Issue 3 February 2020

ASSET

A holistic and Scalable Solution for Research, Innovation and Education in Energy Transition

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Editorial

This is the **third issue** of the Newsletter of the **H2020 ASSET project**, which is released every three months. If you want to receive the next newsletters, please subscribe to our mailing list on the ASSET website. In this issue, we will continue introducing the project goals and approaches, present the list of available courses and provide an update of the project activities, internal events, workshops, and roadshows so far.

Don't forget to subscribe to our channels to learn more about ASSET and stay tuned with us!

All Newsletters are available in the project website:

https://www.energytransition.academy

for further information please look at our website and social network profiles on

@Project_Asset
ASSET EnergyTransition
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Project first video "What is ASSET"

What is ASSET...?

ASSET is a 24-month coordination and support action financed by the European Commission under the H2020 Research and Innovation Programme on the topic of research, innovation and educational capacities for energy transition. ASSET is a learning ecosystem aiming at identifying and delivering the competencies required for the energy transition. Our consortium team consists of **11 partners, established in 6 different countries**.

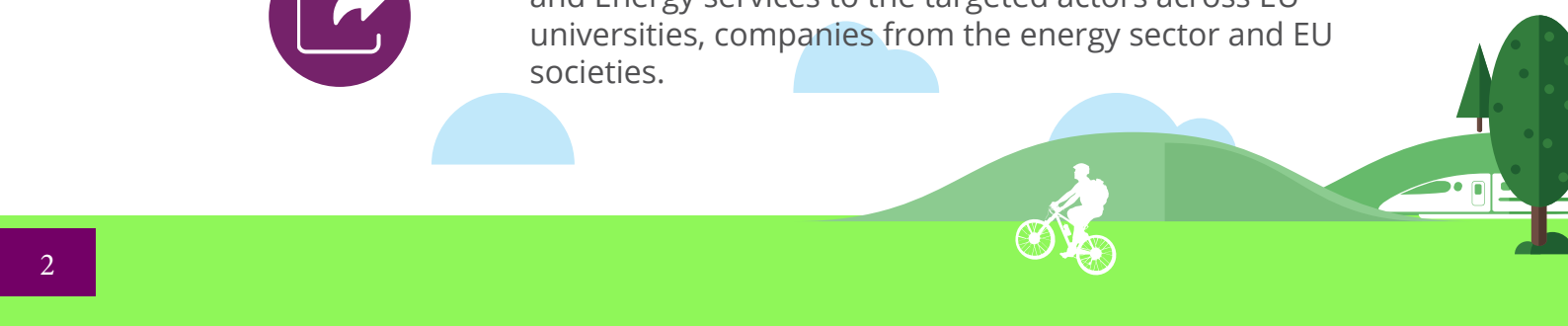
The objective of the ASSET project is twofold: on one hand, the provision of tools for sharing information and educational content (online platform) and the preparation of educational programmes, on the other hand the creation of a network (ASSET Community) of stakeholders involved in the energy transition processes that are available to participate in a cooperative training and knowledge sharing model.

The implementation of the ASSET approach is taking place **in 3 phases:**

1. **Ecosystem Set-Up**: Engage relevant actors to identify the knowledge, skills and competencies gaps in the addressed fields in order to design appropriate ASSET services to close the gap.

2. **ASSET Services**: Create based on the specifications of knowledge, skills, competencies gaps and on the results of the ASSET research, are defining the services (educational and research programme) that meet the specified needs.

3. **Evaluation:** Deliver the developed Research, Innovation and Energy services to the targeted actors across EU universities, companies from the energy sector and EU societies.



ASSET Energy Transition Community

ASSET is filling the different needs of students, universities and social actors, offering training in energy transition topics.

ASSET forum is designed to bring together the key stakeholders from academia, industry, policymaking institutions and society working for energy transition and climate change.

The intention is to provide a space to our community members to communicate, discuss and provide their points of view on significant topics and news on energy transition.

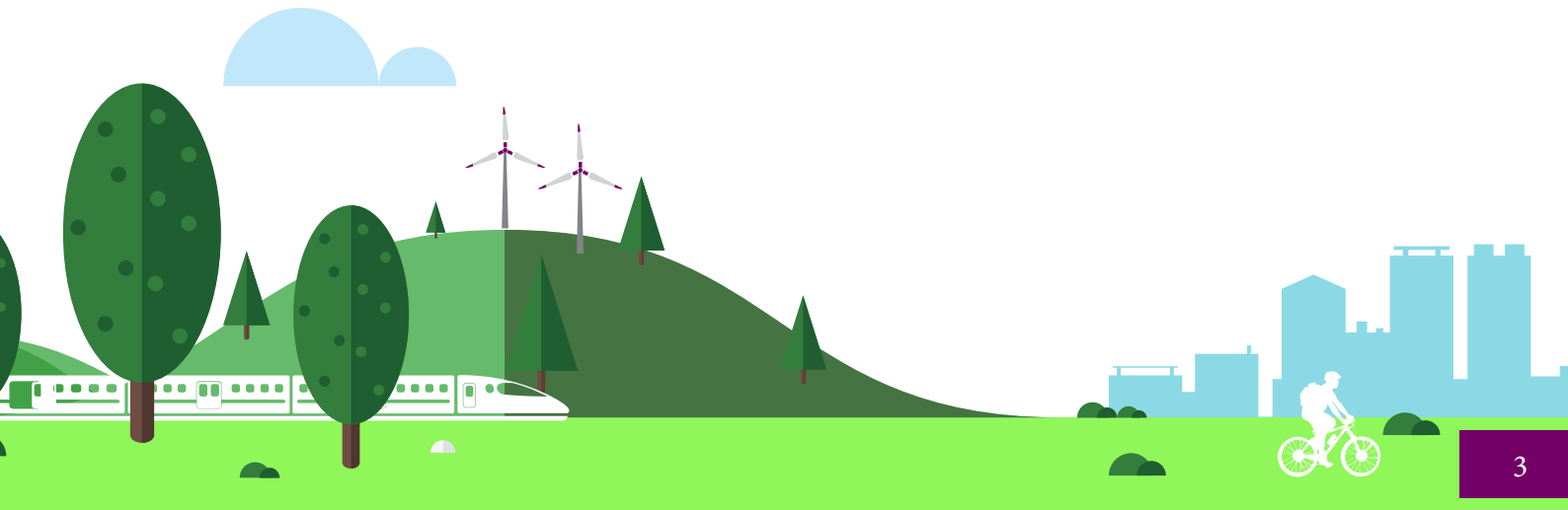
16 MOOCs covering different aspects of the Energy Transition challenge are about to be launched. From engineering to social sciences, a unique interdisciplinary programme will be available on the Emma Platform. The objective of this educational programme is to close skill gaps in education as well as to create a knowledge and awareness on energy transition. ASSET MOOCs target employees of industries and energy companies, trainers and students from electrical engineering and energy technology institutions along with all other individuals interested in energy auditing, energy efficiency, and energy planning always paying close attention to putting citizens and society at the center of change. Renewable energy sources play a key role in the transition towards a zero-carbon society: **by 2050, they are expected to supply more than the 2/3 of the global energy demand, strongly contributing to reducing greenhouse gas emissions and limiting the effects of global warming**.

The objective of the "Renewable Energy Technologies" course is to create awareness on the urgency of an efficient transition, while the "Innovation and Diversity in Engineering" course deals with the relation? Between the development of sustainable innovations and diversity and with the question of how culture shapes and impacts engineering.

To give some examples on more context-specific issues "An Introduction to AC Microgrids for Energy Control and Management" course focuses on the modeling, operation and control design of AC microgrids for resilient and efficient integration of renewable/non-renewable energy resources and storage technologies. While "Maritime Microgrids. A Sustainable Solution for Green Sea Transportation" course aims at providing an overview of the present and future architectures of maritime microgrids, associated control technologies, optimization methods, power quality issues and state of the art solutions.

Do not miss the opportunity to be involved in changes, becoming a driver of innovation. Enrollment will be open very soon. Stay tuned, get enrolled in ASSET MOOCs.

Click here to register to the community and also receive news about **ASSET MOOC educational courses**: https://community.energytransition.academy/asset-services



General Assembly Meeting in Athens (Greece)

On January 13th and 14th of 2020, took place the **second General Assembly** meeting of the project on the premises of our partners from the OTE Academy at Athens, Greece.

The **objective of this meeting** was reviewing the status, share and discuss the progress on the project and present the work plan for the next months in the different tasks.

Once the general assembly meeting finished, our team completed **two days training session** "Train the Trainer" including numerous presentations and discussions on general principles and fundamentals of adult training, training structure, audience management and, training execution.

ASSET Ecosystem Activity

ASSET offers a platform where targeted actors collaborate and exchange resources to cultivate and better exploit all the competencies required for the energy transition. For this purpose, **the first, out of three, roadshow (workshop) was held in Milan, Italy, on the 18th of November**. The event gathered EU, national and local stakeholders from the industry, academia, research and policy making field around Energy Transition know-how.

The outcomes of the first roadshow highlighted several concerns:

- The energy transition is a complex process that requires a multidisciplinary and holistic approach, and that involves every social actor from EU and national governments to local administrations, including companies, academia and citizens.

- Every stakeholder involved shall have access to appropriate education and training opportunities, especially considering that new professional profiles with interdisciplinary competences are needed.
- In order for policy makers and public administrations to play a guiding and supporting role for bottom up energy transition initiatives, they should be trained, qualified, available to listen and determined in tackling the new challenges and achieving concrete results.

The challenge of the energy transition towards a low carbon society is without parallel and requires efforts from all sectors of the economy. **The main challenges include up-skilling the energy sector's personnel, cultivating new talents with multidisciplinary competencies and intensifying research and innovation activities within universities in close coordination with the industry sector**. A significantly closer relationship between the industry and academia is therefore required to achieve the sustainability of the green energy economy. Consequently, inter-sectoral mobility both serves as an engine for harmonising the synergies between industry and academia and creates many opportunities for innovation and improvement with mutual resource sharing. Within the ASSET project, five relevant mobility mechanisms have been selected and reviewed as to identify the potential barriers

and draw recommendations for their correct implementations. The five mechanisms are: 1) Industrial researchers as lecturers, 2) Internships, 3) Collaborative doctoral education, 4) Bachelor-/ Master-Thesis, and 5) Joint industry/academia projects.

By sharing their experiences, industrial researchers as lecturers portray to students a realistic view on the industry and raise awareness around specific topics, inspiring the latter to pursue a career in the field of energy transition.

Collaborative Bachelor and Master theses require major resources and active collaboration between students, industry professionals and university professors to develop innovative solutions. Collaborative doctoral education focuses on research with industrial relevance, thus requiring close monitoring of the student's progress by both the industry and university supervisors to prevent IPR management risk and lack of freedom barriers. Student internships in the industry are one of the main mobility mechanisms to bridge the gap between curriculums in the universities and applied work in the industries, and which can be supported by a career service office within the university targeting the placement of fresh graduates and students within the relevant industries based upon their links with the local industry. The monitoring of progress and the achieved milestones will be key factors in the successful implementation of joint industry/academia projects, a key mechanism for harmonizing the synergies of industrial professionals, participating students and university professors.

In line with the objective of the ASSET project to address the need of both companies to up-skill and train their employees, and of individual engineers to improve their knowledge, skills and competencies, an ASSET educational programme marketplace has been established. The platform allows any interested users to search or ask for a programme that meets their needs. The ASSET marketplace addresses multiple EQF levels and learning styles and supports bottom-up programme creation.

The results drawn out of this ASSET ecosystem activity will be used to better target stakeholder needs and expectations and be provided as a reference in future project outcomes and sustainability. In particular, it will support the organisation of the 2nd Roadshow that will be held in Madrid on the 20th of February 2020.

Team Presentation

Universitat Politècnica de València

The **Universitat Politècnica de València** is located in the city of València, next to the Mediterranean Sea, and it is distributed on three Campus. It is a technical University with 3.600 professors and 35.000 students in Industrial Engineering, Agriculture Engineering, Architecture, Informatics, and Fine Arts areas.

The Institute for Energy Engineering is divided into five areas (Thermal Energy, Nuclear Energy, Electrical Energy, Energy Systems and Renewable Energies). The team working on the ASSET project belongs to the Renewable Energies group and their experimental work is developed in the Labder laboratory. This laboratory has different renewable energy sources (biomass, wind, solar photovoltaics) and different systems to store energy (lead-acid batteries and hydrogen). All these systems are connected to an AC micro-grid in order to manage the energy production.

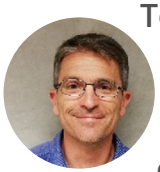
Role in the project

UPV is developing courses and MOOCs in the area of Energy Storage. UPV contributes to the identification of learning needs, the application of the ASSET method and tools to its learning materials in the area of Energy Storage and the delivery of such learning materials. UPV is disseminating the developments and findings of the project along with the lessons to their network of EU and non-EU learning institutions actively encouraging their adoption.

UPV – ASSET Team is composed by the following members:

Carlos Sánchez Díaz, PhD in Industrial Engineering, Electronics Engineer. Senior member of the Energy Engineering Institute of the UPV. Associate Professor in the Electronics Engineering Department at the UPV. Projects in the field of renewable energies, hydrogen and photovoltaics systems and power electronics.

Elisa Peñalvo López, Industrial Engineer with a master's degree and Doctorate in Energy Technology for Sustainable Development, has 15 years of professional experience in Research and Project Management. As a researcher, her main interests include: Energy Efficiency in Buildings, Integration of Renewable Energies, Consumers Demand Response and Energy Planning.



Tomás Gómez Navarro, PhD in Industrial Engineering, Industrial Engineer. Senior member of the Energy Engineering Institute of the UPV. Chair of the Urban Energy Transition professorship at UPV. Specialist in an environmental assessment of energy systems. Broad experience with research activities and teaching in various European and Latin-American countries.

David Alfonso Solar, PhD by the Universitat Politècnica de València, graduated on environmental chemical engineering. Senior member of the Energy Engineering Institute of the UPV since 2003. Projects dealing with distributed energy resources, energy efficiency, life cycle assessment, nearly zero energy buildings, demand characterization and renewable energy sources.

Carlos Vargas Salgado, PhD in engineering and industrial production, Industrial Engineer. Assistant professor in the Electrical Engineering Department at the Polytechnic University of Valencia. Projects in the field of renewable energy, biomass gasification, combustion, photovoltaic and wind systems.

Fernando Ibañez Escobar, PhD in Physical Sciences from the Universitat Politècnica de València (UPV), Associate Professor at the Electronic Engineering Department of the UPV, Specialist in Photovoltaic Solar Energy and Power Electronics.

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

UNINA - The University of Naples Federico II

The **University of Naples Federico II** is one of the oldest universities to be founded by a head of State while other educational institutions, by and large, were a product of corporate initiatives. The king's objective was to create an institution of higher learning that would put an end to the predominance of the universities of northern Italy, most notably those of Bologna and Padua, which were considered either too independent or under the strong influence of the Pope. The foundation of the university was carried out within the framework of an administrative reform pursued by the emperor with the objective of training bureaucrats in becoming loyal to him as well as becoming capable of monitoring local nobles whom he distrusted. However, Frederick's love for learning was an equally strong motive.

The University of Naples survived the years of World War II. The fifties and sixties saw an expansion of the university and entire schools were moved into newly developing areas such as Fuorigrotta, on the north western periphery of the city.
This is where a new building on Camaldoli hill was constructed for the School of Engineering and where presently a large portion of the Medical School can be found. Since the year 2000, a new, very large compound, named the Monte Sant'Angelo Complex, located in the area of Fuorigrotta, has hosted the Schools of Mathematics, Physics and Natural Sciences, Biotechnological Sciences and Economics. Although new universities have been established in southern Italy and in the Campania region, student enrollment in Naples increased steadily in the seventies

and the early eighties to over 100,000 students, making the University of Naples one of the largest in the country. Nowadays the university is made up of four schools, twenty-six departments, an academic staff of more than 3,000 individuals and administrative staff of more than 4,500. Current student enrollment is still about 100,000 in total.

Role in the project

The participation of UNINA in the ASSET project is twofold: through the Department of Electrical Engineering and the Department of Social Sciences. Both teams have started to talk one language and to share a unique objective: supporting the ASSET project with a research-based interdisciplinary educational offer in energy transition coping with the societal challenges that can be posed by a complex territory.

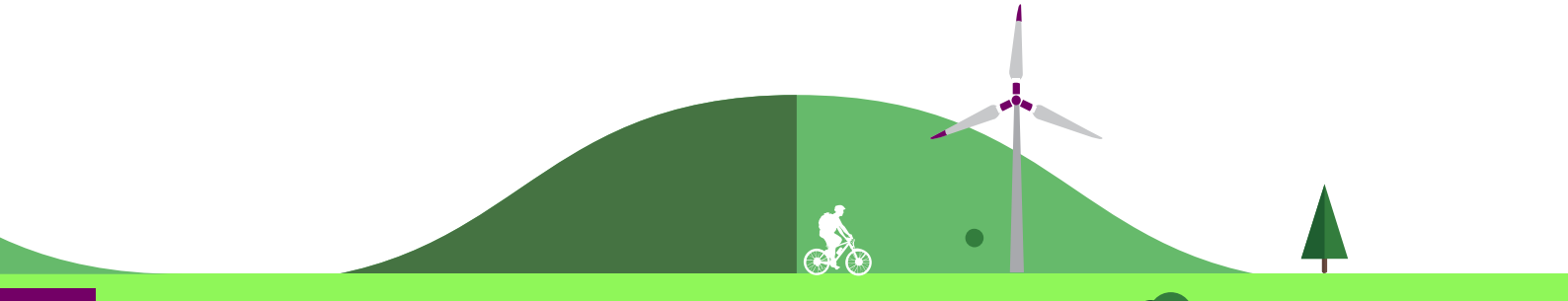
Learning Goals Catalogue for The Energy Sector

ASSET Courses	*Form*	*Host Institution*
Multi-terminal DC grids	Seminar	RWTH
AC Microgrids	1-Semester Course	AAU
Power Quality in Microgrids	1-Semester Course	AAU
DC Microgrids	1-Semester Course	AAU
Challenges and solutions in Future Power Networks	MOOC	RWTH
Monitoring and distributed control for power systems	1-Semester Course	RWTH
Implementation of automation functions for monitoring and control	1-Semester Practicum	RWTH
Maritime Microgrids	1-Semester Course	AAU
Power Systems Dynamics	1-Semester Course	RWTH
Case study on distribution grid operation	Seminar	RWTH
Optimization Strategies and Energy Management Systems	1-Semester Course	AAU
Hydrogen as energy vector	1-Semester Course	UPV
New Materials for solar cells applications	1-Semester Course	UWA
Energy Integration of Renewable Sources to District Heating, Cooling and Power Systems	1-Semester Course	UNINA
Energy and environment	1-Semester Course	UWA
Electrical heat pumps in the energy transition framework	1-Semester Course	UNINA
Corporate and institutional communication and Social Responsibility	Seminar	UNINA
Innovation and Diversity in engineering	MOOC	RWTH
Understanding Responsibility in research and Innovation	Seminar	RWTH
Green professionalization and ethics	Seminar	UNINA
Participatory planning tools and Social network analysis	Seminar	UNINA
Innovation processes in the energy sector	Seminar	OTEA
Energy Efficient and Ecological Design of Products and Equipment	1-Semester Course	UWA
Economics of energy sources and the optimal integration of renewable energies and energy conservation measures	Seminar	LS
Behavioural change as a powerful drive to minimize the energy consumption while providing the same level of energy service	Seminar	LS

By the end of 2019, the universities in the ASSET consortium produced the learning goals catalogue for the energy sector. This catalogue contains all the learning outcomes and a list of learning materials of twenty-five (25) courses that universities in ASSET will offer. These courses will address the needs for knowledge, skills, and competencies to achieve a sustainable energy transition.

The catalogue is the result of four major activities in the project:

1. The definition of the learning graph model for the Energy Transition, making it applicable to the ASSET programmes;
2. The derivation of the ASSET vocabulary, used to explains the learning topics and outcomes in ASSET and that could be used to represent a good fraction of the learning needs for the energy transition;



3. The identification of the learning graph model for all the ASSET learning offers, in which each programme is defined in terms of learning topics, outcomes, and learning materials;
4. The mapping of ASSET learning offers to the Knowledge-Skills-Competences (KSCs) in demand for the Energy Transition, thus showing the impact of the ASSET programmes.

The ASSET programmes are classified according to the European Strategic Energy Technology (SET) Plan Areas that they address, in particular the areas of: (1) integrating renewable technologies in the energy systems, and (2) new technologies and services for consumers. Through this classification ASSET programmes remain aligned with EU's energy and climate policies.

Furthermore, the ASSET programmes are classified based on the fields of research and development (FORD) of the Frascati Manual. The mapping highlights how the ASSET programmes address the fields of engineering, social science and humanities.

For more details, the catalogue can be found in the following link: https://energytransition.academy/deliverable/D2.3

2nd Roadshow Event in Spain (Madrid) 20/02/2020

The second ASSET Roadshow will take place in Madrid on February 20, 2020.

Within the scope of the ASSET project, we want to provide the framework and the means to collaboratively define the competencies, knowledge, and skills required to address the energy transition. **In Madrid (Spain), we want to invite the public to discuss and imagine what kind of social, political/legislative, technological and organizational practices could promote more sustainable energy consumption in the coming years and decades**. In short, the goal is to dialogue and listen to the different actors to help us to 'co-create' and approach the issue of how to address the energy transition in Spain and the European Union and the training needs that will be needed in the future.

If you are interested to participate in the event, register through the link below

or write an email to dmitriy.pap@atos.net, specifying which entity you represent and how are you involved in the energy transition. A report with the main outcomes and recommendations will be made available after the event. You can find more information about this event here:

https://www.eventbrite.es/e/entradas-asset-roadshow-en-espana-madrid-87962988667

Future Events

16th International Conference on Intelligent Tutoring Systems

The University of West Attica (a member of the ASSET consortium) is hosting the 16th International Conference on Intelligent Tutoring Systems – "Artificial intelligence and Beyond: from Alpha to Omega" in June 2020, in Athens. ITS2020 is the upcoming Conference of the series of Intelligent Tutoring Systems Conferences on Computer and Cognitive Sciences, Artificial Intelligence and Deep Learning in Tutoring and Education.

More information here:
https://its2020.iis-international.org/

Stay tuned for more news!!

Do you want to be part of the ASSET ecosystem, a community able to identify the competences needed for the energy transition and to deliver educational programmes?

Don’t forget to subscribe to receive first our newsletter!

Below, at the end of this newsletter, you can find the links to our pages on the respective channels…!

About us

ASSET team is a well-balanced consortium, consisting of eleven partners from six European countries.

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UNIVERSITAT POLITÈCNICA DE VALÈNCIA

ΠΑΝΕΠΙΣΤΗΜΙΟ ΔΥΤΙΚΗΣ ΑΤΤΙΚΗΣ UNIVERSITY OF WEST ATTICA

AALBORG UNIVERSITET

OTE ACADEMY

RWTH AACHEN UNIVERSITY

Università degli Studi di Napoli Federico II

Atos

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