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ENCLUDE Academy – Action-based Online Modules

WP6 – ENCLUDE Academy for Energy Citizen Leadership

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ENCLUDE Academy – Action-based Online Modules

WP6 – ENCLUDE Academy for Energy Citizen Leadership

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ENCLUDE PROJECT & DELIVERABLE PROFILE

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Preface

The H2020 Energy Citizens for Inclusive Decarbonization (ENCLUDE) project aims to help the EU fulfil its promise of a just and inclusive decarbonization, adopting the principles of sharing and co-creating new knowledge and practices that are aimed at maximizing the number as well as the diversity of citizens and societal actors who are willing and able to contribute and take any form of action in the energy transition. Catalyzing chain reactions of decarbonization activities across the European Union will be achieved through the ENCLUDE Academy for Energy Citizen Leadership. We focus on a bottom-up approach of citizen engagement for decarbonization actions by identifying, networking and supporting local community leaders who have the intention to lead energy indicatives. This deliverable presents the online videos of action-based training modules that are one of the core elements of the Academy.

1. Changes with respect to the DoA

The original due date of the deliverable is 30/06/2022. The two-week delay is attributed to the added administrative dues of the authors due to the change of coordinating institutions.

2. Dissemination and uptake

This deliverable presents an overview of the online videos of action-based training modules that will be used in the ENCLUDE Academy for Energy Citizen Leadership. The videos will be posted on an online platform based on the Open edX framework and will be the main dissemination platform for all materials related with the modules. The material presented here is also the basis for the implementation of the ENCLUDE Academy. Aspects of this material has also been used for the recruitment of NGO partners and citizens to participate in the ENCLUDE Academy.

3. Evidence of accomplishment

This report serves as evidence of accomplishment.

LIST OF PARTICIPANTS

	Participant Name	Short Name	Country	Logo
1	TECHNISCHE UNIVERSITEIT DELFT	TUD	Netherlands	
2	UNIVERSITY OF PIRAEUS RESEARCH CENTER	UPRC	Greece	
3	EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH	ETHZ	Switzerland	
4	UNIVERSITY COLLEGE CORK - NATIONAL UNIVERSITY OF IRELAND, CORK.	UCC	Ireland	
5	UNIVERSITY OF GLASGOW	UOG	United Kingdom	
6	JOANNEUM RESEARCH FORSCHUNGSGESELLSCHAFT MBH	JR	Austria	
7	TH!NK E	THNK	Belgium	
8	UNIVERSITEIT UTRECHT	UU	Netherlands	
9	GREEN PARTNERS SRL	GP	Romania	
10	ZDRUZENIE CENTAR ZA ISTRAZUVANJE I INFORMIRANJE ZA ZIVOTNA SREDINA EKO-SVEST	Eko-svest	North Macedonia	
11	MISSIONS PUBLIQUES	MP	France	
12	HOLISTIC IKE	HOLISTIC	Greece	
13	UNIVERSITY OF VICTORIA	Uvic	Canada	

Executive Summary

The ENCLUDE Academy for Energy Citizen Leadership is a six-month, online leadership development and civic engagement program for decarbonization. It brings together current and future changemakers from across Europe, Africa and Canada to help them hone their individual leadership, their collective organization skills and to connect them to one another and to experts in the energy transition. It aims to help people who are interested in making a change in their own communities, to not only reduce carbon emissions, but also to link up issues related to the energy transition with improving the overall well-being of their communities. It is for people who want to realize concrete ideas they already have related to the energy transition, and for those who would like to become more active in this area and to start finding that idea.

This deliverable sets out to describe the objectives, rationale, structure and activities of the program. In addition, it offers an initial view of the video materials, in the form of the script that will be used, as input for the plenary sessions of the program. These videos serve as only one of many components for supporting learning during the ENCLUDE Academy, in addition to group discussions, implementation of ideas within communities and mentoring sessions with local experts. However, the videos offer a concrete view into the themes and the specific knowledge that will be shared during the course of the program.

The ENCLUDE Academy bridges academic knowledge and useable knowledge for the citizens who are ready to be change agents for the energy transition. This transdisciplinary approach to social learning goes beyond informing the public of information that they were previously unaware of, but also asks participants to share their own expertise on related topics. It also provides them with time, structure and means to contextualize this knowledge and perspectives. Key for the design of the Academy is the recognition of heterogeneity in energy needs and in the circumstances in which citizens live and work. In order to create knowledge that is usable and that can contribute to systemic transformation, it is important to design a two-way process where citizens help us contextualize this knowledge. The ENCLUDE Academy aims to have an impact by creating and using this mode of engagement for catalyzing change.

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1 Introduction

The goal of the ENCLUDE Academy for Energy Citizen Leadership is to bring together local community leaders, potential changemakers and curious citizens from different countries and backgrounds to help them to sustain and catalyze decarbonization initiatives. The program aims to help people that are interested in making a change in their own communities to reduce carbon emissions, and, at the same time, to meet urgent needs of the community related to energy access, energy affordability and equity. It is for people who want support in realizing concrete ideas they already have related to the energy transition or those who would like to find that idea. The envisioned impact of this program is to launch a bottom-up mobilization of energy citizenship by training influential individuals that can help change energy behaviors and engage other citizens in the transition.

The Academy will be implemented as an action-based leadership training program, designed to be inclusive for citizens of various ages, time availability and needs in relation to the energy transition. The program will be provided in a weekly recurring online setting, from September 2022 to April 2023.

The curriculum and the organization of the Academy that is documented in this deliverable is built upon discussions with 18 NGOs and other organizations across the EU (list provided in the annex). These organizations work at the intersection between energy-related themes and social issues affecting the well-being of citizens and will help ENCLUDE recruit the future participants of the Academy. The main insights around which this Academy has been designed are the following:

1. Programs which aim to provide citizens with information about the energy transition should also be aware of local and relevant topics that can be combined with transition actions. There may be a simultaneous need for information about the energy system that is not normally accessible or understandable and for providing help to citizens to take effective action.
2. It is important to provide incentives (that are not necessarily financial) for citizens to participate in a program that offers a sense of accomplishment and progress that can be applied in other areas of their lives, contributing to lifelong learning.
3. It is important to clarify the amount of time expected from participants of the Academy and to consider how to accommodate varying degrees of participation from diverse groups of citizens.
4. There is a need to provide a "translocal" perspective of citizen efficacy, so that citizens are able to learn from those sharing similar goals in their local energy transition. This provides citizens with a source of inspiration, expanding the horizon of what is possible and allowing new opportunities to be identified. Additionally, it can help citizens and other stakeholders identify common challenges and jointly develop strategies to overcome these challenges.

These four core insights have been translated into the following guiding principles in order to create the online modules and accompanying videos of ENCLUDE:

1. **Learning by doing and reflection-in-action**. The Academy focuses on providing resources and structure which encourages participants to take action with the information and inputs that they receive. Ample time will be given for participants to reflect along with their peers on the actions being taken. This aspect of learning is often missing, yet essential for developing critical thinking, empathy and creativity. Participants will rely on peer sharing to gain the necessary insights for taking the next steps.

2. **"Integrated systems and design thinking" approach as a basis of transformative action**. Besides supporting decarbonization actions, the Academy also provides training for design thinking. Skills acquired with practicing this methodology can be carried over to other areas of life which can benefit from complex problem-solving skills. Certificates for declaring competency in "design thinking for systemic transformation" will be given to those who complete all modules of the Academy.

3. **Flexible levels of participation.** The organization of the Academy is devised for two types of participation: leadership participation and casual participation. Leadership participation are for those who are able to dedicate more time to carry out decarbonization initiatives. As a part of their registration to the Academy, these participants are expected to bring an idea for an initiative related to the energy transition or a description of an initiative that they are already part of. They will also commit to spend 3-5 hours/week on these initiatives, including the time they spend "in-class" as a part of the Academy. The casual participants are only expected to be present for some of the modules and are welcome to watch the videos we provide. These casual participants will be also given the option to switch their participation to leadership participation, if the ideas and concepts inspire them to do more.

4. **Online format for translocal, social learning**. The online format of the Academy allows us to include participants from all over the world working similar topics, sharing similar needs, but working within very diverse contexts. The structure of the Academy will be designed to create such local hubs of in-person activity, depending on the geographical distribution of participants and alongside the online component of the Academy. In addition, lecture-based input will be limited, with the emphasis given to peer and experiential learning, as well as interactions from mentors with varied expertise in both technical and policy aspects of the energy systems and with real world experience in diverse contexts.

These guiding principles serve as the foundation for the design of the ENCLUDE Academy, along with the previous experience of members of the ENCLUDE consortium in developing lifelong learning educational programs. The remainder of this report explain how the online modules will function, describe their architecture, and list the preliminary schedule and script of the videos that will be developed as part of the Academy.

2 Description and curriculum of the Academy

The ENCLUDE Academy is a six-month, online leadership development and civic engagement program for decarbonization. It brings together changemakers from across Europe, Africa and Canada in virtual sessions to help them drive change by honing their individual leadership and collective organization skills and by helping them connect to one another and to experts in the energy transition beyond the scope of the program itself. It aims to help people who are interested in making a change in their own communities in order to not only reduce carbon emissions, but also to see the links between how issues related to the energy transition could be relevant for improving the overall well-being of their communities. It is for people who want support in realizing concrete ideas they already have related to the energy transition, or for those who would like to become more active in this area and to find that idea. The course will adapt a design thinking methodology that is geared towards systems transformation. This "**integrated systems and design thinking**" approach has been created and implemented at the Swiss Federal Institute of Technology (ETH Zurich), co-developed by the lead of WP 6 in

ENCLUDE (BinBin J. Pearce)[1]. This approach will be implemented for the topic of the energy transition, focusing on what actions individuals and collectives might be able to take that contribute to the transformation of energy systems, while taking stock of and accounting for technical and political constraints and opportunities that exist at regional, national and global scales.

2.1 Objectives

The learning objectives of the ENCLUDE Academy are to help current and potential community leaders to:

1. **Enhance** their own **sense of efficacy** by becoming adept at using design thinking methods for systemic transformation in the energy system.
2. **Develop, implement and/or sustain local plans of action** for moving the community towards the energy transition.
3. **Learn from and find support amongst a network of energy citizens** who share similar goals and visions beyond national borders.

2.2 Structure

To achieve these objectives, the curriculum of the Academy is structured around two parallel tracks – **a "knowledge" track and an "action" track**. The "knowledge" track provides information and perspectives about how to understand **energy as a system**. This includes information about the energy transition, energy policies, elements of inclusive energy, energy efficiency, renewable energy and how various scales of the energy systems are linked both technically and politically to one another. The action track provides a structure, format and space for participants to practice **design thinking for systemic transformation**. Use of this methodology is aimed at helping participants to consolidate, personalize and make use of the information on the energy system to start creating change in their own communities. The two tracks are interwoven within the five modules that make up the curriculum of the ENCLUDE Academy.

Between the last week of September 2022 and April 2023, the ENCLUDE Academy will gather on a weekly basis for 1.5 hours (except from the months of December and April to account for holidays). The frequency of these meetings is intended to foster familiarity and sense of community. We will also limit the meeting time to less than two hours because of the frequency of these meetings and to limit screentime. Each module is oriented around a particular topic of the energy system and energy transition, as well as a particular step in the design thinking methodology. For each of the first four modules, there is a first and last session which takes place in an online plenary, along with all participants. The middle sessions (which range in number from two to six sessions) are organized as working sessions for leadership participants (estimated to be half of all participants). The work sessions are intended for small group work and will be facilitated by ENCLUDE consortium members but will not be oriented around lectures. The nature of these work sessions will evolve and adapt to the needs of the participants in order to help them realize their projects.

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[1] Pohl, C., Pearce, B., Mader, M., Senn, L., & Krütli, P. (2020). Integrating systems and design thinking in transdisciplinary case studies. *Gaia*, *29*(4), 258–266. https://doi.org/10.14512/gaia.29.4.11

The **"knowledge" track** is open to all participants. The information in this track is conveyed via videos and lectures that take place during the plenary sessions, which are the first and last sessions of each module (Modules 1-4). During these sessions, participants are also able to raise questions and have discussions related to topics that were raised in the video inputs and lectures. The last session of each module is meant to be a chance for the participants to share their progress and reflect on how concepts and ideas are being played out in the real world and in their own contexts. **The "action" track** is created to specifically support leadership participants who would like to develop, realize and/or sustain decarbonization actions in their communities. These participants will work in small groups (either online or in-person, depending on the locations of participants) and follow exercises and activities that were designed as a part of the adapted design thinking methodology. This group work will take place in the second and third meetings of each module (Modules 1-4). Casual participants are also able to partake in this track if they are interested.

In the last module of the ENCLUDE Academy, all leadership participants will be asked to present what they have completed in the last 6 months as a part of the program. There will be three final sessions in which all participants will be able to present online to all members of the ENCLUDE Academy. These last modules will be made accessible to the general public and will also showcase the participants' work. Participants are welcome to invite key stakeholders from their initiatives to take part in the event. The event is also meant to be used as a platform to further the aims of their own initiatives.

2.3 Linking activities to objectives

Objective 1: Enhanced sense of efficacy for change

The ENCLUDE Academy provides resources and structure to encourage participants to act with the information and inputs that they receive. This learning-by-doing and reflection-in-action approach offers the possibility to citizens and stakeholders to develop their own understanding of the issue at hand rather than solely depending in the knowledge of the experts. In addition, the information that will be offered aims to help individuals make the connection between how local action (both at the individual or collective scales) can have an impact on larger scales. This systems-view of the energy transition is key for citizens to define their own sense of efficacy and understand the role they can play within the energy transition. Lastly, certificates for competency in "design thinking for systemic transformation" will be given to those who complete all modules of the Academy. This may provide additional encouragement to the participants, knowing that they have received adequate knowledge and training to move forwards with their initiatives.

Objective 2: Develop, implement and/or sustain local plans of action

The ENCLUDE Academy will provide training for design thinking to the participants, helping them to acquire relevant problem-solving skills through both theory and practice. Participants will be provided with a structured methodology to help them develop new ideas which make use of their own insights as a member of a community to create effective initiatives for that community. This approach of "from the community, for the community" has been successfully implemented in many existing initiatives for decarbonization. To help participants implement or sustain local plans of action, the program will also gather mentors with technical, policy or practical expertise on matters related to energy transition initiatives. These experts will serve as a sounding board and provide guidance as ideas are developing and before they are

launched. This external advice will provide an additional insight to the possible pitfalls and opportunities of initiatives being created and help participants benefit from previous lessons.

Objective 3: Learn from and find support amongst a network of energy citizens

The ENCLUDE Academy starts from the premise that, ultimately, participants will learn more from each other than from the facilitators of the Academy. As organizers, we will provide orientation, curriculum, themes to be discussed and the methodology, but once these aspects are in place, the participants themselves can use this structure to tap into the expertise and rich experiences of their peers in the Academy. As we have previously observed in students, peer learning can foster ownership of the projects and knowledge that is generated, such that the knowledge itself becomes more useable, tactile and real. To support this underlying assumption of learning, we organize the ENCLUDE Academy around frequent, regular meetings over a relatively long period of time, in order to foster familiarity and create a community. We will also support a mixed structure of both formal and informal meetings, so that the online format can be adapted to various modes of communication. Finally, we have designed the Academy assuming ample time for discussion in small groups. We think that valuable information and perspectives can be exchanged during these discussions. To facilitate communication across many language groups, we will work with a variety of online simultaneous translation tools for plenary sessions, as well as rely on language-group hubs and matched language facilitation for work sessions.

2.4 ENCLUDE Academy curriculum and schedule

The table below summarizes all information described above. For the videos listed, participants are expected to have viewed them before attending the session. The session itself will be focused on discussion of the topics in the videos and eliciting the participants' expertise and experiences in relation to these topics.

Table 1 ENCLUDE Schedule and Curriculum

ENCLUDE Academy Curriculum and Schedule						
#	Date	Activity	Activity type/Track*	Mode	Leadership participation	Casual participation
2022						
0	29.9	**Kick-off meet and greet** – Introduction to ENCLUDE and the ENCLUDE Academy	Plenary/K+A	Online	x	x
1.1	06.10	**Module 1 introduction** – **Diving into the energy transition** (Videos 1.1-1.3)	Plenary/K	"	x	x
1.2	13.10	**Module 1 work session -** – Design thinking workshop – "Empathy"	Group discussion/A	"	x	

1.3	20.10	**Module 1 work session – ** Design thinking workshop **–** Linking "Empathy to Defining"	"	"	x	
1.4	27.10	**Module 1 wrap-up** – Integrating ideas and action	Plenary/K+A	"	x	x
2.1	03.11	**Module 2 introduction** – **Energy access and availability** (Videos 2.1-2.3)	Plenary/K	"	x	x
2.2	10.11	**Module 2 work session** – Design thinking workshop – "Defining continued"	Group discussion/A	Online/In-person hubs	x	
2.3	17.11	**Module 2 work session** – Design thinking workshop – "Linking defining to ideating"	"	"	x	
2.4	24.11	**Module 2 wrap-up –** Integrating ideas and action	Plenary/K+A	Online	x	x
3.1	01.12	**Module 3 introduction – Energy efficiency and prosumerism** (Videos 3.1-3.2)	Plenary/K	"	x	x
3.2	08.12	**Module 3 work session** – "Ideating with systems thinking"	Group discussion/A	Online/In-person hubs	x	
3.3	15.12	**Module 3 work session** – "Linking ideating to prototyping"	"	"	x	

2023						
3.4	12.01	**Module 3 work session** – "Prototyping"	"	"	x	
3.5	19.01	**Module 3 work session** – "Check in with mentors"	"	"	x	
3.6	26.01	**Module 3 wrap-up –** Integrating ideas and action	Plenary/K+A	"	x	
4.1	02.02	**Module 4 introduction – Energy affordability and Renewable Energy** (Videos 4.1- 4.2)	Plenary/K	Online	x	x

4.2	09.02	**Module 4 work session** – "Linking prototyping to testing ideas"	Group discussion/A	Online/In-person hubs	x	
4.3	16.02	**Module 4 work session** – "Check-in with mentors"	"	"	x	
4.4	23.02	**Module 4 work session** – "Testing in the real world" "	"	"	x	
4.5	02.03	**Module 4 work session** – "Check-in with mentors"	"	"	x	
4.6	09.03	**Module 4 work session** – "Testing ideas continued"	"	"	x	
4.7	16.03	**Module 4 work session** – "Check-in with mentors"	"	"	x	
4.8	23.03	**Module 4 wrap-up** – Integrating ideas and action	Plenary/K+A	"	x	
5.1	30.03	**Module 5 – Presentation of energy citizenship initiatives (part 1)** (Video 5)	"	Online/In-person hubs	x	x
5.2	20.04	**Module 5 – Presentation of energy citizenship initiatives (part 2)**	"	"	x	x
5.3	27.04	**Module 5 – Presentation of energy citizenship initiatives (part 3)** **Final celebration**	"	"	x	x

Conclusion of ENCLUDE Academy

*K = knowledge track, A=action track

3 Online modules and platform

The online modules will be an integral part of the Academy's curriculum for both the knowledge and action tracks. On the one hand, they will introduce participants to the specific topics of the module's theme that will be discussed in the plenary sessions, while on the other, they will allow for assessing the participants' involvement with the content (in-depth explanation can be found in the following section). The modules will be incorporated in an online platform based on the Open edX software for developing learning experiences[2]. The platform will be used in the Academy as a meeting point between the participants and organizers as well as for content dissemination, e.g., for the videos. The platform is chosen based on the technical possibilities it offers for developing and implementing a collaborative workspace, from scheduling meetings

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[2] https://openedx.org/

and uploading different materials, to organizing different types of assessments. The platform is well-established and tested for stability and offers a cost-effective means for ENCLUDE to organize such an online experience. It also offers interactive possibilities for design activities with participants. The following screenshots are taken from the open edX platform that is currently under development.
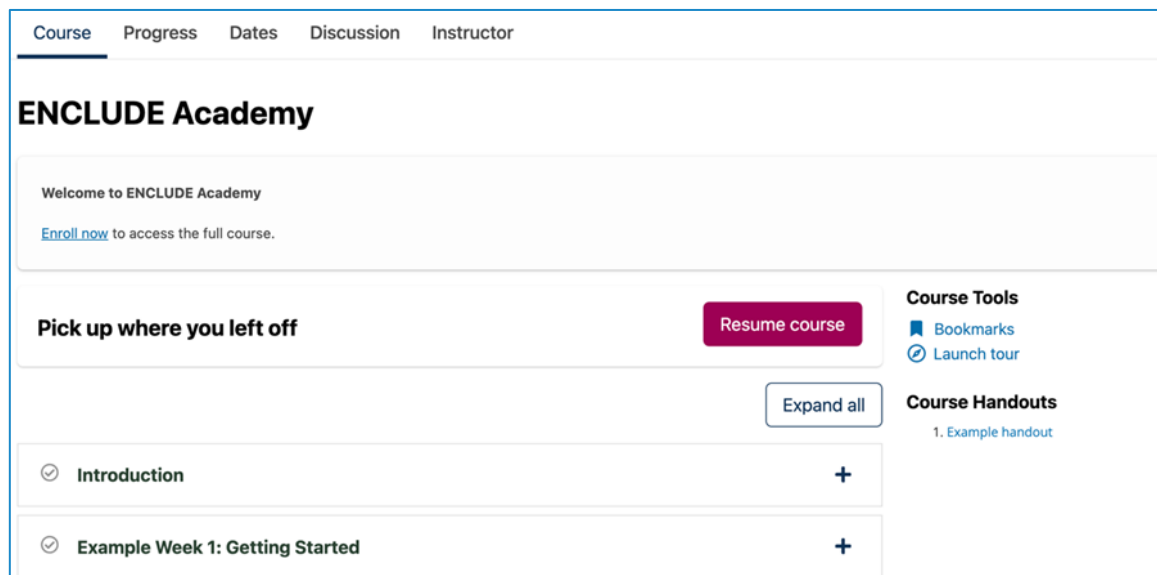

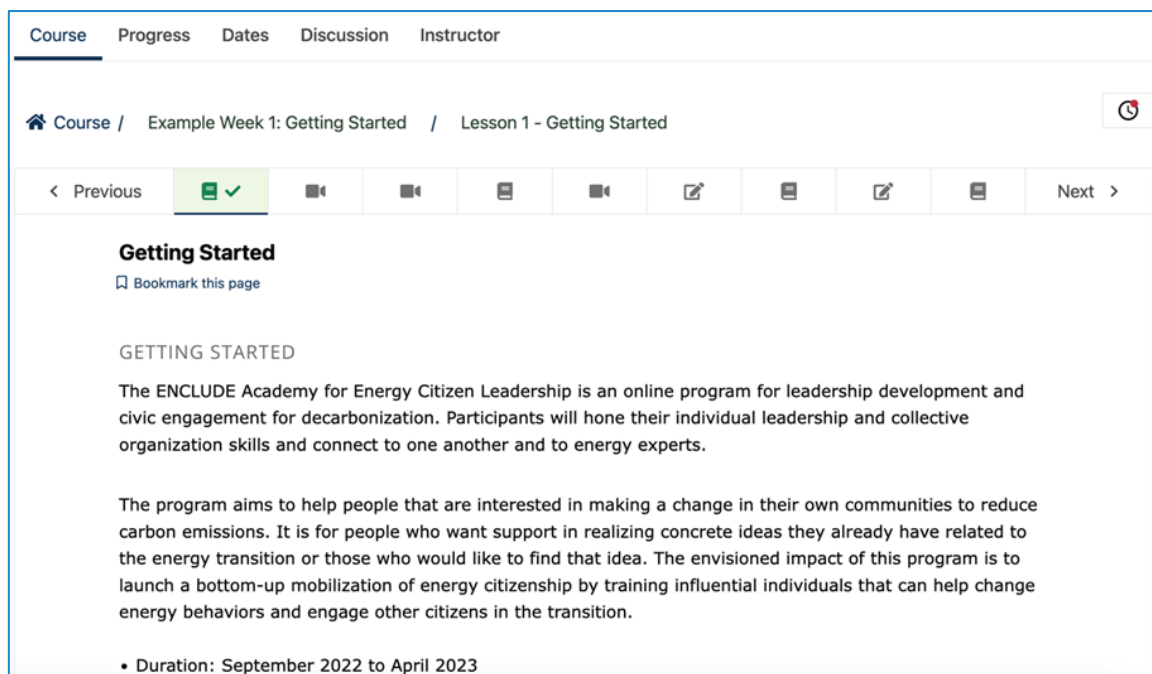**Figure 1. Preliminary interface for navigating the course material of the Academy**

Figure 2. Example of a course description
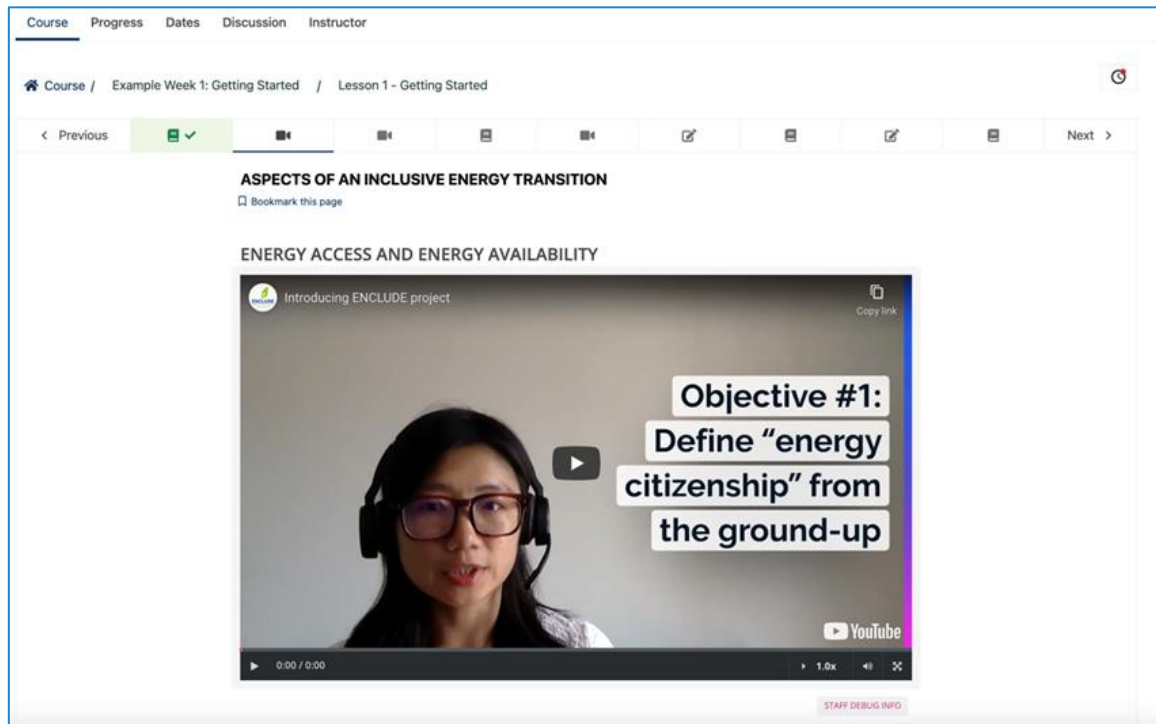
Figure 3. Example of a video lesson

4 Assessment and engagement

By developing and implementing the modules through the open edX platform, we are able to closely monitor the engagement of all participants with the videos and the other relevant materials. The platform allows for monitoring the engagement of participants (time spent on different resources) as well as for structuring the videos in a quiz-like format, where participants will need to answer a certain question after/before watching a video. In this way, we will be able to determine the clarity of the material presented in the videos and adjust it accordingly before the next online session. Open edX is not the only means by which we will assess engagement, as we will be also relying on the discussions and feedback that will be carried out during the work sessions in Modules 1-4.

Figure 4. Example of interactive questions

5 Examples of online videos and module scripts

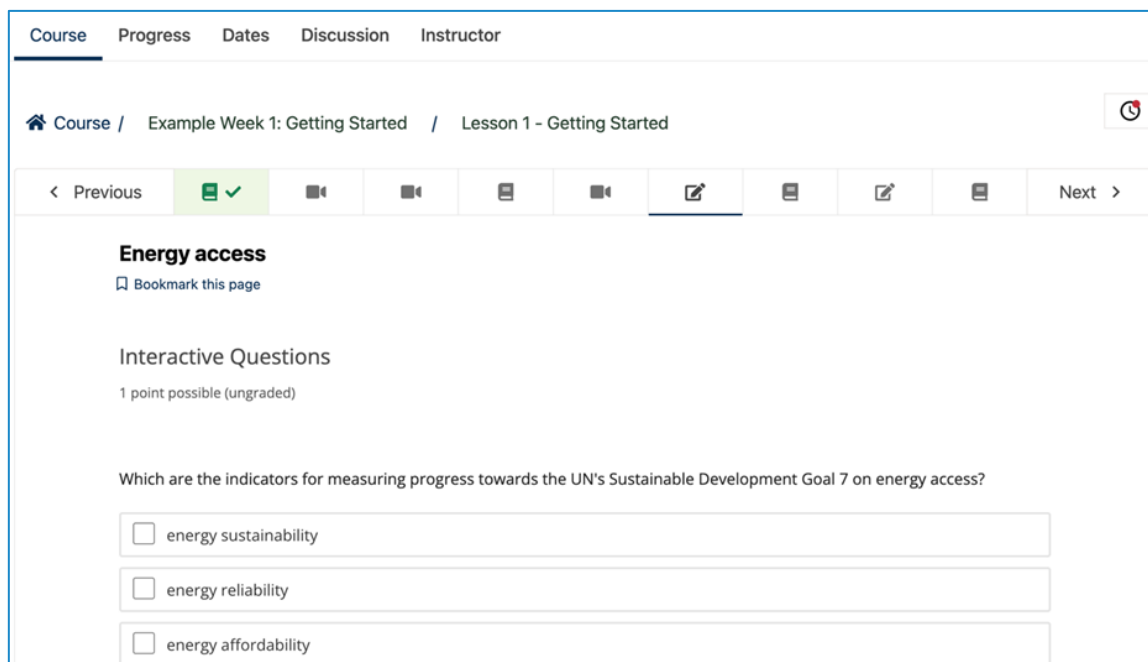As an integral part of the Academy, the online videos of various energy transition topics will be hosted on ENCLUDE's server and connected to the edX platform, offering participants easy access. The module scripts as well as examples of several videos are presented in this section. Videos are divided in several modules, and they can be accessed by clicking on the underlined video titles.

5.1 Module 1 – Diving into the energy transition

VIDEO 1.1 – INTRODUCTION TO ENCLUDE AND THE ENCLUDE ACADEMY

Hi, my name is BinBin Pearce and I am the coordinator for the Horizon 2020 project Energy Citizens for Inclusive Decarbonization" (ENCLUDE). This three-year project started in June 2021. In this video, we want to give you a brief overview of what we aim to accomplish. To begin, we want to better understand the concept of energy citizenship and how it can contribute to an inclusive process of decarbonization in Europe and beyond.

There are three objectives of ENCLUDE:

First, we want to define and create a typology for the concept of energy citizenship from the ground-up, both by consolidating existing definitions and by going into the field to talk to a

diverse range of people who are energy citizens themselves or those who have an impact on or affected by energy citizenship.

Our second objective is to make the concept actionable for policy makers. To that end, we plan on creating an interactive policy platform that can help policy makers identify whether and how energy citizenship can help them meet decarbonization targets in their specific contexts.

Our third objective is to not only write and talk about energy citizenship but also to help mobilize action on the ground using what we learn about the concept. To this end we will be creating an ENCLUDE Academy for energy citizen leadership, which will train and support 50 participants, both individuals and from NGOs from across the EU, to initialize decarbonization actions of their own. You have all been invited to be a part of the ENCLUDE Academy. You are the energy citizen leaders that we are aiming to connect with as a part of this project. We hope we can work together with you, support you, to make your ideas come alive and to learn from your work in your communities towards decarbonization.

This consortium is made up of modeling experts specializing in ABM and IAM and environmental NGOs, SMEs who are active in the energy sectors as well as social scientists from a variety of institutions. In total we are 13 institutions and speak 12 languages among us. Members of this consortium, along with other partners across the EU who are helping us in this endeavor, will be accompanying you in the ENCLUDE Academy. We are excited to have you onboard as an important part of the decarbonization efforts in the EU and beyond! We are here to support you, learn from and share with you knowledge that we think may be helpful to you in the important work that you are doing in your communities!

VIDEO 1.2 – WHAT IS ENERGY CITIZENSHIP AND WHY DOES IT MATTER?

What is energy citizenship?

Energy citizenship is a term that has come to represent active public participation within energy systems. Important questions around energy citizenship concern the rights and responsibilities of energy citizens as well as issues of energy justice, democracy, security and diversity. Energy citizenship also relates with supporting people to act, both collectively and individually, towards a more sustainable future.

Why does energy citizenship matter?

As an umbrella term, energy citizenship includes many energy- and citizenship-related concepts that modern societies strive to reach and attain. From an energy perspective, energy citizenship relates to enjoying the benefits of energy security on a personal, regional and national level, being able to use environmentally friendly energy technologies and domestic devices with high efficiency ratings. From a citizenship perspective, energy citizenship relates to the participation and decision-making power that citizens have across democratic societies, which when related with the energy context, empowers citizens to make decisions to directly influence the energy system.

But why does it matter for countries or citizens to be energy free and secure? Well, access to clean, cheap and secure energy sources is not a basic human right, and within the current system, citizens barely have any deciding power regarding the type and the origin of the energy source. In a way, energy citizenship works towards making the access to clean, cheap and secure energy one step closer to becoming a basic human right.

VIDEO 1.3.1 – WHAT IS THE ENERGY TRANSITION?
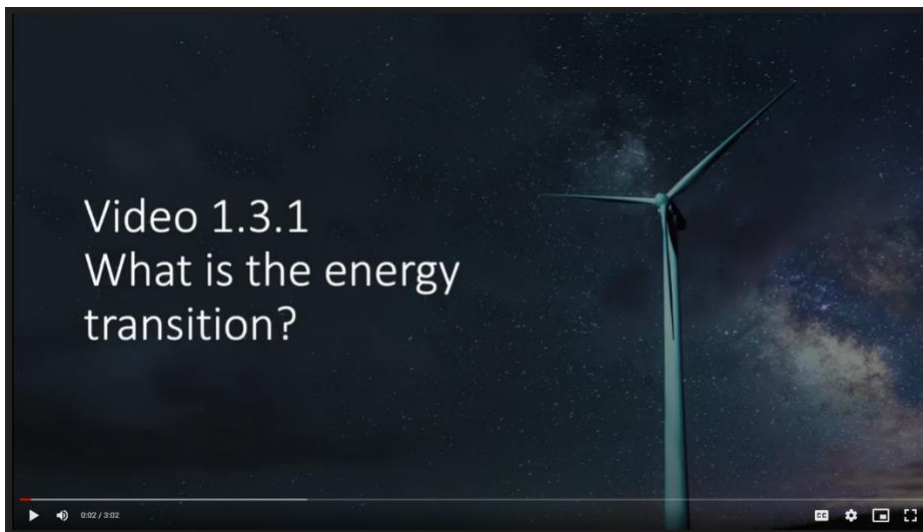
What does energy transition mean?

The energy transition is a pathway towards transformation of the global energy sector from fossil-based to zero-carbon. At the heart of the transition is the need to reduce energy-related CO_2 emissions to limit climate change. Decarbonization of the energy sector requires urgent action on a global scale, supported by renewable energy and energy efficiency measures implemented across all societal levels. This in fact means that the energy transition is much more than redesigning and reshaping the current energy system, considering that each and every aspect of our lives and daily activities are directly related to using energy.

Why do we need this transition?

The energy transition is a crucial enabler of sustainable development and will greatly contribute to climate resilience. Forward-looking actions will create new jobs, stimulate growth and harvest social and health benefits. However, the process is not uniform, nor it provides one-size-fits-all solutions. It reflects diverse priorities and entails a combination of abilities, technologies, policies, finance and resources. While the specific path to the end goal depends on individual circumstances, the destination is common. The process must be just, inclusive and systemic to ensure that no one is left behind. International and regional cooperation is essential to facilitate the sharing of experiences and good practices.

What can we learn from past energy transitions?

Historical examples of energy transitions show that there are some critical issues to be considered when undertaking action for supporting this transition. These include the speed of transitions across different sectors and the overall economic system, the price of different energy services (including cost of fuel and technologies), any shocks that may influence the energy system, potential benefits to stakeholders that are impacted by the energy transition, the role of different stakeholders (emphasizing the role of the government to regulate and energy companies and externalities), impacts of the transition to different industries (both in terms of benefits and threats/risks) and the related societal transformations. Significant importance is also placed on the uptake of technologies and the increased electricity/energy consumption. All of these elements are also involved in the current energy transition, with one important difference – the effort put in improving energy efficiency and thus decreasing energy consumption.

VIDEO 1.3.2 – COLLECTIVE ACTIONS AND SOCIETAL TRANSITIONS

The energy transition can easily be regarded as a societal transition, considering the areas of our modern societies that will be impacted and transformed – from utilizing renewable energy technologies to power the industry and our society and keep us mobile to warming and cooling our homes and workplaces, as well as enabling consumers to actively participate in production and consumption across different scales in the system. New technologies allow for new energy-related behaviors to emerge, enabling citizens to take direct action to support the transition. But what else is needed to effectuate this societal transition? To answer this question, we turn to historical examples of large-scale societal change, not necessarily related with energy topics. Such examples in which citizens took the center role in bringing that change may offer us great insight in 'what' and 'how' were things changed due to the collective action of citizens. For this reason, we choose two examples: i) the story of tobacco in the US, and ii) the American Civil Rights Movement.

These past collective actions bring valuable insights that may be applied to the energy transition context, as they show the different transformation pathways through which change happens at large scale. While tobacco's story points towards the need of a positional leadership as a crucial element for imposing control measures on an incumbent source of power and for influencing the social norms, the American Civil Rights Movement reveals the role and importance of small-scale collective actions and community leadership for introducing legislation and bringing the needed social change. These collective actions are also centered around different resources – cigarettes as a tangible product, and justice as a non-tangible resource. As the low carbon transition has elements from both collective actions, meaning that both positional or legislative support as well as changing people's norms and behavior is needed, the insights from the analysis may be related not only to the use of technology and the related practices, but also to the justice elements found within the changes that need to be carried in the future.

5.2 Module 2 – Energy access and energy availability

VIDEO 2.1 – "ASPECTS OF AN INCLUSIVE ENERGY TRANSITION – ENERGY ACCESS AND ENERGY AVAILABILITY"

How is energy access defined by the UN? How is energy availability defined by the UN?

As part of the Sustainable Development Goal 7.1, the United Nations sees the universal access to affordable, reliable, and modern energy services by 2030 as a prerequisite and catalyst for improving the living and working conditions of all the world's people, especially the poorest and most vulnerable populations who lack any modern energy services. Such energy access is integral to the transition to an inclusive, just, sustainable, secure, and net-zero emissions energy system in line with the Paris Climate Agreement.

Energy availability relates to energy becoming widely available, especially in poorer countries. That availability also relates with having different energy types and sources. In poorer countries, energy availability has begun to accelerate, energy efficiency continues to improve, and renewable energy is making impressive gains in the electricity sector.

How do these concepts relate to the need and concerns of the energy transition?

One of the goals of the energy transition is to ensure universal access to affordable, reliable, and modern energy services, considering the principle of 'leave no one behind'. Transitioning towards a just, inclusive and sustainable system directly relates to allowing everyone to participate in a system which is built by considering people from different walks of life. Moreover, decarbonizing our societies must be underpinned by renewable energy technologies that will increase energy availability and will improve the overall energy mix of different countries, both developed and developing.

VIDEO 2.2 – ENERGY AS A SYSTEM – INTRODUCTION TO SYSTEMS THINKING

How is energy a system?

If we take a macro perspective to observe our world system, we will see that energy is the connecting tissues of all related subsystems. Energy is contained within all environmental systems and processes; energy in the form of solar radiation and gravitational attraction is what enables life on this planet. Zooming in, we can also define energy to be a system – depending on the energy source, energy is transformed through different processes in order to power our modern societies. In simple terms, energy as a system connects different societal and environmental building blocks and provides the driving force of our modern ways of life.

How is energy related to other systems?
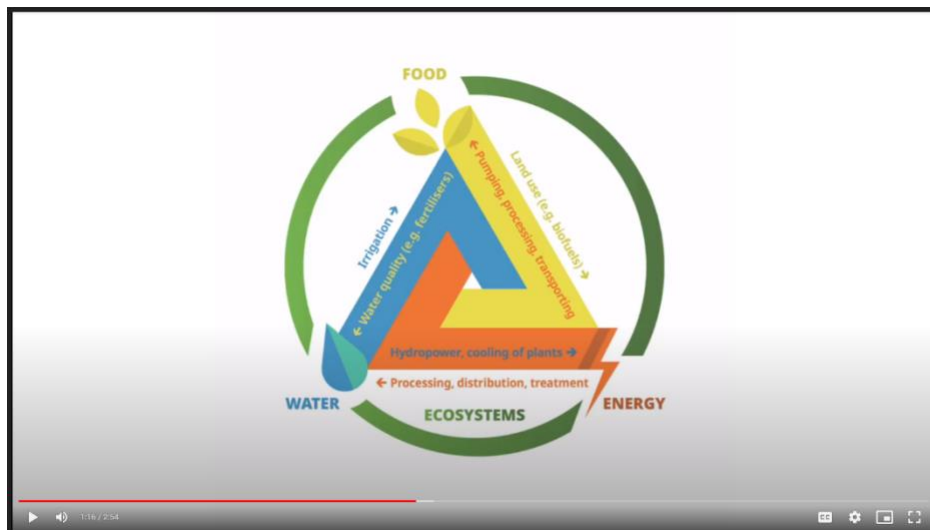
As a system that transforms different types of energy sources into a usable form of energy that gives us sustenance, energy as a system is closely related with other world systems. Two of the most important relations of energy with other such systems is encapsulated within the energy-water-food nexus. Energy in different forms is needed in all aspects of our existence – from having access to clean and fresh water, to being able to grow and transport food across vast supply chains. In fact, the energy-water-food nexus shows the interconnectedness of three important systems that sustain life on our planet, in which energy acts as the input resource.

What are the various scales that are relevant to an energy system?

An energy system is a complicated technical network that connects different sectors, societal levels and types of consumers within and outside of national borders and geographical regions. Such a complicated system is composed of different elements and subsystems, and any analysis relates to setting some boundaries of the system to easily represent the components. When it comes to the different scales of the energy system, the 'top down' perspective enables us to understand that the European energy system is composed of different national systems composed of different national sectors. From the 'bottom up' perspective, the analysis begins with the energy devices and appliances used in one household, through the neighborhood and municipal scale.

How does this link to design thinking?

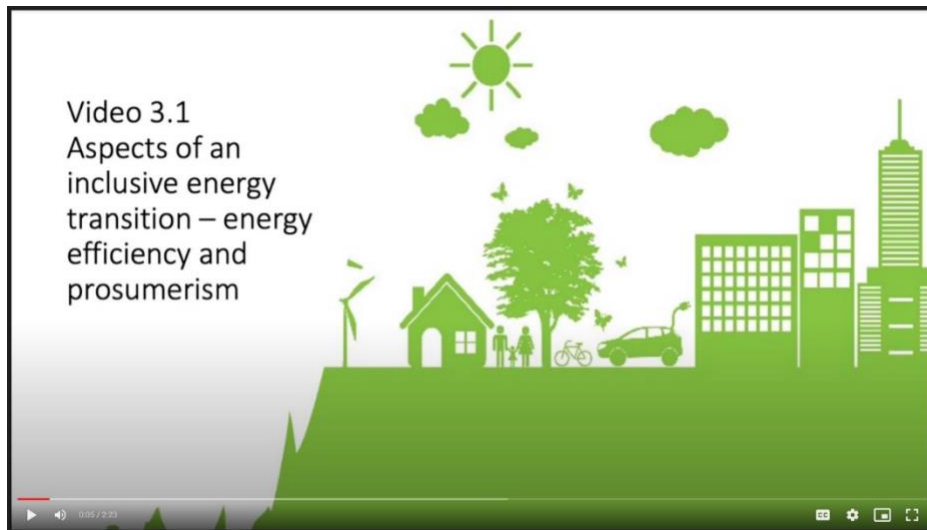Interactive element: How does energy link to other issues in your community?

VIDEO 2.3 – ENERGY CITIZEN HIGHLIGHT VIDEO

Showcase of a local project focused on energy poverty and fuel access (Ireland? Africa?)

5.3 Module 3 – Energy efficiency and prosumerism

VIDEO 3.1 – "ASPECTS OF AN INCLUSIVE ENERGY TRANSITION – ENERGY EFFICIENCY AND PROSUMERISM"

What role does consumption play in the energy transition?

Transitioning away from fossil fuels requires the uptake of renewable energy technologies, investing in energy efficiency measures as well as modifying our current consumption behavior. Technical advancements allow for improving efficiency and decreasing consumption while increasing the comfort and securing the needed reliability of the energy system. Consumption plays an integral part of the transition – changing the consumption will support and speed up the transition, enabling us as end users to retain and advance our standard of living. However, influencing consumption is not an easy job, nor can it be done quickly.

How do energy behaviors impact the effectiveness of energy efficiency measures?

Energy behavior is often characterized as a set of individual actions that influence energy consumption and production. By understanding the interaction between human behavior and the physical variables of buildings they occupy and the technologies they utilize, we can untangle the complex relationships affecting energy use and get a clearer idea where energy and emissions savings can be made. Understanding the energy behavior is crucial for developing the correct efficiency measures that will provide the largest benefits on the long run. This means that the 'right' mix of policies, technologies and behavioral changes have the greatest potential for emissions abatement.

But what about prosumerism, what does it mean?
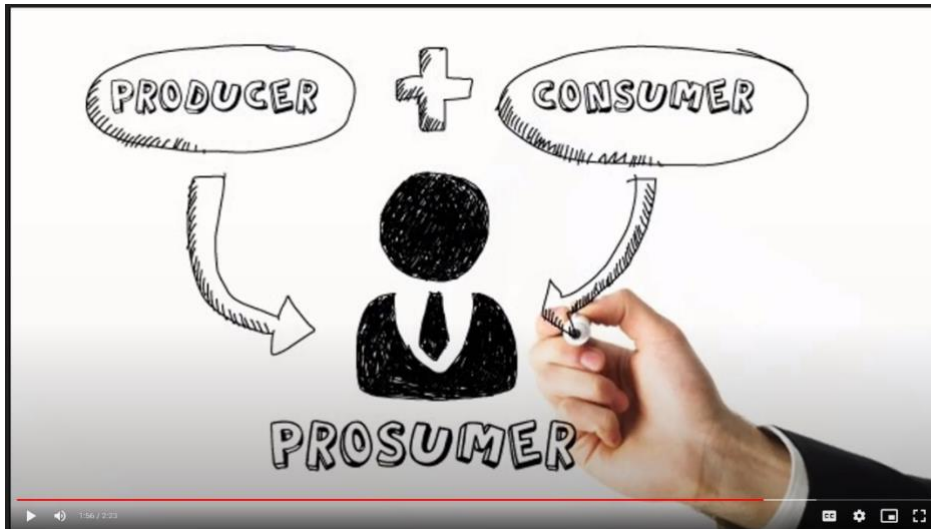
Simply put, a prosumer is someone who both produces and consumes energy – a shift made possible, in part, due to the rise of new connected technologies and the steady increase of more renewable power like solar and wind onto our electric grid.

VIDEO 3.2 – ENERGY CITIZEN HIGHLIGHT VIDEO

1. Showcase of a local project focused on energy efficiency
2. Showcase of a local project focused on energy poverty
3. Showcase of an ENCLUDE Academy mentor

5.4 Module 4 – Energy affordability and renewable energy

VIDEO 4.1 – "ASPECTS OF AN INCLUSIVE ENERGY TRANSITION – ENERGY AFFORDABILITY AND RENEWABLE ENERGY"

What role do renewable energies play in the energy transition?

Addressing climate change requires us to decarbonize the energy system by 2050. The US, Europe and China have committed to net zero or carbon neutrality by mid-century. Other countries are following suit. Research indicates a continued transition to renewable power generation worldwide in the coming three decades, with shares of solar PV and wind growing especially rapidly. Given the growth in electricity demand and the planned shift to renewable power, a massive expansion of clean power generation and infrastructure planning will be needed. The related investments will be huge, and it is critical to ensure that the infrastructure rollout speed corresponds with the needs of the energy transition.

How does the affordability of new technologies affect the role that renewable energy plays in a new energy system?

The uptake of renewable energy technologies is directly related with their costs. Research around the world indicates that the cost of renewable power technologies has rapidly decreased in the latest decades, with solar PV and onshore wind costs dropping by around 80% and 40% respectively in the last decade. Such decrease in cost makes the uptake of these technologies techno-economically feasible across different scales and sectors, speeding up the transition away from fossil fuels.

What are different forms of energy citizenship that has taken place that have benefited from renewable energy?

Energy citizenship can have different forms, from technology-related types to deliberation and consultation processes within a group of citizens. The decreasing costs of renewable energy technologies allows those forms of energy citizenship that rely on some of these technologies to decrease their operational costs and make their activities more relevant. In fact, energy citizenship forms that utilize some form of renewable energy technology usually focus on providing heat, producing electricity or a combination of the two, both in terms of individual as well as collective use of some technology.

VIDEO 4.2 – ENERGY CITIZEN HIGHLIGHT VIDEO

Showcase of a local project focused on energy communities

5.5 Module 5

VIDEO 5 – "WHAT IS AN INCLUSIVE ENERGY TRANSITION FOR YOU?"

A showcase of the participants of the ENCLUDE participants through short interviews

VIDEO 6 - FINAL OUTPUT FOLLOWING THE CONCLUSION OF THE ENCLUDE ACADEMY – SHOWCASE OF ALL PROJECTS CREATED WITHIN THE SCOPE OF THE ENCLUDE ACADEMY

6 Annex

List of participating NGOs and other organizations

Name of Organization	Type of Organization	Country
Sustainable Cluj (Clujul Sustenabil)	NGO	Romania
TNO - Netherlands Organization for Applied Scientific Research	NGO	Netherlands
AMS - Amsterdam Institute for Advanced Metropolitan Solutions	Research Institute	Netherlands
Dock	Social Services Organization	Netherlands
MABS - Money Advice and Budgeting Service	Independent Service Provider	Ireland
Midlands Warmer Homes	Company	Ireland
Southern Regional Assembly	Regional Assembly	Ireland
Achill Community Futures	Community Energy Group	Ireland
Cork City Council	Municipality	Ireland
Energy Action	Charitable organization / Non-profit organization	Ireland
Sustainable City - Cities Network for Sustainable Development and Circular Economy	Municipalities Network	Greece
INZEB - Institute of Zero Energy Buildings	NGO	Greece
Macedonian Anti Poverty Platform	NGO	North Macedonia
Rural Coalition	NGO	North Macedonia
Le monde des possibles	NGO	Belgium
EPV - Energies Citoyennes en Pays de Vilaine	Association	France
Energy Cities	Association	EU Association
CSDAC - Climate and Sustainable Development Action Club	Regional Network	Niger

PARTICIPANTS

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