about the role of women in the energy transition • Get a clearer understanding of costs and benefits of energy transition

	• Increase the competences and skills of their members and associates to play an active role in the energy transition
Calls to action	➔ Become a member of the ASSET community ➔ Exploit shared education materials and attend online courses ➔ Create and share education and training contents ➔ Ask for new tailored education programmes ➔ Contribute to the debate on KSC needs
Communication channels	▪ Project website ▪ Workshops and dedicated events ▪ Project Roadshows ▪ Webinars ▪ Project brochure and leaflets ▪ Social media (Twitter) ▪ Newsletters ▪ General Press

Target group: **ENERGY CITIZENS** ***(Renewable Energy Communities – REC, Rescoops, Rescoop federations, prosumers, individuals as potential energy citizens)***	
Key word	#Change
Key message	More efficient use of energy, cleaner environment, circular economy, more renewable energy use: green energy transition is the change we were waiting for. Join now ASSET to unlock a different energy future and make sure the transition process will quickly occur.
Value proposition	• Learn how to be energy efficient and how to benefit from innovative energy-services • Learn how to be actively involved in the energy transition • Become aware of the potential social and economic impacts generated by individual and collective actions
Calls to action	➔ Become a member of the ASSET community ➔ Exploit shared education materials and attend online courses ➔ Ask for new tailored education programmes ➔ Contribute to the debate on KSC needs
Communication channels	▪ Project website ▪ Workshops and dedicated events ▪ Webinars ▪ Social media ▪ Newsletters ▪ Project brochure and leaflets ▪ Project videos

Target group: **STUDENTS (University) and NEW EMPLOYEES**	
Key word	#Upskill
Key message	Energy transition means new products, new services, new policy schemes, which require new knowledge, skills and competences (KSC). Train yourself, upskill your professional profile!
Value proposition	• Acquire highly wanted competences and interdisciplinary knowledge in the energy sector through ASSET short programmes, MOOCs and other services • Upgrade skills to improve the current position through high quality materials inspired from real life industrial operations • Connect with industry through mobility support mechanisms • Connect with education and labour market
Calls to action	➔ Become a member of the ASSET community ➔ Exploit shared education materials and attend online courses ➔ Contribute to the debate on KSC needs
Communication channels	▪ Project website ▪ Social media ▪ Project videos ▪ Project brochure and leaflets ▪ e-MOOC-BOOK booklet ▪ General press

ASSET Roadshows

As established, 3 roadshows have been organised in **Italy**, **Spain** and **Belgium.**

The overall objective of these 3 events is to raise awareness of the added-value of engaging with ASSET, to involve stakeholders in the ASSET Community and to put the bases for the future sustainability of the project.

The first roadshow in Italy has been organized by ènostra on the 18th of November 2019, in cooperation with Logical Soft, Università Federico II di Napoli and the Energy Department of Politecnico di Milano University.

The second roadshow in Spain has been organized by ATOS on the 20th of February, in collaboration with the Polytechnic University of Valencia.

The specific aim of these two first events was to involve key representatives of the main stakeholder groups (companies, policy makers, training actors), to exchange views and collect feedbacks on the way forward to prepare ASSET offers.

The third roadshow in Belgium has been organized by EASE on the 28th of October and has been an online event due to the COVID19 pandemic restrictions.

The specific aim of this third event was to promote the debate among Belgian and European policymakers and representatives from industry and sector-based European organisations, to better understand how policy can pave the way for effective cooperation in educating for energy transition: how to facilitate the transmission and access to energy transition skills and knowledge and how to feed this demand.

The events' reports, together with the presentations made during the events, are available in ASSET website in the "News and Events" section and a more detailed description of the 3 events and the corresponding outcomes is available in D1.3 and D1.4.

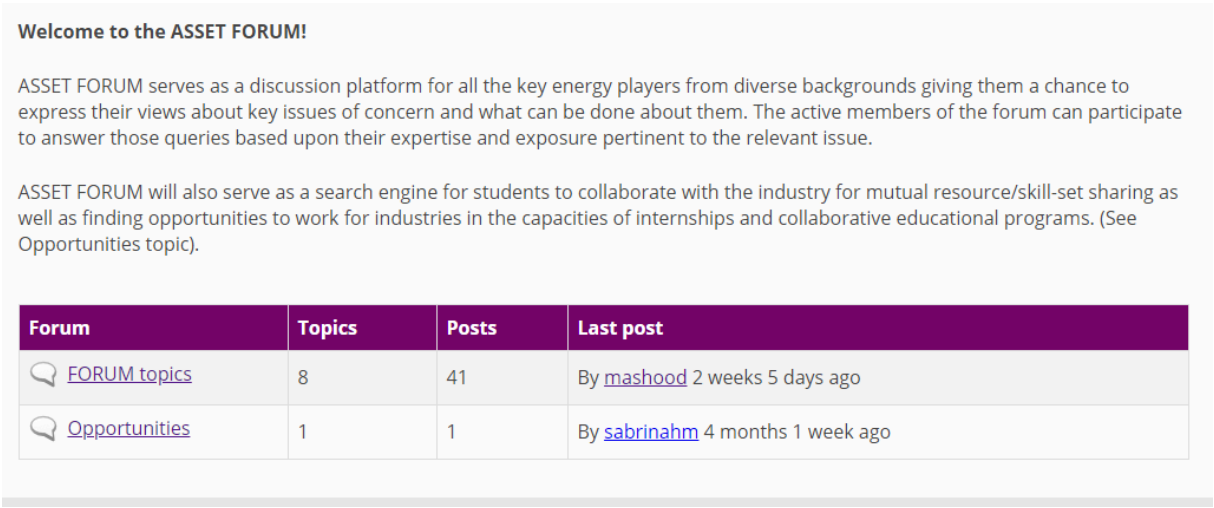
ASSET Forum

The ASSET Forum was intended to serve as a discussion platform for all the key energy players from diverse backgrounds, giving them a chance to express their views about key issues of concern and what can be done about them.

Moreover, it was also intended to serve as a search engine for students to collaborate with the industry for mutual resource/skill-set sharing, as well as finding opportunities to work for industries in the capacities of internships and collaborative educational programs.

The ASSET Forum has been opened to the community members in June 2020, while previously it was only available for the ASSET consortium. Indeed, the idea was to populate it before opening it to the community and also to have ASSET first educational programmes in place to promote the discussion around their contents.

Despite many efforts from the consortium partners (e.g. differentiation of different discussion topics targeted for the different stakeholder groups, implementation of an email notification system), this tool did not reveal to be effective. This issue has been discussed during many internal meetings and finally partners agreed that social media platforms (e.g. Twitter, Facebook, LinkedIn) offer a more immediate and user-friendly interface for discussion. Moreover, it emerged that forums are more effective in the case of narrow topics (e.g. very specialized forums for experts), while energy transition is a very broad topic. Lastly, the saturation effect of digital engagements during the COVID-19 pandemic was also identified as a hindrance in the wide adoption of web-based forums.



Welcome to the ASSET FORUM!

ASSET FORUM serves as a discussion platform for all the key energy players from diverse backgrounds giving them a chance to express their views about key issues of concern and what can be done about them. The active members of the forum can participate to answer those queries based upon their expertise and exposure pertinent to the relevant issue.

ASSET FORUM will also serve as a search engine for students to collaborate with the industry for mutual resource/skill-set sharing as well as finding opportunities to work for industries in the capacities of internships and collaborative educational programs. (See Opportunities topic).

Forum	Topics	Posts	Last post
FORUM topics	8	41	By mashood 2 weeks 5 days ago
Opportunities	1	1	By sabrinahm 4 months 1 week ago

Fig. 2 ASSET Website's Forum page

5. Monitoring and evaluation

5.1 Monitoring and evaluation (KPIs)

A continuous monitoring of the effective stakeholder engagement has been carried out every 6 months, in order to compare the gained results with the project objectives in terms of KPIs.

The Community Manager coordinated the monitoring activity and the gathered feedbacks were employed to update, integrate and improve the POS, in order to enhance its effectiveness and, where necessary, to implement corrective measures.

This final assessment is performed to evaluate the overall results and to capture the lessons learned. Evaluating the effectiveness of the engagement process is beneficial to both the project partners and the ASSET stakeholders, to improve future engagement policies and strategies.

Table 5 provides the key performance indicators (KPIs) that were defined at proposal stage to evaluate the success of the outreach activities and reports the final corresponding values.

Tab. 5 KPIs referred to the outreach strategy

Key Performance Indicator	Values
Objective: set-up of the ASSET EU-wide community	
1.3 Increase of ASSET community memberships (first year to end) - Target > 15%	- end of first year: **138** - end of project: **300**
1.5 Number of countries represented in the ASSET community - Target >12	**46**
Objective: attract a sufficient number of stakeholders to join the community	
1.1 Number of business actors involved in ASSET community in the end of the first year - Target >80	**67** companies, **4** societal actors representing industrial sector, at least **8** research actors working within industrial sector
1.2 Number of universities departments engaged in the end of the first year - Target > 15	- end of first year: **32** - end of project: **39**
Objective: present to potential beneficiaries the importance of obtaining access to ASSET offerings	
1.4 Number of communication channels established between the ASSET consortium and the target groups - Target >10	**10** (website, newsletters, videoclips, scientific publications, Facebook, Linkedin, Twitter, roadshows, events, webinar)

As can be seen, all the foreseen KPIs are met. The most critical one at the end of the 1st year was the number of "business actors" involved in the Community. In fact, the involvement of this stakeholder category in the ASSET project was strongly based on the availability of the Marketplace and of the release of the ASSET learning offer (e.g. MOOCs). However, due to the COVID-19 emergency, it was not possible to properly disseminate these key elements within this stakeholder category and thus a

stronger and focused effort has been made in the second year of the project to better involve and engage business actors in the ASSET Community.

Beyond the KPIs monitoring, some general observations can be done about the ASSET Community composition.

At the **6th of April 2021**, the ASSET Community is composed by **300 members**.

Through a detailed analysis of the members' database, the following data have been extrapolated:

- ✓ ***Distribution per country***

The total number of countries represented by at least one member is 46. The majority of members are from Italy, Spain, Greece and Belgium, which was expected since 9 out of 11 ASSET partners (ATOS, UPV, Logical Soft, Unina, ènostra, UWA, OTEA, EASE, Ecopower) are located in these 3 countries. However, it is interesting to note that every single continent is represented in the consortium.

Tab. 6 List of countries represented in the ASSET Community and number of members per country

Country	N. of members	Country	N. of members	Country	N. of members
Afghanistan	1	Finland	1	Portugal	7
Algeria	1	France	2	Romania	1
Argentina	1	Germany	12	Serbia	1
Australia	4	**Greece**	**33**	Slovenia	2
Austria	1	India	10	South Korea	2
Bahamas	1	Ireland	1	**Spain**	**51**
Belgium	**21**	**Italy**	**81**	Sweden	1
Brazil	5	Japan	1	Switzerland	1
Bulgaria	1	Latvia	1	Tanzania	1
Canada	4	Malaysia	1	Tunisia	1
Chile	3	Mexico	2	Turkey	2
Colombia	1	Morocco	1	United Kingdom	6
Croatia	2	Nepal	1	United States	2
Denmark	10	Netherlands	5	Yemen	2
Egypt	3	Pakistan	6		
Ethiopia	1	Poland	2	**TOTAL**	**300**

- ✓ ***Sex ratio***

Around 67% of members are male, while only 33% are female. Probably this ratio reflects the real sex ratio within the energy sector (students, workers and teachers). Nevertheless, it is now well acknowledged that women can play an essential role to tackle many of the energy transition challenges (for example with reference to energy poverty and education).

On the 24th of March 2021 ènostra organized a specific (online) event to discuss this topic (GIRL POWER: the role of women in the energy transition | Asset) and attract more female students and professionals in the Community.

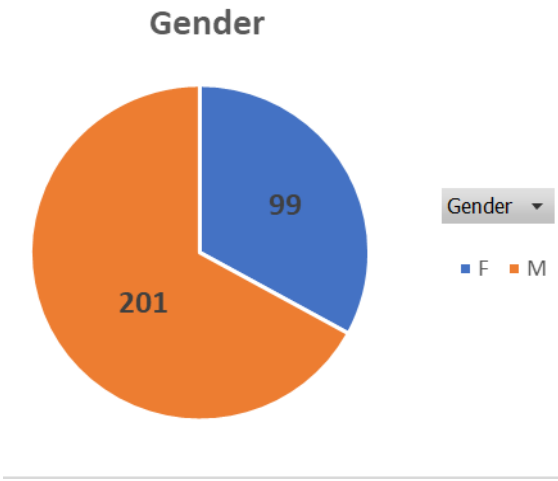


Fig. 3 Number of Female and Male members of the ASSET Community

✓ ***Distribution per Age Group***

The majority of members (64% overall) are between 25 and 44 years, but young students (15-24 years) are also joining.

Tab. 7 Number of ASSET Community members per Age Group

Age Group	Number	Percentage
15-24	21	7%
25-34	99	33%
35-44	92	31%
45-64	85	28%
>65	3	1%
Total	**300**	**100%**

✓ ***Distribution per stakeholder groups***

The majority of members belong to the "Research & education" target group, where all the academic institutions are included together with other training and research organizations. The "Companies from the energy sector" is the second larger groups, with around 22% of the members.

Tab. 8 Number of ASSET Community members per stakeholder group

Stakeholder Group	Number of members
Research & education	164
Companies from the energy sector	67
Societal actors	14
Individuals	22
Other	11
Policy bodies	6
Energy citizens	16
Total	**300**

6. Sustainability

The sustainability of any initiative depends on the **value** it brings to all the involved stakeholders and on continuously covering real **needs**.
The ASSET Consortium has designed the ASSET Community and its accompanying digital platform based on **concrete value propositions for each of the target user groups**. (Table 4)

In order to achieve more meaningful and effective interactions between different target groups, a set of principles has been adopted and oriented towards the long-term **sustainability of the community**:

- ➔ **Long-term relationship building and earning trust**: ASSET will build professional respect and recognition, as well as cultivate trust in its community by leveraging sector-specific expertise and experience to market the offerings to the target audiences.
- ➔ **Personalized, multi-channel communication**: ASSET will enhance interactions and foster closer links with its targeted audiences by delivering relevant and personalized messages, across various touch points of identified stakeholders.
- ➔ **Empowerment**: ASSET will interact with its target audiences in a mutually beneficial environment, empowering the members of its community to bypass obstacles and overcome actual shortages.

In order to guarantee the successful **sustainability of the project results**, project's partners commit themselves to:

- Consider the needs of the end users, the educational sector and the interests of parties (industry and society);
- Disseminate the project results in a clear way, so that target groups understand exactly how these results meet their needs;
- Provide high quality education services in the field of energy transition.

A specific **piloting activity** has been performed in order to assess the **quality** and the **effectiveness** of ASSET programmes and training offerings: the developed RIE services have been tested and assessed by universities' and companies' representatives, with the aim is to collect feedback so as a) to refine ASSET offerings and b) define a concrete ASSET sustainability plan.

A concrete and detailed "***Exploitation and Sustainability Plan***" for each ASSET project outcomes has been defined (Deliverable 5.5) and provides:

(i) A market overview, ASSET offering and its value proposition,
(ii) Key value added of ASSET project,
(iii) Exploitation approaches (both at Consortium and at Partners level)
(iv) Sustainability mechanisms and plans.

The document includes an overview of partners' future plans to keep the ASSET education and training offer alive and updated beyond the project lifetime.

7. Conclusions

One of the mail goals of the ASSET Project was to set-up a **COMMUNITY** which brings together all energy transition and education stakeholders (companies from the energy sector, universities and training actors, authorities and policy makers, research centres, associations and students).

The ASSET stakeholder's engagement strategy and, more strictly the Public Outreach Strategy, has been designed to be a **comprehensive and living document**, to outline tools, channels and activities to be put in place to reach and engage the selected target groups.

Particular attention has been given to ensure **consistency and coherence** among all the messages disseminated through the different communication channels and all the promoted outreach activities.

All the KPIs defined at proposal stage to evaluate the success of the outreach activities were met, despite the limitations and contingencies caused by the **COVID 19 pandemic**, which required the implementation of some corrective measures and the revision of the planned activities.

Over the 2 years of the project lifetime (May 2019 – April 2021), the ASSET Community has grown from a small group of consortium members representatives to a **"multi-coloured" family of over 300 members**, coming from the 5 continents.

The efforts made to **identify, reach and engage all these stakeholders** cannot be wasted with the end of the project.

The consortium partners, and in particular **ènostra**, are planning **to keep the ASSET Community alive**. This means that we will continue to disseminate relevant news through our **social media channels** (where we also gathered a quite numerous followers "community"), to exchange information and resources with other **similar EU projects**, to engage new education and training actors in order to **enlarge and update our learning offer**.

8. Annexes

ANNEX 1 – Bibliometric analysis of scientific literature

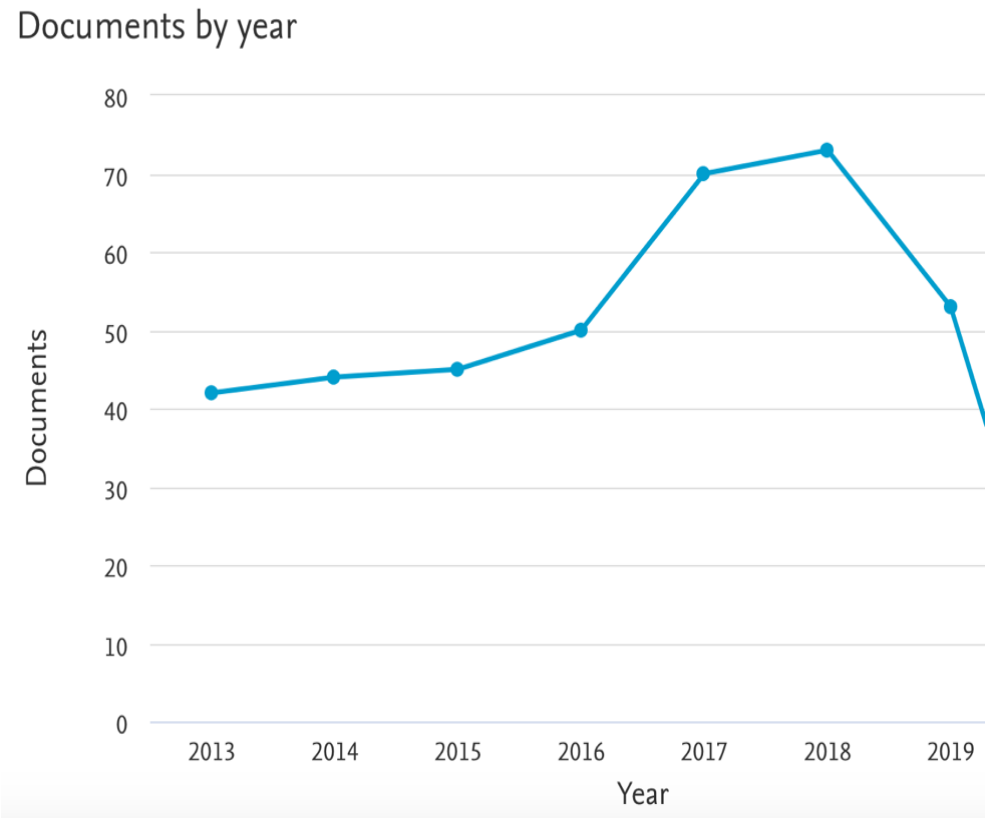
A first preliminary analysis of the scientific body of literature was performed to explore the field, through the comprehensive query *"energy transition*" OR "green economy"*.

Based on the first results, the initial query was iteratively refined in order to explore sustainable energy sector from an educational perspective. Approaching the POS from this perspective ensures to the project a clear and complete overview of the multiple disciplines and of the wide range of stakeholders to involve.

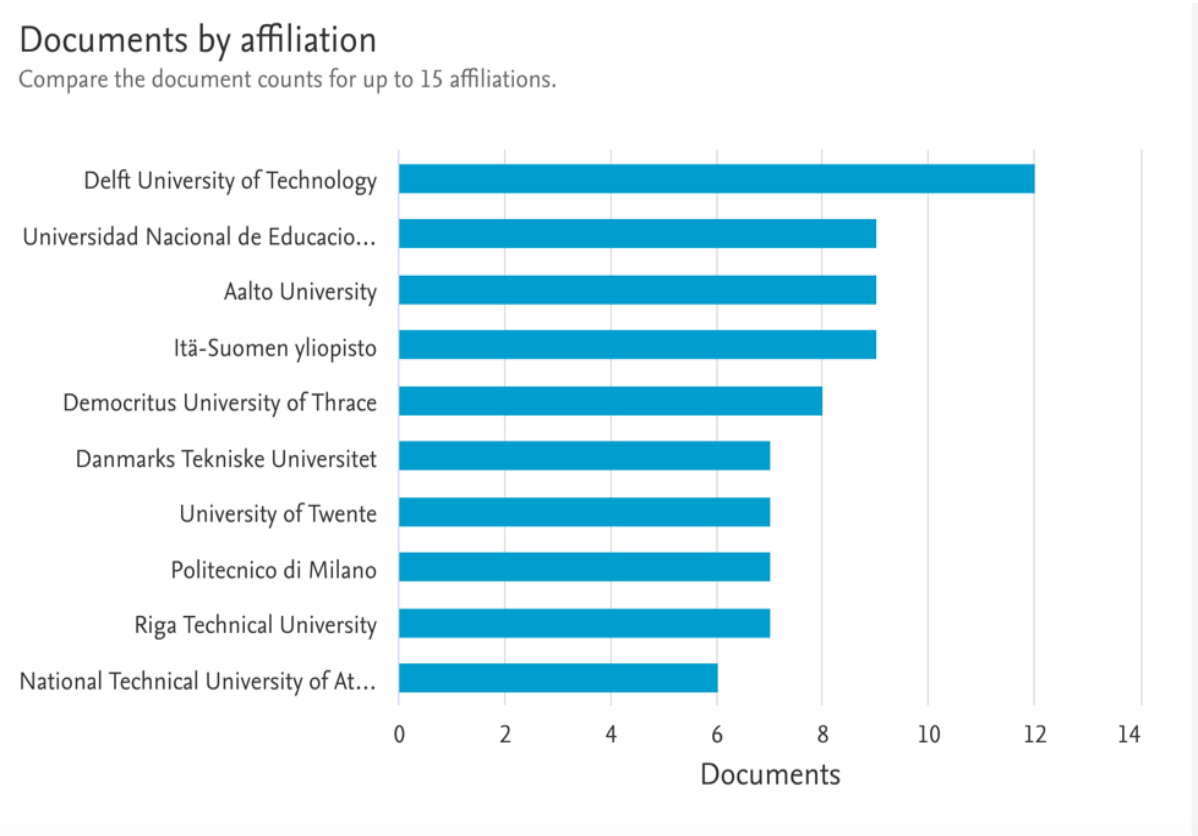
The query ***("energy transition" OR "renewable energy") AND ("higher education" OR education OR "education* program" OR curricul*)*** was run in two major scientific databases ***Scopus*** and ***WOS***.

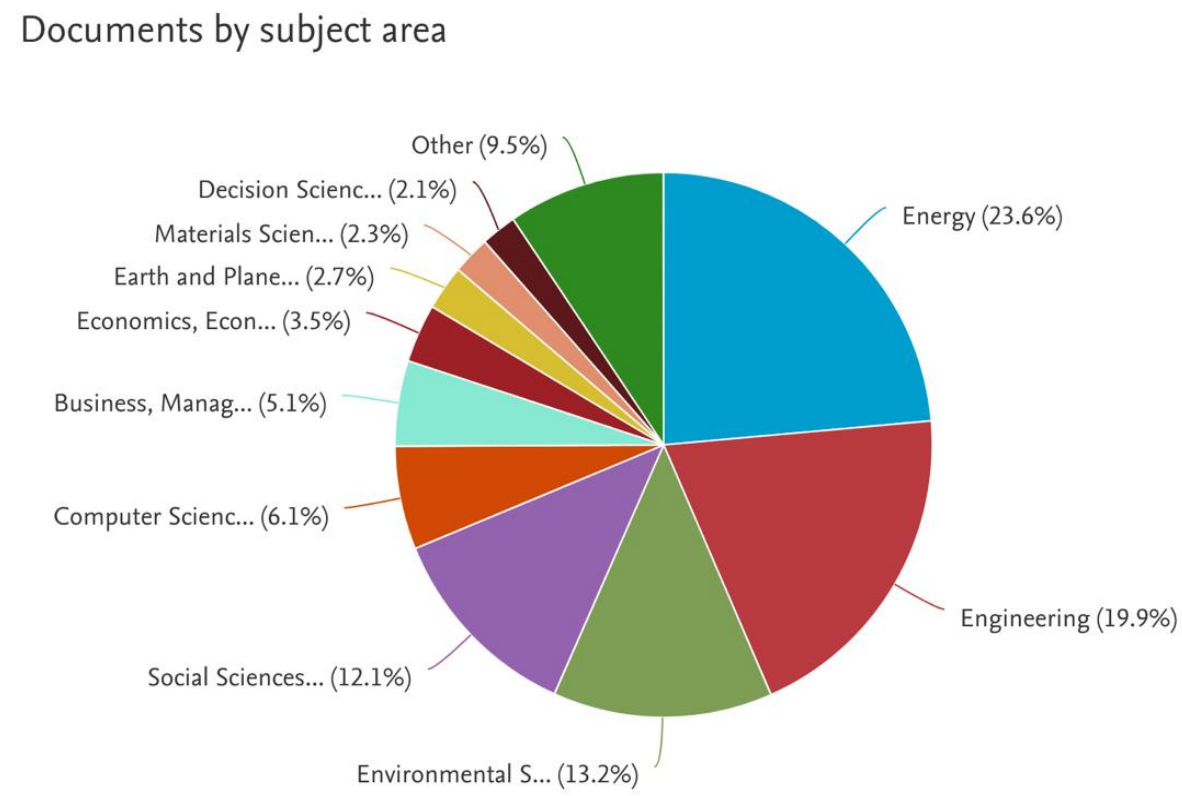
The search targeted years from 2013 and only Europe. The query returns 395 results in Scopus and in WOS 259, respectively. After duplicates cleaning, 507 results were obtained, which were later analysed with VosViewer (a tool for bibliometric mapping and analysis).[1]

Scopus analysis results (we chose scopus to show statistics as it covered more publications) demonstrate a general statistics of publications.



[1] Van Eck, N., & Waltman, L. (2009). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, *84*(2), 523-538.

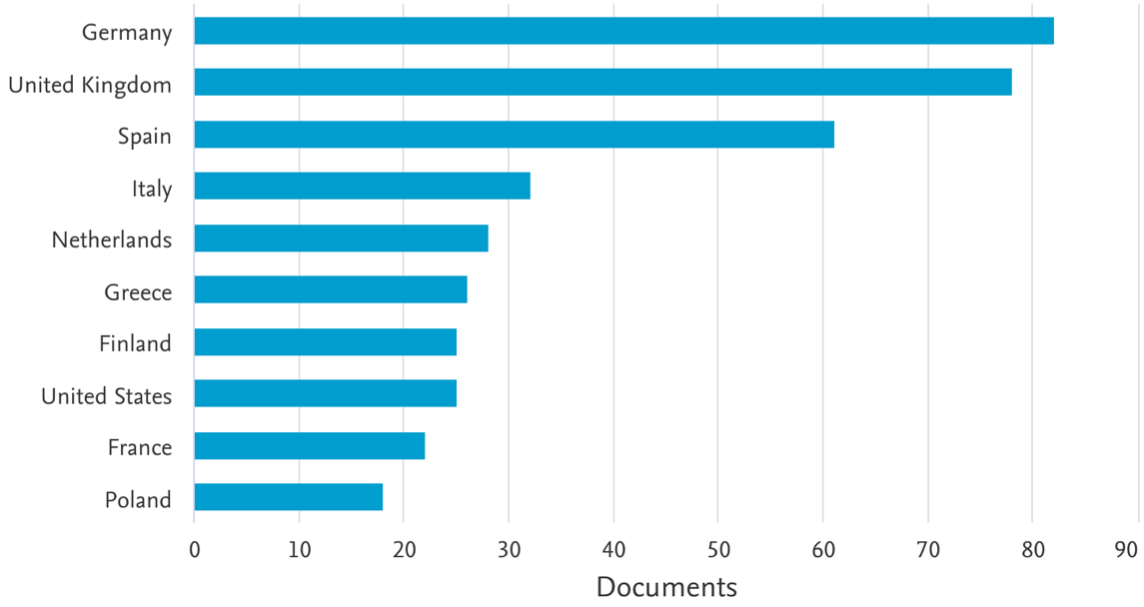

Documents by affiliation
Compare the document counts for up to 15 affiliations.
Delft University of Technology
Universidad Nacional de Educacio...
Aalto University
Itä-Suomen yliopisto
Democritus University of Thrace
Danmarks Tekniske Universitet
University of Twente
Politecnico di Milano
Riga Technical University
National Technical University of At...
0
2
4
6
8
10
12
14
Documents

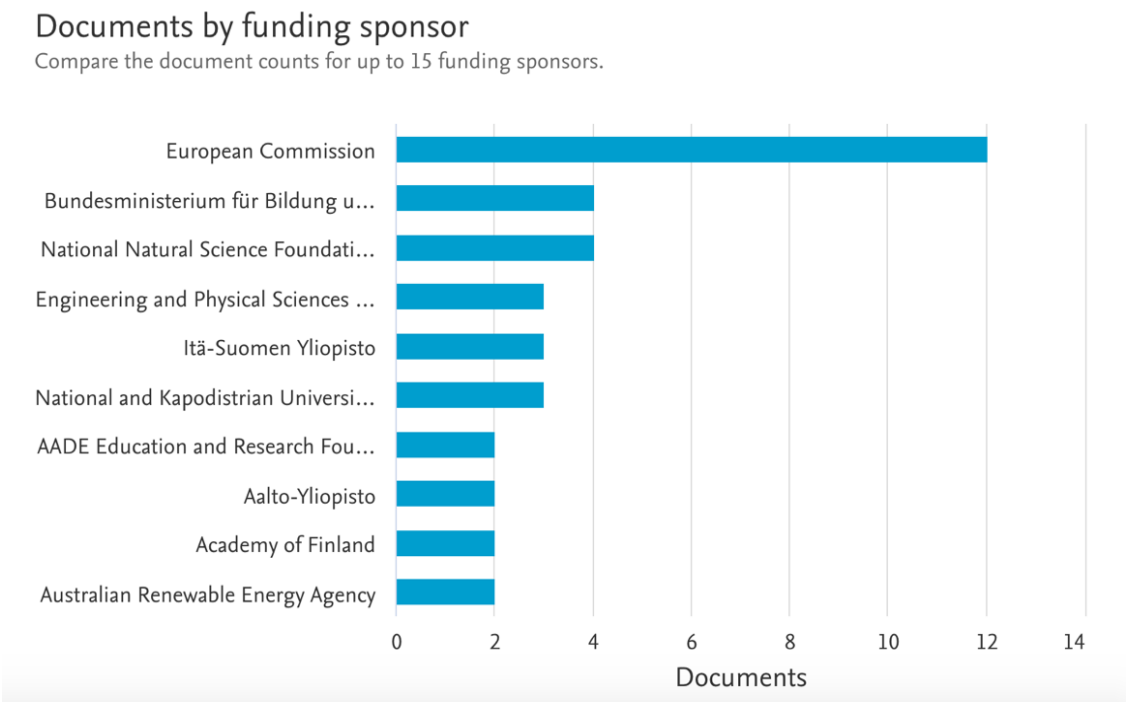

Documents by subject area
Other (9.5%)
Decision Scienc... (2.1%)
Materials Scien... (2.3%)
Earth and Plane... (2.7%)
Economics, Econ... (3.5%)
Business, Manag... (5.1%)
Computer Scienc... (6.1%)
Social Sciences... (12.1%)
Environmental S... (13.2%)
Energy (23.6%)
Engineering (19.9%)

Subject area ↓	Documents ↓
Energy	177
Engineering	149
Environmental Science	99
Social Sciences	91
Computer Science	46
Business, Management and Accounting	38
Economics, Econometrics and Finance	26
Earth and Planetary Sciences	20

Documents by country or territory

Compare the document counts for up to 15 countries/territories.



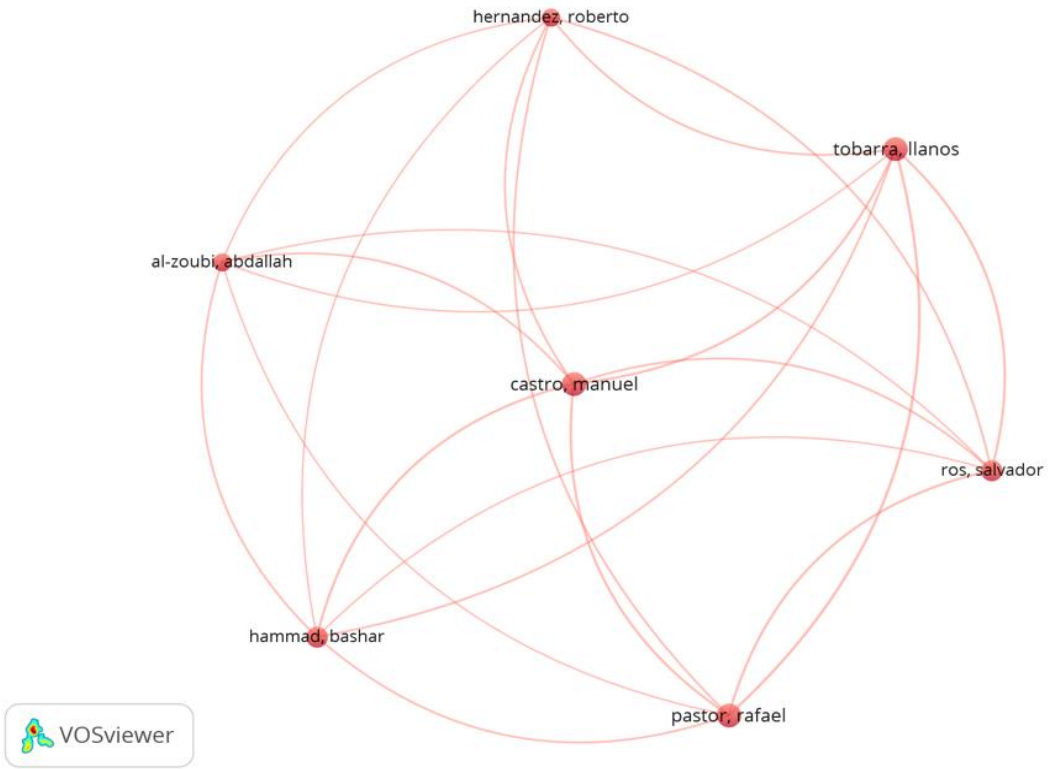


Vosviewer Analysis

The data was later imported to and analysed also with VosViewer.

1. **Co-authorship map:** Method - fractional counting (weighed counting)

Prominent and more connected authors (min number of publications is 4). Clusters are color coded, data visualization is based on total link strength. The analysis shows the names of the more prominent and influential researchers who work in the field and shows that the most well-connected and prominent author is Castro Manuel.

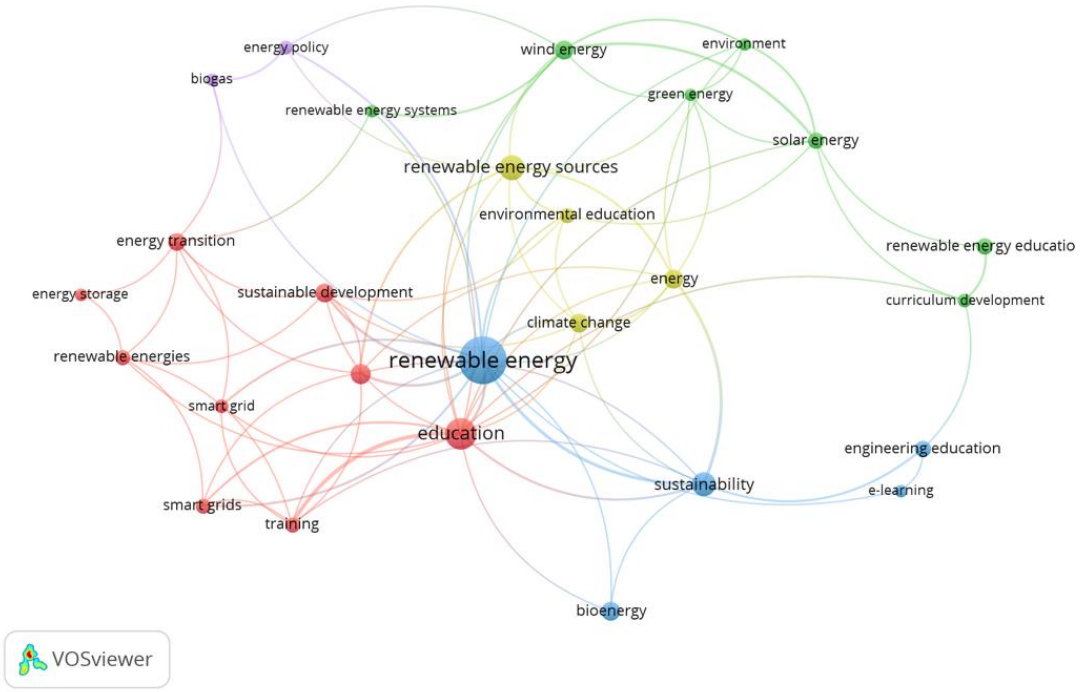


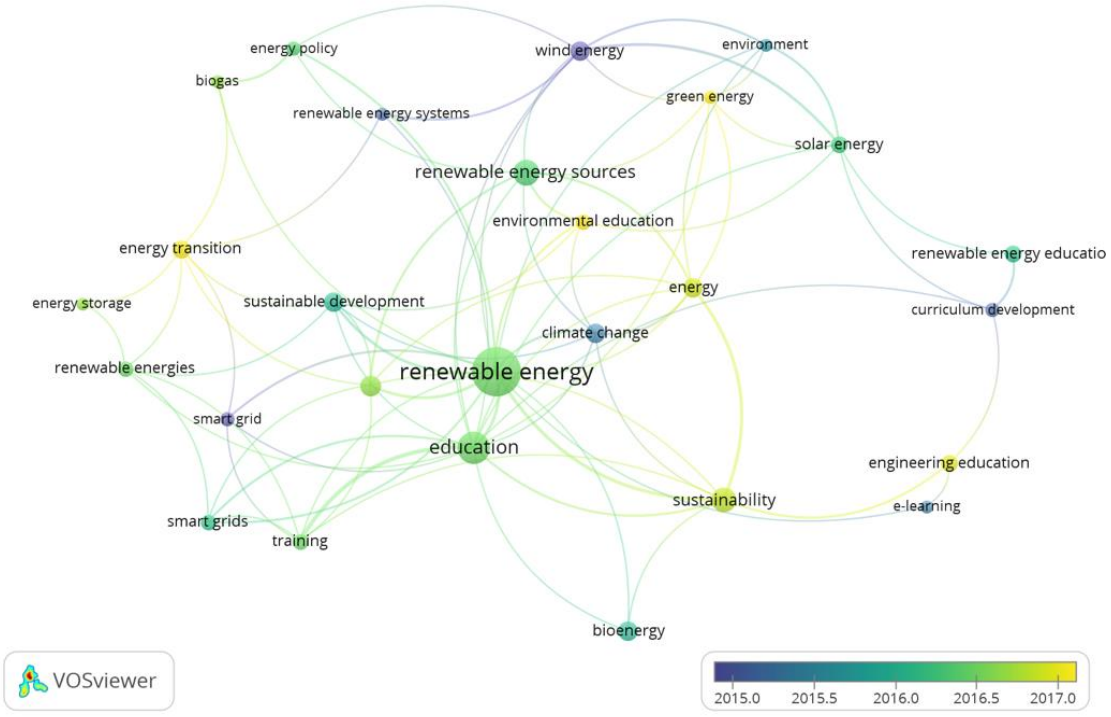
2. Visualizing co-occurence of keywords based on bibliographic data

Analysis: fractionalization, **visualization**: association strength

Why: to understand the main scientific trends as described by scientific keywords. 1st map shows general landscape, and the second shows it according to years.

Interpretation: We can see that education and renewable energy debate is a well connected, well related and quite centralized concepts. While the second map shows that most of the terms are new, emerging keywords and field vocabulary. E-learning although has a peripheral place in the network, still it's an important topic.



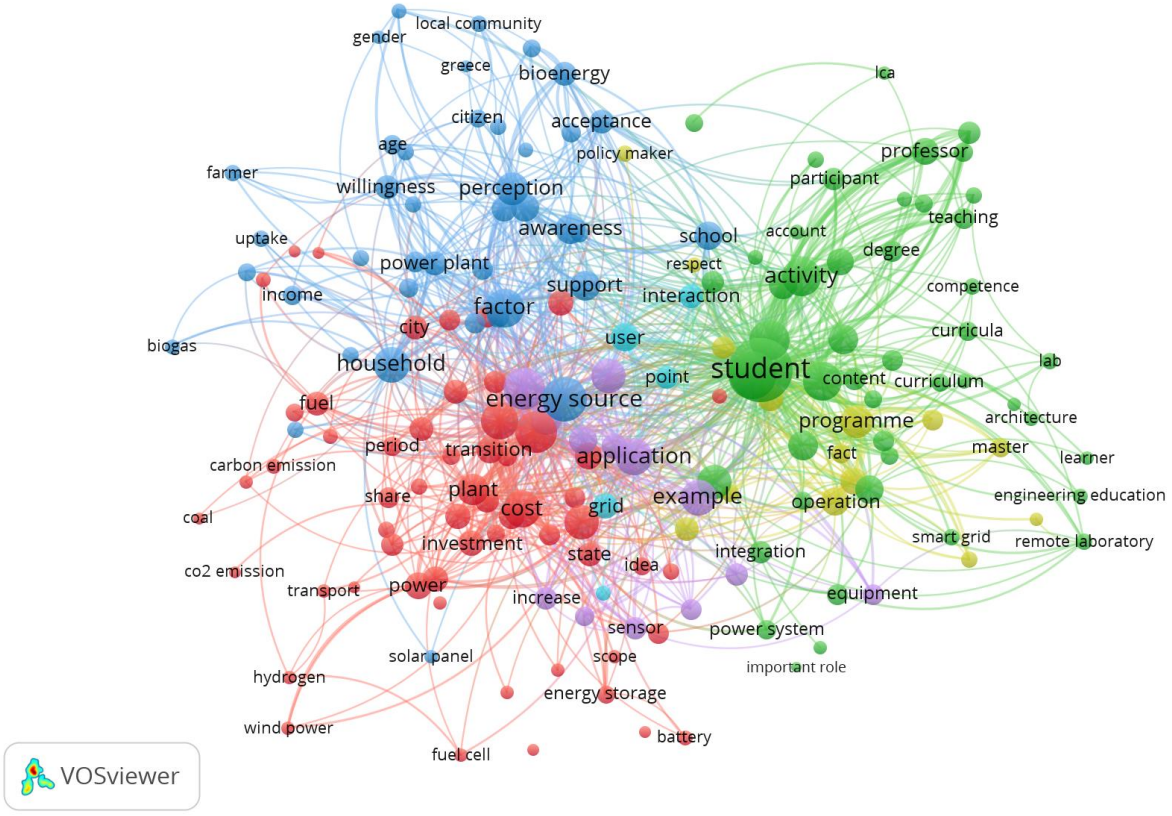


3. Co-occurrence map based on title and abstract, text mining based analysis.

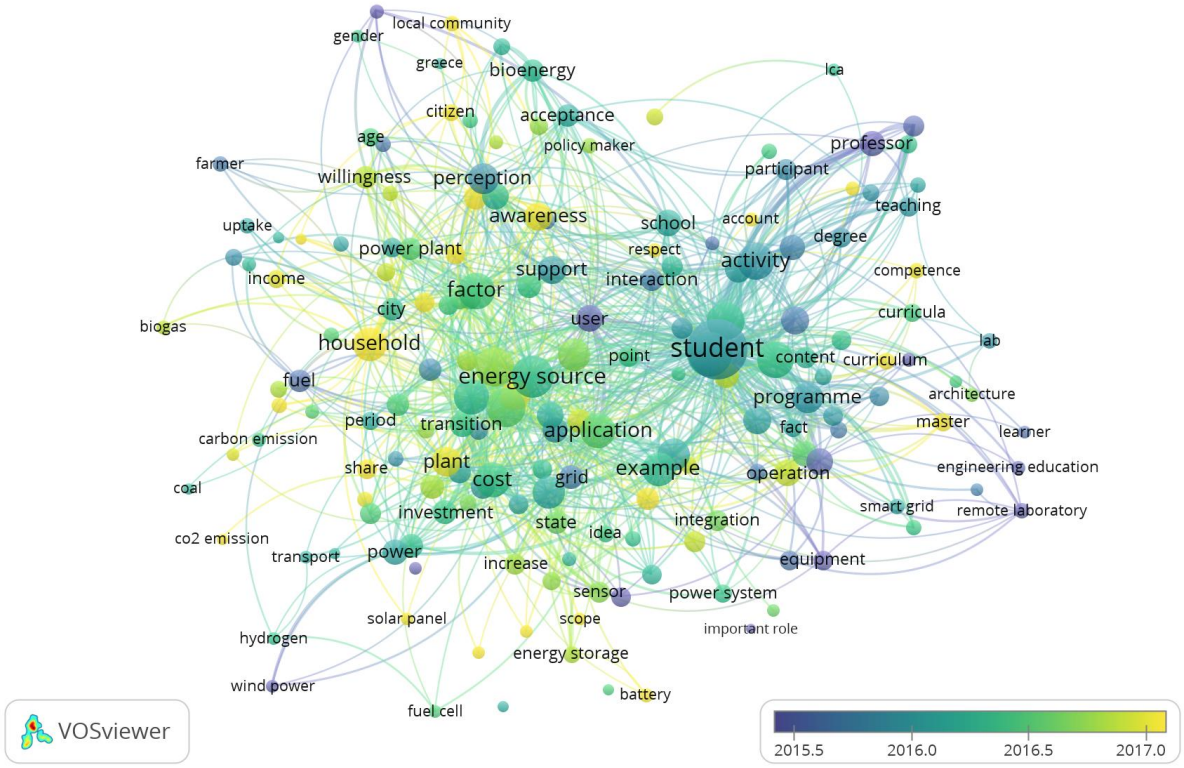
Analysis: fractionalization, **visualization:** association strength

Why: to understand the main scientific trends as described by textual information in the abstracts. 1st map shows general landscape, and the second shows it according to years.

Interpretation: We can see that there are three very well defined and distinct clusters: societal awareness (blue), socio-technical and policy (red) and educational needs (green). There are several prominent issues in each cluster based on their centrality in the clusters and overall network. Factors, awareness perception and support are central societal issues that evolve around the ***energy source*** debate, while student, program and activity in the green cluster relate to both cluster, still there is a slight disconnection noted. Socio-technical and policy level cluster evolves around transition, cost, investment and policy[2] issues. While the second map shows that many of the terms are new, emerging keywords and field vocabulary. Remote laboratory although has a peripheral place in the network, still should be a topic to consider.



[2] not visualized as a work on the map but in the vosviewer it is evident



ANNEX 2 - Web search of past and on-going European projects

The following list includes some of the most significant detected projects:

➔ **Reinassance** [2]- Renewable ENergy Acting In SuStainable And Novel Community Enterprises
The project is build upon best practice eco-building solutions by researching and applying innovation, addressing all phases of the build process from planning, building design, construction and life time operation. The results will be used as a basis for setting future energy efficiency regulations in the local buildings sector and for onward replication.
The project also undertakes research and development work to establish innovative commercial and fiscal mechanisms to underpin the creation of local energy services and thus provide a flexible and sustainable approach to the local provision and distribution of electricity, heating and cooling. Also research aims to develop an Energy Services Company (ESCO) model based on existing research and feasibility assessments

➔ **Windskill** [3]**(**2006-2009)
The project was aimed to meet the skills gap in the expanding wind industry via the development of a flexible European qualifications structure that puts specific assignments into the context of the wind energy work process.
The main outcomes were: compilation of an inventory of all relevant but currently uncoordinated national and local regulations pertaining to key work assignments (e.g. working with high voltages, working at heights, working with cranes and marine survival), adoption of a strategy for the development of a European Qualification Profile for the wind energy sector through extensive stakeholder consultations, testing of the new curricula on approximately 50 workers in Germany, France, Netherlands and Italy.

- **KnowRES** [4](2014-2016) - Knowledge Centre for Renewable Energy Jobs
  The project was aimed at providing job intelligence to industry, candidates, academic and training institutions, while performing an analysis of the skills needed by the industry to ensure that the provided education and training courses were tailor-made to the RES sectors' needs.
  The main outcomes were: a Jobs Barometer report and some sectoral reports (for each RES technology), Skill gaps analysis report and a Training needs report.

- **ASSET** [5] (2017-2019) – Advanced System Studies for Energy Transition
  The general objective of the ASSET project is to deliver studies in support to EU policy making in the field of energy, in particular on the EU electricity system and on the large-scale integration of renewable energy sources. More specifically, topics of the studies include detailed aspects such as consumers, demand-response, smart meters, smart grids, storage,etc., not only in terms of technologies but also in terms of regulations, market design and business models.

- **Elviten** [6] (2017-2019) - Electrified L-category Vehicles Integrated into Transport and Electricity Networks
  Proposing schemes to boost usage of electric bicycles, scooters, tricycles and quads. Sustainable integration of EL-Vs for managing availability of vehicles, charging spots & parking places, and brokering energy to assure proper provision and availability of energy to meet supply needs. Collect rich information sets made of real usage data, traces from dedicated ICT tools, and users' opinions after real trips

- **Edream** [7] (2018-2020) – Enabling new Demand REsponse Advanced, Market oriented and secure technologies, solutions and business models.
  Innovative solutions for DR forecast, profiling, segmentation and load forecasting. Enabling aggregators to optimally manage clusters of flexibility sources sharing the same physical grid (microgrid) or virtually dispersed anywhere (Virtual Power Plant). Novel blockchain applications for decentralized marketplace-driven management and control of DSO.

- **SMAGRINET** [8] (2019-2021) - Smart grid competence hub for boosting research, innovation and educational capacities for energy transition

  The project started in May 2019 and is aimed to develop a generation of researchers and engineers who are equipped to develop, improve and deploy new energy technologies in order to meet the challenges of the energy transition.

- **Merlon** [9] (2019-2021) - Integrated Modular Energy Systems and Local Flexibility Trading for Neural Energy Islands
  Integrated modular local energy management framework for the holistic operational optimization of local energy systems in presence of high shares of volatile distributed renewable energy sources. Enabling local energy systems to operate in islanded mode, maximizing their own benefits while helping on grid balancing. Allowing local energy communities to introduce themselves in local flexibility markets.

- **Ielectrix** [10] (2019-2022) - Indian and European Local Energy CommuniTies for Renewable Integration and the Energy Transition
  Enabling Local Energy Communities as active players at distribution level. Supporting DSOs in managing energy flexibility from Local Energy Communities through human-centric DR framework. Improving the resilience of the local energy system, through the implementation of novel optimization tools to be integrated into the EMS.

ANNEX 3 - International and European institutions, entities, centres, networks involved in research, innovation, dissemination and learning activities related to the energy transition issues

The following list includes the most relevant, renowned and acknowledged ones:

- **CEDEFOP – European Center for the Development of Vocational Training [11]**
  Cedefop is one of the EU's decentralised agencies, founded in 1975 and based in Greece. Since 1995, Cedefop supports development of European vocational education and training (VET) policies and contributes to their implementation. Europe's strategy for 2020 is a route for smart, sustainable and inclusive economic growth through knowledge and innovation, which sets an employment rate target of 75%. The success of this strategy depends on the skills of Europe's workforce. Enterprises need people with the skills required to compete and provide high-quality goods and services.
- **DG Energy – European Commission, Directorate-General Energy [12]**
  This Commission department is responsible for the EU's energy policy. DG ENER proposes, implements and reviews legislation under the Energy Union framework strategy, focusing on five key dimensions:
    - Energy security, built on solidarity and trust between EU countries
    - A fully functional internal energy market
    - Energy efficiency as a contribution to moderation of energy demand
    - Decarbonisation of the economy
    - Research, innovation and competitiveness.

  DG ENER works towards secure, sustainable, competitive and affordable energy for all EU citizens.
- **EASME - Executive Agency for Small and Medium-sized Enterprises [13]**
  The Executive Agency for Small and Medium-sized Enterprises (EASME) has been set-up by the European Commission to manage on its behalf several EU programmes (significant parts of COSME, LIFE, Horizon 2020) in the fields of SME support & innovation, environment, climate action, energy and maritime affairs. The Agency aims to create a more competitive and resource-efficient European economy based on knowledge and innovation and to ensure that actions funded by these programmes deliver results and provide the Commission with valuable input for its policy tasks.
- **DG EAC - European Commission, Directorate-General for Education and Culture [14]**
  The Commission's Directorate General for Education and Culture (DG EAC) is the executive branch of the European Union responsible for policy on education, culture, youth, languages, and sport. DG EAC also supports these issues through a variety of projects and programmes, notably Creative Europe and Erasmus+.
- **ETF - European Training Foundation [15]**
  ETF mission is to help transition and developing countries harness the potential of their human capital through the reform of education, training and labour market systems, in the context of EU external relations policies. ETF supports 29 countries bordering the EU to improve their vocational education and training systems, analyse skills needs and develop their labour markets. By doing so, ETS helps them to improve social cohesion and achieve more sustainable economic growth, which in turn benefits Member States and their citizens by improving economic relations.

➔ **EERA - European Energy Research Alliance [16]**

The European Energy Research Alliance (EERA) is an association of European public research centres and universities active in low-carbon energy research. Bringing together more than 250 organisations and around 50,000 researchers from 30 countries, EERA represents Europe's largest energy research community.

➔ **EEC – European Energy Centre [17]**

The EEC is an Independent Educational Body for the Renewable Energy and Energy Efficiency Sectors. Its mission is promoting knowledge-sharing and best practice in Renewable Energy and Energy Efficiency with leading universities and the United Nations (UNEP), through professional Training Courses, Qualifications, Conferences, Publications, European Projects, Global Partnerships, Membership Programmes and the Internationally Recognised Galileo Master Certificate.

➔ **IEA implementing agreements [18]**

IEA (International Energy Agency) Implementing Agreements are at the core of the IEA's International Energy Technology Co-operation Programme. This Programme embraces numerous other activities that enable policy-makers and experts from IEA-member and non-member countries to share views and experience on energy technology issues. The IEA's Implementing Agreements focus on technologies for fossil fuels, renewable energies, energy efficient end-use and fusion power. Effective dissemination of results and findings is an essential part of the mandate of each Implementing Agreement.

➔ **IRENA – International Renewable Energy Agency [19]**

In July 2013 IRENA launched IRELP (Irena Renewable Energy Learning Partnership) with the aim to help young professionals enter the sector and raise the profile of renewable energy as an attractive career option. The main outcomes were: the internship database, renewable energy courses, seminars, degree programmes, webinars and training guides.

➔ **ETIP SNET - The European Technology and Innovation Platform Smart Networks for Energy Transition [20]**

ETIP SNET's role is to guide Research, Development & Innovation (RD&I) to support Europe's energy transition. ETIP SNET works on the identification of priorities for a modernization of the energy sector based on the experiences of the members contributing. All energy stakeholders participating in research initiatives basically support it.

➔ **Climate-KIC [21]**

As part of the European Initiative Climate-KIC, one of the Knowledge Innovation Communities launched by the European Institute of Innovation and Technology (EIT). Climate-KIC has over 200 partners including universities, research centres, enterprises and public bodies integrated in a network of offices. Climate Graduate School is already well established, building on its very imaginative start with the Journey in 2010. They have an EIT-labelled doctoral programme, 82 EIT-labelled Master courses and a thriving Alumni Association. Students gain a unique 'learning by doing' experience in innovation and entrepreneurship in addition to their first-class academic training in climate science and related areas.

➔ **NESSI - Networked Software and Services Initiative [22]**

NESSI, the Networked Software and Services Initiative, is the European Technology Platform, for this new Digital Information Society and Economy powered by software and services and

data. NESSI promotes that software, services, and data are key enablers to help resolve European societal and economic challenges across all sectors, both private and public, such as manufacturing, transportation, energy, and healthcare.

➔ **ETIP SNET - Smart Networks for Energy Transition [23]**

European Technology & Innovation Platforms (ETIPs) have been created by the European Commission in the framework of the new Integrated Roadmap Strategic Energy Technology Plan (SET Plan) by bringing together a multitude of stakeholders and experts from the energy sector.

➔ **USEF - Universal Smart Energy Framework [24]**

USEF was founded by seven key players, active across the smart energy industry, with a shared goal - one integrated smart energy system which benefits all stakeholders, from energy companies to consumers. USEF's ongoing development is managed by the USEF Foundation, a dedicated core team tasked with coordinating expertise, projects and partners while safeguarding the integrity and objectives of USEF.

ANNEX 4 – RAW INTERVIEWS RESULTS

The task has been carried out by ÈNOSTRA, with the support of all the other ASSET's partners, who delivered personal contacts of selected representatives of the main target groups and answered themselves to the questionnaires. To perform this task and thus to bring out qualified stakeholders of the target groups from the bottom, we adopted a "snowball" approach, asking each partner to identify other relevant contacts.

The questionnaires were forwarded by email to the selected contacts, to allow them to preview and think them through. Some of the people answered directly by email, some others were interviewed by phone calls.

The interviewees have been selected based on the following, alternative but preferably cumulative, criteria:

- Employees/representatives of organizations involved in the energy sector which are significantly sensitive to the energy transition issues;
- Experts with personal professional experience on the energy transition issues;
- Professionals with privileged perspective, which allows having a wider point of view on the energy sector (e.g. who can deliver the point of view of more than one target group).

Six slightly different **questionnaires** were prepared for the following general target groups: Universities and Training actors, Research Centres, Companies, Public Bodies (Policy makers, authorities, public administrations), Professional Associations and Societal Actors (energy communities, NGOs, consumers' associations).

Most of the questions - referred to stakeholders' identification, knowledge and skills needs and shortages, education and training offering, expectations on ASSET outcomes, engagement strategy and project sustainability - were present throughout all the questionnaires.

Some additional specific questions were included in the questionnaires designed for companies, universities, training actors and research centres, to make a focus on the existence and employment of students' mobility programs between academia and industry (e.g. internships, stages, bachelor or master thesis, collaborative doctoral education).

Overall, 22 replies were collected, subdivided as follows:

- 7 from Universities

- 1 from Training Centres
- 3 from Research Centres
- 2 from Companies
- 2 from Public bodies
- 4 from Professional Associations
- 3 from Societal actors

A) Stakeholders identification

During the kick off meeting in Madrid, the ASSET consortium identified a preliminary set of stakeholder categories starting from the five groups presented in the project proposal:

- Universities and training actors
- Research centres
- Companies from the energy sector
- Policy makers, authorities, public administrations
- Professional associations
- Societal actors (energy communities, NGOs, consumers' associations)
- Individuals (students, citizens)

In addition to these categories, the interviewees suggested to add the following categories or sub-categories:

- ESCos (Energy Service Companies) and ESCo Federations
- Condominium manager associations
- Energy cooperatives
- Municipalities
- Asset management companies involved in urban regeneration projects)
- Consultants
- Trade unions
- Industrial associations
- Commercial associations (e.g. chambers of commerce)
- Media
- Standardisation Bodies (ATI, CEI, UNI)
- Energy agencies
- Political and opinion leaders
- Bank and insurance
- Large energy users (Building, Industry and Transport sector)
- Market operators (e.g. SEM), market regulators (e.g. CER), Energy Traders
- Retailer
- DSOs (Distribution System Operators)
- TSOs (Transmission System Operators)
- Energy producers
- Public Employment Agencies

B) Stakeholders needs and requirements

In order to support and fasten the Europe’s energy transition towards a low carbon society, there is an acknowledged and widespread lack of mindful knowledge and adequate skills. The market requires new job profiles with interdisciplinary competences and this implies a closer relationship between the

industry and the academia. The relevant needs in terms of knowledge, skills and competences (KSC), suggested by the different stakeholder groups' representatives, are listed -in random order- in the table 1.

Tab. 9 Relevant needs in terms of KSC suggested by the different stakeholder groups' representatives

KSC needs	Stakeholder groups
Environmental science	Companies, societal actors, universities
Climate change and related policies	Societal actors
Energy efficiency in buildings	Societal actors
Communication, dissemination and advocacy skills	Companies, professional associations, public bodies, research centres, universities
Financial resources and incentives	Companies
Sustainable finance	Public bodies
Software and IT technologies	Professional associations, research centres, universities
Internet of things	Professional associations
Digital energy, block chain	Professional associations
Data science and big data	Professional associations, public bodies, research centres
Estimation and forecasting techniques	Universities
Energy storage	Professional associations
Energy markets functioning	Professional associations
Policy making, legislative framework and politics	Public bodies, universities
Economics	Public bodies, universities
Augmented realty	Research centres
Intellectual property rights	Research centres
Soft skills	Research centres, universities
Social science	Universities
Marketing	Research centres
Project Management	Research centres, universities
Decision making	Universities
Negotiation and mediation skills	Research centres, societal actors, training actors
Risk analysis	Research centres
Interdisciplinary approach	Research centres, Societal actors, universities
Energy audit	Societal actors
Entrepreneurship, peer-to-peer economy and new business models	Societal actors
Integrated energy approach for electric energy, thermal energy and mobility	Societal actors
Distribution grids and smart grids	Universities
Modelling and optimization of complex energy systems	Universities

C) Stakeholders' expectations

ASSET intends to define specific and concrete "value propositions" for each target group and a preliminary assessment was already included in the proposal. When asked which could be ASSET´s most useful and valuable outcomes, the interviewees answered as follows:

- **Universities**: sharing of high quality learning materials to accelerate programme creation in hot energy-relevant topics (also including societal and entrepreneurial aspects), exploitation of ASSET tools, community and materials to easily build interdisciplinary courses, matching platform for training needs and offerings (catalogue/search tool), strengthening connections with industry, potentiate universities/industry mobility mechanism, opportunities to provide on demand programmes to industrial partners, creation of a community including different stakeholders to allow a multidisciplinary and interdisciplinary approach to energy transition;
- **Training actors**: training materials availability, possibility to get in touch and exchange information with other training actors across EU (e.g. online forum);
- **Research centres**: matching platform for training needs and offerings, possibility to connect with industry across EU and to enlarge "customer" basis, possibility to create synergies with other universities and research centres (e.g. through remote use of labs, openly available resources);
- **Companies**: new market opportunities, possibility to find appropriate programmes to quickly up skill personnel in technological, innovation and business subjects in different formats (short programmes, MOOCs, lab training);
- **Professional associations**: new market opportunities, matching platform for training needs and offerings, possibility to train new professionals able to address the energy transition from several points of view and able to comprehend the economic, social, and technical consequences of the phenomenon, possibility to find new members;
- **Public bodies**: matching platform for training needs and offerings;
- **Societal actors**: possibility to foster and support research on energy transition, identification of training needs and setting up of training programmes, showcase of training opportunities for citizens, new energy communities creation through dedicated education and training courses.

D) Stakeholders' engagement strategy

Different stakeholder categories probably need engagement strategies based on different communication channels. The representatives of the different target groups suggested the following communication channels:

- **Universities**: website, sectorial magazines, newsletters, mailing lists, workshops and dedicated events, focus groups, webinar, train-the-trainer programmes and tutorials, social media;
- **Training actors**: Social media, press
- **Research centres**: mailing lists, webinar, free advertising, social media, reports, general press
- **Companies:** informational campaigns (mailing lists), dedicated events, social media, general press;
- **Professional associations**: mailing list, social media (Twitter, LinkedIn), webinar, dedicated events, sectorial magazines;
- **Public bodies**: newsletter, dedicated events, webinar;
- **Societal actors**: project website, workshops, webinars, social media (Twitter), newsletters, a paper.

E) Sustainability of the ASSET Community

The sustainability of the ASSET community and platform after the end of the project is strictly related to the quality of the project outcomes and the perception of concrete and valuable benefits for the involved stakeholders, which are the basis to define the project value propositions.

When asked on which could be the crucial elements to ensure the sustainability of the ASSET community, the interviewees suggested the following elements:

- Quality, quantity and relevance of the educational contents;
- Regular update of the online educational materials;
- Continuous updating and increasing of the training offer;
- Obtaining support and acknowledgement from education ministries of the different participating countries;

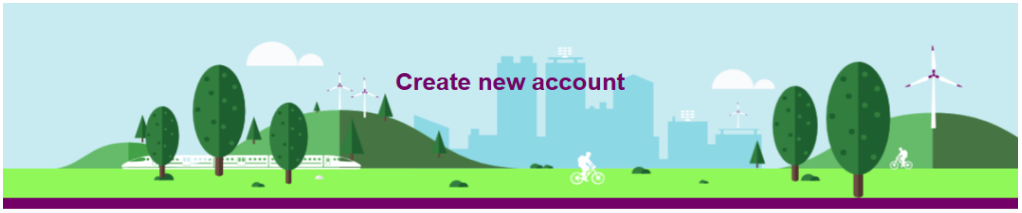
- Link to excellence in teaching/learning (e.g. University administrations encouraging its use in the context of excellence in teaching programs, e.g. preferred venue for EU proposal to deliver shared learning content;
- Balanced participation of all the different stakeholders;
- Equal opportunity for all the community's members to participate in and influence decisions that affect the community's operation;
- Strong and effective cooperation between the main parties involved in the community;
- Concrete and valuable benefits for each stakeholder groups and community members;
- Atmosphere of respect and tolerance for diverse viewpoints, beliefs and values;
- Yearly meeting for brainstorming and feedback among stakeholders
- Establishing connections with similar initiatives/EU projects/networks to create synergies;
- Matching of the different needs of the different stakeholders,
- Encompass market requests and specific needs related to specific local areas (local communities)
- Innovativeness of the training models used in the offered training courses (e.g. multimedia)
- Platform user-friendliness;
- Tools for interactivity with teachers, tutors and other students;
- Tools for monitoring of the learning results (evaluation or self-evaluation)
- The dissemination of best practices

Moreover, since the sustainability of the ASSET community will for sure require the contribution and efforts of all the involved stakeholders, the interviewees were asked about their overall availability to collaborate and the specific contribution they could provide.

- ➔ **Universities**: creation of new education and training contents, update of online learning material and courses, participating to the debate and exchange of views among the members of the ASSET community, payment for advertising their own training activities
- ➔ **Training actors**: payment of a fee to be a member of the community, payment for advertising their own training activities;
- ➔ **Research centres**: creation of new education and training contents, update of online learning material and courses, contribute to communication, dissemination and follow up activities, providing an online orientation service for researchers, operators and professionals;
- ➔ **Companies:** promotion of the project among shareholders and clients;
- ➔ **Professional associations**: payment of a fee to be a member of the community;
- ➔ **Public bodies**: generic availability to collaborate;
- ➔ **Societal actors**: participating to the debate and exchange of views among the members of the ASSET community, payment of a fee to be a member of the community (if affordable).

ANNEX 5 – ASSET COMMUNITY SUBSCRIPTION FORM

Fig. 4 ASSET Community subscription form



Log in | Create new account | Reset your password

Name *

Surname *

Email address *

A valid email address. All emails from the system will be sent to this address. The email address is not made public and will only be used if you wish to receive a new password or wish to receive certain news or notifications by email.

Confirm e-mail address *

Please re-type your e-mail address to confirm it is accurate.

Username *

Several special characters are allowed, including space, period (.), hyphen (-), apostrophe ('), underscore (_), and the @ sign.

Gender

○ F
○ M

Age group - None -

Country * Afghanistan

Educational qualification * - Select a value -

Job position - None -

Company/organization

Which are your specific fields of interest related to the energy transition process? *
(you can choose more than one):

☐ Renewable energy
☐ Economic aspects
☐ Energy storage
☐ Smart and flexible energy systems
☐ Energy efficiency
☐ Carbon capture, utilisation and storage (CCUS)
☐ Climate change
☐ Social aspects
☐ Energy communities
☐ Policy/Regulatory aspects
☐ Environmental aspects
☐ Sustainability aspects
☐ Other

In which group do you identify yourself? *
(you can choose more than one)

☐ Research & education
☐ Companies from the energy sector
☐ Policy bodies
☐ Societal actors
☐ Energy citizens
☐ Individuals
☐ Other

Do you want to receive the ASSET project Newsletter? *

○ Yes ○ No

☐ **I accept the disclaimer and terms and conditions** *

Click here to read the disclaimer about privacity and data protection.

Click here to read Terms and Conditions.

▾ Contact settings

☑ Personal contact form

Allow other users to contact you via a personal contact form which keeps your email address hidden. Note that some privileged users such as site administrators are still able to contact you even if you choose to disable this feature.

Create new account

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