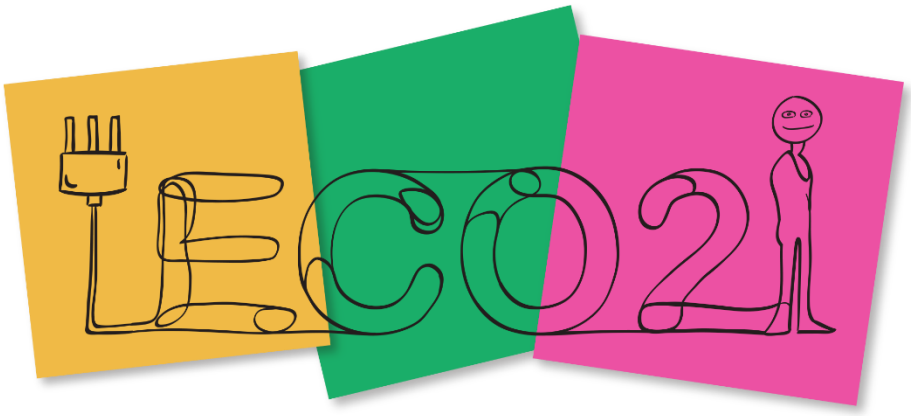

Grant Agreement no. 784988
Activity acronym: ECO2

Activity full name:

Energy Conscious Consumers

Deliverable 8.4

Documentation of policy outreach seminars

Date of submission of deliverable: August 2021

Start date of Activity: 01-03-2018 Duration: 42 months

Authors: Desislava Asenova, Blagovesta Chonkova, Zoya Damianova (ARC Fund)

Organisation name of lead beneficiary for this deliverable: Applied Research and Communications Fund (ARC Fund)

This project has received funding from European Union's Horizon 2020 research and innovation programme under grant agreement No 784988.

Consortium partners

Fonden Teknologirådet – Danish Board of Technology Foundation (DBT)
Arnold Nielsens Boulevard 68E, 2650 Hvidovre – Denmark,
Contact: Lars Klüver lk@tekno.dk www.tekno.dk

Hebes Intelligence Single Member (HEBES)
130, Athens 144 43 –Greece
Contact: Sotiris Papadelis spapadelis@hebes.io http://hebes.io

Sinergie Società Consortile a Responsabilità Limitata (SINERGIE)
Martiri Di Cervarolo 74/10, Reggio Emilia, 42122 –Italy
Contact: Giovanni Pede
innovazione@sinergie-italia.com www.sinergie-italia.com

Helsingin Yliopisto – University of Helsinki (UH)
Fabianinkatu 33, 00014 Helsinki – Finland
Contact: Nina Kahma nina.kahma@helsinki.fi https://www.helsinki.fi/fi

Associação Portuguesa para a Defesa do Consumidor (DECO)
Rua da Artilharia Um, 79 - 4º
1269-160 Lisbon -Portugal
Contact: Ferdanda Santos fsantos@deco.pt https://www.deco.pt/

Strategic Design Scenarios (SDS)
Rue Dautzenberg, 36-38, BE-1050 Brussels - Belgium
Contact: François Jégou francois.jegou@icloud.com
http://www.strategicdesignscenarios.net/

Applied Research and Communications Fund (ARC Fund)
1113, Sofia 5, Alexander Zhendov St. Bulgaria
Contact: Zoya Damianova
Zoya.Damianova@online.bg http://www.arcfund.net/

Asociacija Žinių Ekonomikos Forumas (KEF)
J. Galvydžio g. 5, LT-08236, Vilnius – Lithuania
Contact: Arminas Varanauskas arminas@zef.lt http://www.zef.lt/

University College Cork, National University of Ireland, Cork (UCC)
Western Road, Cork – Ireland
Contact: Stephen McCarthy Stephen.mccarthy@ucc.ie
http://www.ucc.ie/

Disclaimer:
ECO2 is a Horizon 2020 Project funded by the European Commission. The views and opinions expressed in this publication are the sole responsibility of the author(s) and do not necessarily reflect the views of the European Commission.

Table of Contents

1. ECO2 project overview

Energy Conscious Consumers (ECO2) is a project which commenced in March 2018 and is funded under Horizon 2020. Nine EU partner organisations are implementing the project, representing Belgium, Bulgaria, Denmark, Finland, Greece, Ireland, Italy, Lithuania, and Portugal.

The main objective of ECO2 project is to facilitate a large number of consumers throughout Europe to become more conscious about their energy consumption and improve the energy efficiency of their homes. Since consumers play a key role in the transition processes towards sustainable energy, ECO2 both engaged and empowered them by providing knowledge on how to consume energy more responsibly in their everyday lives. To achieve this, ECO2 consortium developed a large-scale, multi-language and action-oriented online learning platform (Act4Eco) that provides consumers with information and advice on how to reduce their energy consumption and CO_2 footprint by implementing various solutions in terms of home improvements and implementation of energy-saving good practices.

Act4Eco platform delivers "Actions" on five important thematic areas:

i. home improvements in terms of energy efficiency,
ii. energy smart equipment,
iii. managing energy consumption,
iv. sustaining efficient energy use (rebound effect),
v. and producing own energy at home.

To ensure the trustworthiness of the information presented on the platform, the ECO2 consortium validated its content with energy experts and tested it with external users before opening it to the wider public.

In addition to the Act4Eco platform, the ECO2 project worked on co-creation of policies, innovations and designs, the results of which were communicated to policymakers and innovators through nine national and two EU-level policy seminars.

The continuation of the ECO2 project and namely of its main outcome – the Act4Eco platform – beyond the life-time of the project will be ensured by the ECO2 Community of National Nodes, who will be responsible for maintaining and updating the content of the platform as well as for uploading additional resources on the platform.

2. Policy outreach seminars - methodology

In order to get into a direct dialogue with stakeholders and policy-makers, 11 policy outreach seminars took place online in the last semester of ECO2 implementation. In May – June 2021 nine national policy seminars were organised by the ECO2 partners, followed by two EU-level seminars in mid-July and the end of August 2021. The policy seminars provided a platform to more than 200 experts to deliberate on existing policy instruments, specify challenges to the selected national themes, and identify policy options for promoting behavioural change among consumers towards improved energy efficiency. Workshop participants were representatives of policy-makers (incl.

municipalities), energy agencies, consumer organisations, other NGOs, academia and research, and business.

Each national policy outreach seminar focused on two main themes as follows:

Belgium: *Produce your own energy* and *Manage your energy consumption*

Bulgaria: *Produce your own energy* and *Improve your home*

Denmark: *Improve your house* (extended to also cover coop housing and rented housing) and *Sustain efficient energy use* (extended to also evolve efficient energy use)

Finland: *Manage your energy consumption* and *Sustain efficient energy use*

Greece: *Manage your energy consumption* and *Sustain efficient energy use*

Ireland: *Produce your own energy* (focusing on the introduction of home micro-generation of renewable energy within Ireland) and *Become a smart consumer* (focusing on optimal digital energy controls e.g. smart devices, IoT)

Italy: *Improve your home* and *Produce your own energy*

Lithuania: *Become a smart consumer* and *Produce your own energy*

Portugal: *Support and sustain efficient energy use* and *Manage your energy consumption*

The agenda of the national seminars was focused on two major issues 1) the efficiency of the national/local level energy policy interventions in changing consumers' behaviour towards increased energy efficiency and related challenges; and 2) measures to increase the impact of energy policy interventions on consumers' behaviour towards energy efficiency and initiatives at the EU level. These were deliberated in each national seminar from the perspective of the two chosen themes. During the seminars the participants had the opportunity to discuss and identify challenges and to formulate policy recommendations for addressing the identified challenges. Thus each national seminar delivered a list of challenges and policy recommendations, all of which were summarised in a report, and presented during two EU-level policy seminars. Participants had the opportunity to first briefly elaborate on and validate the challenges identified during the national level seminars and then to discuss in more details how these challenges could be addressed by policy. During the second EU policy seminar the participants focused on identification of policy options and formulation of policy recommendations for measures to stimulate consumers to take actions for increasing the energy efficiency of their homes and consuming less energy.

3. Reports on the national-level and EU-level policy outreach seminars

After each national policy outreach seminar, the ECO2 partner in charge produced a summary report on the discussions. Thus, the ECO2 consortium ended up with nine national summary reports. One summary report presenting the results from the two EU-level policy seminars was produced as well. This chapter is a collection of all reports from the national policy outreach seminars.

1) National report: Belgium

Partner: STRATEGIC DESIGN SCENARIOS (SDS)

Date of the seminar: June 17, 2021

Thematic focus of the seminar*:

- Produce your own energy
- Manage your energy consumption

Overall number of participants (in all events, if you have organised more than one): 17

Types of stakeholders present at the final seminar and interviewed in advance:

- Policy-makers
- Academia
- NGO
- Business

Agenda of the national event:

The national event took place in several stages. Initial interviews of one hour each were conducted with 5 participants (municipality of Uccle, EcoBuild, Soltis and Homegrade) in order to understand the policy instruments they benefit from or have created and the different challenges they face in this regard. These results were used as material for the final event (workshop) with 12 participants.

Final event (1h online multi-stakeholder workshop)

Phase 1/ Introduction, presentation of the ECO2 project and ACT4ECO platform by SDS (ECO2 partner) – *10 min*

Phase 2/ Four presentations of policy instruments and their challenges as insights for the group activity – *20 min*

Phase 3/ During the presentations, the facilitator of the event wrote down the challenges shared by the speakers on a virtual white board – *in parallel of phase n°2*

Phase 4/ Q&A session – *5 min*

Phase 5/ WORKSHOP / all participants were invited to suggest recommendations or solutions to the challenges identified – *15 min*

Phase 6/ Conclusion – *5 min*

Note: Some participants stayed on the Miro Board to complete their suggestions and recommendations for approximately 30 more minutes.

* Each of the partners discussed two out of the five thematic areas on the Act4Eco platform (www.act4eco.eu).

General comments:

Initial interviews were very useful in identifying key areas of intervention and in selecting relevant speakers for the final event. The final event was very successful as the presentations were very insightful and the expertise of each participant helped to generate relevant recommendations.

Overall, there was a clear push for policies related to social norms, a clear framework for companies to experiment with business models regarding demand-side flexibility, clear regulations for energy communities and simplification of subsidy application processes.

Summary of the discussions during the workshop

Session 1 *Insights about policy instruments and challenges*

Feedback systems

The current system of feedback on energy consumption (energy bills and information on kWh consumed) available to households is not sufficient to make them aware of their energy consumption. There should be meaningful systems to communicate this to households.

Citizens are constantly put in a passive role when it comes to energy consumption management.

Households cannot see how their energy use behaviour translates into electricity consumption and therefore cannot implement new personal energy use practices.

Grants

Citizens are not aware of all the services offered by the government (coaching, financial assistance programmes, etc.). There is a serious difficulty in engaging and reaching out to citizens, even to offer support.

Some citizens discover that they were eligible for certain grants long after they had carried out renovations to their homes. The financial support could have helped them to make further improvements of their home or to make better choices.

There is a lack of proactive and direct measures to protect vulnerable consumers from energy poverty (for e.g. municipalities that directly suggest grants for renovation for specific households).

Some grants are very conditional and the forms are complicated for consumers to understand. This discourages people from applying for them, and therefore from taking part in any improvement or renovation activity.

Communication

Public information efforts on energy efficiency measures are mainly focused on appliances (energy labels). The same efforts should be made in other areas such as the energy consumption profile, regular home audits, etc.

Demand-Side Flexibility (DSF)

There is no EU level framework to support Demand-Side Flexibility (DSF).

Price signals may not be clear or immediate enough to incentivise a change in behaviour of consumers.

There is no clear business model for the consumer to take part in flexibility services.

Social norms

Current social norms about energy consumption lead to excessive use of it (for e.g. taking hot showers daily, having 2 TV sets, maintaining home temperature at 21° are all considered normal).

As energy is mainly supplied to and metered for households, not neighbourhoods or communities, it is not possible to use normative and social pressures. Current policies to reduce energy consumption are aimed at individuals/households, whereas behavioural change can easily be achieved if one is involved in collective and participatory projects and/or if one is a producer (e.g. energy communities).

Session 2 *Recommendations to improve energy policies*

A systemic approach in designing energy policies is important: users, energy demand, social norms, appliances, infrastructure, existing policies, etc. should all be considered when designing energy policies.

Increasing energy prices is not the appropriate policy solution to encourage citizens to reduce their energy consumption, as it would lead to an unethical and ineffective approach to tackling climate change.

Municipalities could assume responsibility for bringing local residents together to start building energy communities.

Simplify the application procedure for renovation subsidies. Perhaps even reverse the process - it is the public administration that proactively suggests the right kind of incentives to households.

Consumers should be able to claim refunds (limited in time) if they discover that they were entitled to certain subsidies only after the renovation or action done. They should use the refunded amount for further renovation or energy efficiency improvements.

Encourage business model innovation in the way suppliers interact with consumers (e.g. treating energy supply as a service and not as a commodity).

Allow individuals and companies to experiment with new solutions like energy communities or in demand-side flexibility (e.g. by creating a regulation-free zone).

Smart meters, IoT and ICT have the potential to overcome the lack of visibility of energy consumption. Accelerate the deployment of smart meters, home automation systems and smart grid management systems.

Involve prosumers more actively in the active management of energy consumption and even in the governance of the grid.

At EU level, there should be a budget for research and investment in technologies that make consumer behaviour visible.

Social norms play a key role in energy consumption behaviour and patterns. It is essential that policy makers include the study of the influence of social norms on energy consumption in a citizen-centred approach.

Policy makers should regulate and enforce restrictions on advertising that is detrimental to climate change.

Make the scale of household carbon emissions visible at the neighbourhood level to all consumers.

2) National report: Bulgaria

Partner: Applied Research and Communications Fund (ARC Fund)

Date of the webinar: June 4, 2021

Thematic focus of the webinar*:

- Produce your own energy
- Improve your home

Overall number of participants (in all events, if you have organised more than one): 23

Types of stakeholders present at the webinar:

- Policy-makers
- Academia
- NGOs

Agenda of the national event:

14:30 – 14:35 Welcome

14:35 – 14:50 Presentation of the ECO2 project and aim of the policy seminar

14:50 – 15:10 Introduction to the topics "Produce your own energy" and "Improve your home" – existing European and national policies

15:10 – 16:00 Session 1: Measures for energy efficiency of households and their impact on consumer behaviour – challenges (*Discussion and key messages*)

16:00 – 16:10 Break

16:10 – 17:00 Session 2: How to increase the impact of energy efficiency measures on households' consumer behaviour? What should be done at EU-level? (*Discussion and key messages*)

17:00 – 17:30 Closing session: Presentation of common initiatives and concluding discussion (*Discussion and key messages*)

General comments:

It was a 3-hours event organised in the Webex platform. The agenda followed three main sessions with discussions and formulation of key messages. A virtual whiteboard tool was used to collect ideas of participants on the topics discussed in each session. In the beginning of each session participants were given five minutes to write down their thoughts which were later on discussed in more details.

* Each of the partners discussed two out of the five thematic areas on the Act4Eco platform (www.act4eco.eu).

The focus of the meeting were the topics for households producing own energy from renewable sources and renovation of homes to improve energy efficiency, which are two of the topics presented on the Act4Eco platform. During the meeting, current European and national policies related to the topics under scrutiny were presented and discussed. As a result, a list of challenges to the sustainable impact of energy efficiency measures on consumer behaviour was developed along with a list of recommendations addressing these challenges. At the end of the meeting, additional initiatives related to sustainable energy consumption by households and energy poverty were presented.

Participants in the meeting agreed that although the topic of producing own energy by households is not yet widespread in Bulgaria, there is a tendency for it to become more relevant, with a lot of work to be done in terms of legislation and practice, to make the measures more accessible to households. With regard to energy renovation of the home, it was shared that more measures and actions are needed there, despite many years of experience in the country. Various challenges and recommendations were identified and formulated on both topics.

Summary of the discussions during the workshop

Session 1 *How effective are national/local level energy policy interventions in changing consumers'/citizens' behaviour towards increased energy efficiency? Where are the challenges?*

Improve your home – challenges:

- The measures for energy renovation at households' level must be supplemented with the so-called "soft measures" to raise households' awareness of how to save energy.

- Lack of accountability and public information measuring the impact of the energy efficiency measures - people see only the beautiful "packaging" of the building, but have no idea about the saved emissions, increased housing comfort, etc.

- Lack of varied financial instruments for different groups of households.

- Many of the funding schemes do not allow recipients to choose the equipment supplier. This discourages some applicants because they prefer to get equipment with a better quality even if it means to pay extra money.

- Lack of system solutions renovation – households are changing windows, putting insulation but rarely take measures with regard to changing the systems (heating, cooling, etc.)

- Lack of coordination between different policies – for example, synergy between air pollution policies and energy efficiency policies.

- The 100% grant provided by the renovation programmes has a negative effect – it makes it much more difficult to motivate and mobilise households to invest their own capital in renovating their homes.

Produce your own energy – challenges:

- It still needs to be clarified to what extent households are allowed to use the energy they produce for their own consumption, what happens to the surplus energy produced, whether it can be returned to the grid and under what conditions, whether it can only be used for own consumption or for sale, respectively.

- Lack of a net metering regulatory framework in Bulgaria. Such measures have been introduced in some EU countries and have proved to work for households, so these can also serve as a good practice.

- Low energy price in Bulgaria in comparison to other EU countries – it demotivates people to start producing their own energy.

- Low awareness level and lack of individual consultation opportunities for citizens and households who are willing to start producing energy themselves.

- Lack of funding schemes.

- Regarding multi-family buildings – it is impossible to fairly distribute the produced energy for consumption to the co-owners. It can either be used for the building common areas (where consumption is not high) or sold to the grid.

- Energy storage is an issue.

Session 2 *How to improve the impact of energy policy interventions on consumers'/citizens' behaviour towards energy efficiency? What could be done at the EU level?*

Improve your home – recommendations:

- A large information campaign is needed to show the impact of energy measures - saved emissions and increased housing comfort.

- 100% support for energy poor households.

- Tax incentives for those that make energy renovation that leads to a higher energy class of the building/apartment.

- Integrated policies energy-climate.

- Coordination between individual EU programmes (Horizon 2020, Interreg Europe, etc.) at the design stage of the programmes – science based policy making.

- Utility companies to implement/initiate projects for households, to build capacity in this direction. To establish offices/units in these companies that provide assistance to energy poor households for increasing the energy efficiency of their homes through renovation measures.

Produce your own energy – recommendations:

- Establish one-stop shop counters at municipal levels, where households can get personalised advice on how to make their home energy efficient or what is the procedure for installing RES, etc.

- Funding incentives must be clearly targeted at citizens, not companies.

- Encourage energy cooperatives.

- Focus on producing energy for covering households' own needs/consumption and not turning and selling seasonal surplus, and not turning homes into industrial buildings (by producing only for selling).

- Introduce mitigating measures to the construction and connection regime in the cases when produced energy is used for covering own needs, not for selling.

- Reduce subsidies for fossil fuels and start providing such for energy from RES.

- Develop an easy-to-use guide, presenting steps and possible challenges and solutions that could be faced by households that decide to start producing energy from RES for covering their own needs or for selling it to the grid.

3) National report: Denmark

Partner: Fonden Teknologirådet – The Danish Board of Technology

Date of the seminar: May 31, 2021

Thematic focus of the seminar*:

- Improve your house (extended to also cover coop housing and rented housing)
- Sustain efficient energy use (extended to also evolve efficient energy use)

Overall number of participants (in all events, if you have organised more than one): 12

Types of stakeholders present at the seminar:

- Policy-makers
- Academia
- NGOs

Agenda of the national event:

30 minutes: Introduction by DBT

60 minutes: Hindrances for energy conscious behaviour. Group work in two groups

10 minutes: Break

60 minutes: And what can be done politically? Group work in two groups

20 minutes: Plenary debriefing – the most important messages

Three resources for inspiration were sent out in advance:

- Link to ACT4Eco.eu, presented as a platform, that helps increase the level of know-how, so that the threshold for action and changed behaviour can be lowered.
- The report from the Danish Citizen Assembly on Climate rapporten fra Klimaborgertinget, in which the citizen points out a range of options for supporting citizens in changing behaviour.
- Link to a 2012 POST Note from the Parliamentary Office of Technology at the UK Parliament, in which a "Intervention ladder" for behaviour change interventions is presented.

An extended version of the Intervention Ladder was used in the online brainstorm system Mural as a template for identifying and structuring challenges and policy options

General comments:

A very fruitful 3-hour seminar. Agreement during debriefing that policies for changing behaviour is a field that is under-prioritised and should be discussed and developed much more.

* Each of the partners discussed two out of the five thematic areas on the Act4Eco platform (www.act4eco.eu).

Agreement that “soft policy measures”, such as public education, environment education, support for local self-organisation, information platforms/campaigns etc., are proven by experience and scientifically for their effectiveness but most often ignored politically because it is difficult to measure the effect administratively and in energy/climate modelling.

Consensus that behaviour policies will be crucial for reaching the 100% reduction targets.

Summary of the discussions during the workshop

Session 1 *The challenge: Hindrances for citizens to develop and maintain a good climate/energy behaviour (with a special focus on the two thematic focuses):*

- The first steps are the most difficult – then momentum in behaviour change happens.
- Develop new values – respect the “we” – reinvent old values – co-responsibility as a value; Local climate communities to fit local action to local values.
- Coop housing and rented housing improvement have many structural challenges for making change.
- Lack of policy action is demotivating.
- Climate crises could be communicated as Covid crisis: We have to solve it together.
- Resistance against sustainable energy in landscape. Too much focus on commercial actors – too little on local ownership.
- Families/homes are different, and solutions should be given with respect to that.
- Energy savings and CO2-reducing living (e.. food) are up against fashion, aesthetics, habits

Session 2 *Policy option: What can, in terms of policy actions, be done to meet the challenges from session 1?*

- First steps: Provide free action plans for improvement of houses; “Green agents” locally that concretely helps citizens take the first steps; “Green curriculum” in basic schools – to make children “family green agents”; Tax refund for energy advising costs; Regulate against fossil fueled heating.

- Values and local action: Public mini-funding for local climate communities – provide them templates/workflows/consultants for development of action plans; Local Climate Citizen Assemblies; Use regional development funds for climate projects, consultants, action planning locally.

- Coop/rented housing: Prioritise part of renovation funds for these houses because of large potential; Prohibit renting out apartments if the house has an energy tag below a certain threshold; Direct communication to owners of low-efficiency houses with information about advisory options; Let public Utilities Organisations take over energy systems in coop housing over a certain size; Change civil servant culture – local energy communities are effective and should be supported, even if the effect is hard to document.

- Consensus political signals that climate is THE challenge in this century; Political courage to show leadership and take unpopular decisions, and to be in front by accepting that the transition will have costs on certain parameters.

- Political communication crucial: This is a climate crisis situation and it demands extraordinary action; Citizens will have to play a major role.

- Treat prosumers close to as if their energy production was energy savings; The benefit of investing should be mentionable; Use all needed means to provide citizens economic co-ownership to the sustainable energy system; Compensate house owners close to sustainable energy installations by giving them a share of the ownership to it.

- Differentiate subsidies to support those who need them the most; Provide loan options for house renovation of dwellers can't afford it themselves, and get it paid back when the house is sold; Educate energy advisers to adapt their advise to the concrete situation for the single family.

- Update the Public Service concept for all information providers that receive public funds, to include information duties about energy and CO_2 savings; Less cake-baking competitions in TV and more about sustainable food and living; Involve schools and educations in communication about sustainable habits and living.

4) National report: Finland

Partner: University of Helsinki (UH)

Date of the seminar: May 20, 2021

Thematic focus of the seminar*:

- Manage your energy consumption
- Sustain efficient energy use

Overall number of participants (in all events, if you have organised more than one): 20

Types of stakeholders present at the seminar:

- Policy-makers
- Academia
- NGO
- Business

Agenda of the national event:

Title: *Pelit, testit ja suora palaute: Miten kuluttajien energiakäyttäytymiseen voidaan vaikuttaa? [Games, tests and direct feedback: How can we change consumer energy behaviour?]*
9:00 Introduction to the event, University of Helsinki

9:10 What feedback? Where? And what does it lead to?, University of Helsinki

9:40-10:00 Discussion in groups + summary

10:00-10:10 ACT4ECO -e-learning platform to enhance energy consciousness- how can national context be taken into account in planning the contents?, University of Helsinki

10:10-10:20 Sustainable lifestyles – carbon footprint plans and how everyday changes in sustainability are made visible- why is it worth it? Sitra)

10:20-10:30 Joustatko? - game on flexible tariffs. How can energy awareness be enhanced through a board game? (HEUREKA science park)

10:30-11:00 Discussion in groups + summary

General comments:

What could be done on EU-level was really covered in the group discussions. This is in part because of the participants (bias for energy awareness promoting bodies and researchers) and the topic of the event: managing energy consumption (with the help of services and digital tools).

* Each of the partners discussed two out of the five thematic areas on the Act4Eco platform (www.act4eco.eu).

Summary of the discussions during the workshop

Session 1 *How effective are national/local level energy policy interventions in changing consumers'/citizens' behaviour towards increased energy efficiency? Where are the challenges?*

National and local level energy policy interventions for changing consumer behaviour towards increased energy efficiency have become mainstream over time in Finland. The means for offering consumers feedback have become better and faster. However, now the challenge is not the scarcity of feedback for the consumer, but rather difficulties the consumers experience in understanding the knowledge that is being provided for them.

Specific challenges are the unfamiliarity of the measures presented in the electricity bill (kWh), the high number of gadgets that are being used sporadically in the households and energy use occurring from a combination of active and passive consumption. Therefore, the connection between energy bill and energy use remains a mystery for the consumer.

In Finland, there are several services and digital platforms that are targeted to the consumers to enhance energy awareness provided by utility companies. These make comparisons to similar households possible (however, for some consumers these create unnecessary guilt which may not result in better consumption decisions).

The discussion on the challenges underlined following points: 1) Energy consumption is acomplex issue, and therefore communicating relevant information to the consumers is difficult, 2) Recognising the target groups for different interventions is sometimes a challenge, and often the information is targeted for energy-savvy consumers which leads to reaching only a small share of consumers, 3) Choosing the right communications channel can be a challenge for organisations promoting energy awareness, and 4) energy consumption is routinely, and a significant challenge is to be able to design interventions with long-lasting effects.

Session 2 *How to improve the impact of energy policy interventions on consumers'/citizens' behaviour towards energy efficiency? What could be done at the EU level?*

The challenges that were discussed in the area of "Manage your own energy consumption" spurred discussion on what could be done differently in energy awareness interventions. The participants suggested that:

- Specific attention should be paid to **creating meaningful contents** for the consumer. The participants suggested that meaningfulness could be achieved through conversion of kilowatts to euros (for most consumers), although for some, means of creating meaning can happen through presenting data on carbon footprint.

- In addition to content, for communications it is pivotal to **recognise relevant target groups.** Creating contents for average consumers instead of lead-users can be of value. Rather than **tailoring solutions for masses**, individuality in energy awareness campaigning should be better taken into account.

- Gamification (games and quizzes) can serve as a means for reaching audiences that prefer this kind of communications. Especially games reach young people. As significant disruptions take time to actualise, targeting the ways young consumers think and how they consume can have a great impact in creating consumption change.

- In promoting energy awareness, attention must be given to continuity: how to create solutions that maintain good behaviours in a way that doesn't burden consumers /households?

Participants suggested that all feedback for the consumers doesn't necessarily decrease energy consumption. The participants were unanimous on that small campaigns, pilots, and experiments are the ones that have bigger effect to consumption, than large awareness campaigns.

- Flexible tariff at the core of smart consumption of energy especially in winter times

- Energy prizing could be progressive (for those consuming little, electricity would be much cheaper)

- Entertaining communications, c.f. forecasts about flexible prizing "Lots of wind in southern Finland – good time to bake bread"

Suggestions for organisations:

- Examples sorting of waste: the young were at the core in teaching households

- Schools at the core of energy awareness promotion

- All energy awareness promotion must be simple, fast, easy and interesting

5) National report: Greece

Partner: HEBES INTELLIGENCE

Date of the seminar: June 7, 2021

Thematic focus of the seminar*:

- Become a Smart Consumer
- Improve your home

Overall number of participants (in all events, if you have organised more than one): 38

Types of stakeholders present at the seminar:

- Policy-makers
- Academia
- Businesses

Agenda of the national event:

Title: *The way towards Energy Efficiency: New Challenges and Opportunities for the "Smart" Energy Consumers*

17.00-17.05: Welcome and Introduction

1st Session: Energy Consumption and New Challenges

17.05-17.20: Energy Policy Goals and the Role of "Smart" Consumers

17.20-17.30: Energy Consumers' Profile, Needs and Rights

Discussion

17.30-17.40 The expectations and the main barriers preventing consumers from actively participating in energy transition.

Break 17.40-17.45

2nd Session: Energy Efficiency-Building the future

17.45-18.00: Empowering Consumers for the Energy Transition: The Actions and Experience of EKPIZO

18.00-18.15 Actions and Tools for Strengthening Energy Consumers' Role and Behaviour: The Goals and Experience of ACT4Eco

Discussion

17.30-17.40 Action proposals and prerequisites for effectively address the impact of the energy transition and meet energy consumers' goals.

* Each of the partners discussed two out of the five thematic areas on the Act4Eco platform (www.act4eco.eu).

General comments

The event, which was attended by over 30 participants, came at a particularly timely moment given that the new national financing programme for the energy renovation of residential buildings, "Energy Savings and Automation for Smart Homes", will be announced at the end of summer 2021. It took the form of a collaborative webinar that included two discussion sessions to allow interaction between the audience and the presenters, and ended almost one hour after the scheduled duration due to the powerful participation of the attendees.

The thematic focus of the webinar was the evolving role of citizens in energy matters and the need to support them to actively contribute to and fully benefit from the energy transition as "smart" energy consumers. As discussed, looking ahead to 2030 and the EU's 2050 sustainability and climate neutrality objectives, we are witnessing a shift away from "passive" to active consumers, who are changing their consumption behaviour and invest in this transition by favouring a more energy efficient lifestyle or even producing their own energy. At the same time, the challenge is to protect all consumer types, in particular vulnerable groups, and guarantee a fair and inclusive transition, while maintaining the highest reliability and quality of energy supply.

Furthermore, discussion considered energy policies that can be adopted in the context of the energy policy debate to build a smart energy system and optimise energy market with a more human-centred approach to embrace and motivate energy consumers towards their new role. On the other hand, great awareness is critical to induce behavioural changes and enhance consumers so that they can fully reap the gains of the energy transition. As agreed, consumers should be aware of the "why" - individual benefits such as lower energy bills, a greater sense of control over their energy consumption as well as collective advantages, such as the sense of contribution in this endeavour - and the "how" of becoming an active energy consumer.

As a general conclusion, in discussing the future prospects of the energy sector, the webinar together with experts from consumer organisations, industry, public entities and individuals, promoted a fruitful dialogue on three main components to behaviour, which have to be considered in any policy or business model involving consumer participation:

1. Motivation – is the behaviour desired by the person?
2. Ability – can the person comply with the behaviour requirement?
3. Opportunity – is the behaviour facilitated or prompted by the environment and external factors?

This kind of analysis and policy orientation constituted the starting point for a more detailed discussion on the utilization of the existing possibilities and the confrontation of the difficulties that prevent Greek consumers from taking advantage of the energy transition. Towards this challenge, innovation, technology and tools such as the ACT4Eco platform, should be also considered as part of the solution to motivate human behaviour as well as promote networking and the exchange of best practices.

Summary of the discussions during the workshop

Session 1 *How effective are national/local level energy policy interventions in changing consumers'/citizens' behaviour towards increased energy efficiency? Where are the challenges?*

Policy framework:

The energy transition has already started in Greece and Greek government has already introduced a set of policy measures to address market access, transparency and regulation, customer protection, supporting interconnection and adequate levels of supply.

However, the energy market legislative framework:

- is characterised as strongly governed by law and regulation/criticised mainly on the grounds of its rampant bureaucracy

- lacks direct social measures to protect vulnerable consumers/incentives to increase awareness and confidence for RES projects both for investors and end consumers,

- needs to further promote awareness campaigns and training in question as horizontal interventions.

Consumers

Greek consumers feel more confident to follow and actively participate in the energy transition and are increasingly becoming active consumers. **However, they**:

- still understand the electricity generation and use as the main activity of the energy sector/ focus mainly on electricity and heat saving behaviours (led lights, reduced use of the heating system, invest ιn efficient appliances or solar water heating systems etc).

- tend to invest in natural gas to support their thermal comfort/more reluctant towards other RES technologies/sustainable behaviour with regard to some resources

- implement some energy-efficiency measures (insulation and/or frames replacement)/ cannot financially afford large scale home improvements

- pay limited attention to hidden features of products or services (e.g. their consumption data/energy bills details/ pre-contractual information – if available and clear)

Barriers:

- Insufficient information/knowledge and low incentives for collecting additional information/Information mainly available via social media.

- The negative consequences of global warming appear very distance compared to cost savings benefits.

- The insufficient knowledge of many actors in the energy market.

- The energy cost (high energy cost/financial barriers)/The cost and availability of energy efficient products

- Biased perception of uncertainty about future framework conditions, such as the price of the energy, their role as prosumers etc)

- Social norms, such as the behaviour of others or trust that they are already familiar with energy efficiency issues/not perceiving other information

- Insufficient incentives to proceed with energy efficiency implementations/behaviours

Session 2 *How to improve the impact of energy policy interventions on consumers'/citizens' behaviour towards energy efficiency? What could be done at the EU level?*

National level

- Active involvement of energy businesses in the energy service market so that they undergo radical structural transformation, adopt a new role and diversify their duties.

- Offer high-quality energy services that presuppose a new solid collaboration between energy market and final consumers.

- Energy-climate targets like decreasing energy consumption, increasing RES contribution to energy and electricity production, reducing greenhouse gases and promoting decentralised community energy production models based on an upcoming economy and production model

- Policy and strategy extension across levels/ starting from national level and reaching local municipal level where they assume the role of the facilitator

- Information/Training/Awareness/Advice on energy saving and supplier switching-Direct the attention of households to subsets of information that is most relevant to them.

- Deeper integration and availability of technology (e.g. smart meters/thermostats/RES technology)

- More direct measures to eradicate energy poverty (e.g. increasing vulnerable households' income) /to motivate towards energy efficiency home improvements (e.g. securing funding from central administration or from national programmes/no need for bank loans to increase buildings efficiency/ eligibility criteria review).

- Specialised policy measures implemented locally and according to each region's particularities rather than in the form of allowances (which alleviate but not eradicate the problem)

- Promote the role of "prosumer"/active consumer by enhancing the concept of energy communities.

- Collaboration among multiple stakeholders (public authorities, energy market, education & school communities, consumers communities etc) and more coordinated actions.

- Grid modernisation and decentralisation

EU level

- Enhance the political and social sustainability of the Energy Union by making its governance more democratic, its financing more efficient and its aim more social.

- Ensure the long-lasting legitimacy of the European energy transition in the eyes of Member States/ development of long-term energy plans relevant to and better embedded in existing national initiatives.

- Securing funding from "Horizon 2020" and other such pilot schemes/ delivering concrete and visible projects showing policy makers and citizens that the energy transition is happening.

- Empower and encourage people to become active, or to produce energy (directly or via local energy communities)/Promote information/training/awareness as the most important form of investment.

- Enhance public investment decisions/ develop a more coordinated approach to boost energy efficiency investment.

- European action plan to eradicate energy poverty moving progressively from palliative to preventive measures, such as dwelling renovation and shaping new behaviors.

6) National report: Ireland

Partner: Business Information Systems (BIS), Cork University Business School (CUBS), University College Cork (UCC), Ireland.

Date of the seminar: May 28th, 2021

The thematic focus of the seminar*:

- Produce your own energy (focusing on the introduction of home micro-generation of renewable energy within Ireland).
- Become a smart consumer (focusing on optimal digital energy controls e.g. smart devices, IoT)

The overall number of participants (for this event): 15

Types of stakeholders present at the seminar:

- Policy-makers
- Academia
- NGOs
- Business Organisation
- Local Authority
- Initiative Coordinator

Agenda of Ireland's national event:

Event title: "*Future landscapes: Translating energy insights into sustainable policy and action*".
10 minutes: Introduction (BIS, CUBS, UCC)

20 minutes: Guest Speaker – NUI Galway, Environmental Social Scientist

Topic: "*Integrated Approaches to Sustainable Development*"

35 minutes: Session 1/Theme 1 Produce your own energy. Group work split into two breakout rooms.

35 minutes: Session 2/Theme 2 Become a smart consumer. Group work split into two breakout rooms.

15 minutes: Plenary –recap of the main questions.

5 minutes: Closing session with thanks.

Resources for inspiration disseminated in advance:

- Link to the ACT4Eco.eu, platform, for participants to engage with and review before participation.

* Each of the partners discussed two out of the five thematic areas on the Act4Eco platform (www.act4eco.eu).

- Introduction by the keynote speaker (NUI Galway, Ireland) via Social Media.

Questions were prepared on relevant issues in Ireland related to the 2 themes. Facilitators used these to promote brainstorming during the breakout sessions. Google Jamboards were prepared and used as templates for documenting participants' opinions on the challenges of policy change.

General comments:

It was a very engaging 2-hour seminar with participants fully immersed in the process.

General agreement that (i) more funding is needed in Ireland, (ii) capacity building needs to increase, and (iii) appropriate government supports need to be put in place for people in the most need (usually people on low incomes). In support of all of this is the requirement that we look at the bigger picture within any policy framework focusing on improving energy user behaviours to reduce energy consumption.

As a society we need to change our attitude, realising that 'energy convenience' is not a right.

Summary of the discussions during the workshop

Session 1/Theme 1 Produce your own energy.

Session 2/Theme 2 Become a smart consumer.

The challenge: Hindrances for citizens to develop and maintain a good climate/energy behaviour (with a special focus on the two thematics):

Session 1/Theme 1

- Mechanisms within Ireland should be offered for transforming energy saving costs from retrofitting into investment capita.

- We need to reduce the cost of micro-renewable energy generation by improving the financial investment schemes offered by the government.

- Policy and financial schemes should take into consideration the different housing sectors e.g. rental, owner-occupied, social housing, and ensuring that no one is left behind in the transition to micro-renewable energy generation.

- A policy should be introduced whereby those with larger houses and larger incomes carry more of the responsibility for transitioning to renewable energies. This could counterbalance for those from lower incomes who cannot afford the home investment. Based on the floor size of the house, a mandate is then set for the quantity of energy generation that should be produced on-site.

- Within any incentive policies, consideration should be given to home energy users' life stages, gender, and socio-economic situation.

- Policies must promote local communities to get involved in energy generation schemes.

- The costing model for fossil fuels should be looked at against that of renewable fuels, to make renewables more cost-effective, as currently, fossil fuels are too cheap. The saving incentive must be made obvious.

- More energy conversations are required and wider inclusion of more diverse stakeholder groups to is needed make change happen.

- We must make energy leadership more identifiable at a national level e.g. nominating one individual as the Country champion and main contact point from where all policy details can emanate from e.g., a central capital figurehead.

Session 2/Theme 2

- The creation of independent energy regulators is needed for smart energy technologies.

- Centralised control systems should be implemented over the use of AI and IoT in smart technologies. This ensures they are GDPR compliant.

- Transparency is needed on how smart technology data is collected, stored, used, and shared. User options should be made available (i.e. privacy by design) within smart technology for users to control data storage, use, and sharing.

- Clarity is required on the value of smart energy technologies, as well as the risks.

- Policymakers must protect the home energy consumer from any unintended consequences of adopting smart energy technologies. Guides are needed for users and citizen rights must be protected when things go wrong.

- Universal open access to education is needed for users to improve their comprehension of and ability to use smart energy technologies. This gives control back to the user.

- Policymakers must adopt a bottom-up approach to policy development by engaging citizens in the co-creation of solutions.

Session 3

Policy option: What policy actions could contribute to meeting the challenges from sessions 1&2?

- Drivers for change must come from policymakers and energy providers.

- Connect stakeholders with policymakers in the development and writing of policies for the public good.

- Influence and widen sector representatives in policy discussions.

- Include more stakeholders with the knowledge and expertise in energy issues in the policy decision-making process.

- Improve people's mindset through policies that are not just plans but actions.

- Forward-thinking policies should incorporate sustainability at the heart of any issue requirement for the future.

7) National report: Italy

Partner: Sinergie Soc. Cons. A r.l. (SINERGIE)

Date of the seminar: June 8, 2021

Thematic focus of the seminar*:

- Improve your home
- Produce your own energy

Overall number of participants (in all events, if you have organised more than one): 12

Types of stakeholders present at the seminar:

- Policy-makers
- Academia
- Businesses

Agenda of the national event:

Title: "*Paths towards energy efficiency: policies for sustainability and citizens' participation*"

10:00 – Introduction: long-term goals and citizens' active role in energy sustainability

10:10 – The journey towards energy efficiency: from public policies to citizens' access to incentives and technologies

10:20 – Presentation of ECO2 project and the importance of involving citizens in reducing energy consumption

10:35 – 1st roundtable: "Which opportunities can stem from an active participation on the part of citizens and other actors?

10:50 – 2nd roundtable: "What are the main challenges energy consumers have to face?"

11:05 – 3rd roundtable: "How to increase the impact of energy policies? Which recommendations would you give to policy makers?"

11:20 – Conclusion

General comments:

The policy seminar was rich in content and led to very interesting conclusions during the round-table session, which are summarised in the following sections. From the discussion, it is evident that the topic of energy efficiency is rather complex and multi-faceted, with several different actors involved, and that policy initiatives in that field are much needed, in order to foster a real change in behavioural patterns and operate a change in perspective from energy users to prosumers.

* Each of the partners discussed two out of the five thematic areas on the Act4Eco platform (www.act4eco.eu).

Summary of the discussions during the workshop

Session 1 *How effective are national/local level energy policy interventions in changing consumers'/citizens' behaviour towards increased energy efficiency? Where are the challenges?*

Effective energy policy interventions

Promotion of energy communities, which represent a new to approach energy use and establish a new role for energy users (from consumers to prosumers). Moreover, energy communities will facilitate distributed generation of energy and prevent energy poverty.

Enhancing the role of building managers in creating awareness among owners on the need to implement renovation and energy retrofitting projects in the building, in order to make it more energy efficient and take advantage of the existing opportunities in terms of tax incentives (e.g. in Italy: Ecobonus and Superbonus 110%).

Focus on the more and more active (and proactive) role of citizens and on their increasing awareness towards energy-related issues. This trend should be cultivated and enhanced at a policy level, through the organisation of initiatives and events aimed at building a real community of likeminded people, motivated to reach a common goal: carbon neutrality and increased level of energy efficiency in all European households.

Widespread use of simulation tools and appliances to monitor energy consumption and make citizens more aware of how much energy they are actually consuming at home.

Challenges for energy consumers

Since the general level of knowledge on energy issues tend to be very low, citizens need to be properly trained on the most recent tools and solutions to monitor energy consumption and invest in energy retrofitting project / renewable energies. Since there is not an actual training, nowadays consumers need to find solutions and resources to educate themselves on these topics.

Energy poverty and income differences among energy consumers impact on their general level of awareness, on their access to services and information, and on their availability to take part in energy efficiency projects and initiatives. For this reason, forms of energy solidarity should be implemented in order to support people who are in need of assistance to cover the cost of energy bills in their households.

Session 2 *How to improve the impact of energy policy interventions on consumers'/citizens' behaviour towards energy efficiency? What could be done at the EU level?*

Implementing more initiatives and events aimed at involving citizens of all age groups in doing their part for energy efficiency, and fostering their active participation in energy transition. For example: engaging civil society in assemblies to set and share goals to be reached at a municipal level; joining forces with young people movements for climate protection (Fridays for Future, etc.)

Creating new business models: energy consumers are no longer passive actors receiving energy supply from the utility and paying for it, but they are acquiring a more and more active role by self-generating the energy they need from renewable sources (i.e. becoming prosumers), or by taking part in an energy community where the experience is shared within a neighbourhood. This will also entail the need to transform, or better re-convert, energy players (e.g. utilities, energy agencies) in an ever-evolving market.

Providing skilled and competent professional profiles, managing to really support citizens, communities and local bodies in energy transition process. This is also a way to ensure energy safety of all groups of people, especially the elders.

Investing in effective training activities and awareness-building campaigns aimed at: 1) Changing the perspective of energy consumers, so that they can take the leap from being just users to becoming prosumers; 2) Training citizens to self-monitor their energy consumption and implementing energy retrofitting projects in their household, e.g. to improve thermal insulation or avoid air leaks.

Not limiting policy decisions to the energy field, but also include other related sectors: protection of the environment and biodiversity, promotion of a sustainable lifestyle (e.g. recycling, mobility, etc.), launch of initiatives at schools, etc.

8) National report: Lithuania

Partner: Knowledge Economy Forum (KEF)

Date of the seminar: June 8, 2021

Thematic focus of the seminar*:

- Become a smart consumer
- Produce your own energy

Overall number of participants (in all events, if you have organised more than one): 15

Types of stakeholders present at the webinar:

- Policy-makers
- Academia
- NGOs
- Businesses

Agenda of the national event:

15:00 Welcome and presentation of ECO2 & ACT4ECO (KEF)

15:10 Guest speaker: Green Policy Institute "Support for residents implementing renewable energy"

15:40 Session 1: How efficient are national/local level energy policy interventions in changing consumers'/citizens' behavior towards increased energy efficiency? Where are the challenges?

16:10 Session 2: How to increase the impact of energy policy interventions on consumers'/citizens' behavior towards energy efficiency? What could be done at the EU level?

16:50 Closing remarks

Summary of the discussions during the workshop

Session 1 *How effective are national/local level energy policy interventions in changing consumers'/citizens' behavior towards increased energy efficiency? Where are the challenges?*

Smart energy consumption (thermostats, air heating and cooling systems, etc.)

> Replacement of inefficient biomass boilers

- The intervention is quite successful – 3329 approved applications;

* Each of the partners discussed two out of the five thematic areas on the Act4Eco platform (www.act4eco.eu).

- The views regarding the biofuels differ:

- On one hand, wood that is specially grown as a biofuel is still polluting. Hence, other types that are more in line with zero emission targets should be prioritised for home heating.

- On the other hand, currently it is not feasible to ensure that the needs are met with energy produced by renewable resources. Perhaps in 10-20 years there will be an opportunity to stop burning biofuels, but for now there is not.

> ESO (Lithuanian electricity and gas grid operator) has signed a contract for the installation of smart meters:

- This will allow residents to easily check how much electricity they are using and when they or a particular electrical appliance, to self-assess and change their consumption habits. 2017 this saved 6% of energy in the test.

- Obstacle: there are uncertainties in the use of smart meter data.

Source: https://www.eso.lt/lt/ziniasklaida/eso-diegs-daugiau-kaip-milijona-ismaniuju-elektros-cmt8.html

Energy production from renewable energy sources in households

Support schemes for encouraging individuals to produce energy from renewable resources are quite successful:

- A total of 4190 applications for the installation of solar power plants were submitted this year, the total amount of applications is 11.37 million eur.

- The number of positive requests exceeded the funding for the call by almost € 2.4 million. Therefore, the main and reserve lists of projects were drawn up.

- Additional intervention promotes RES for socially disadvantaged individuals (remote solar parks)

- Application system is evaluated as very user-friendly.

Source: https://enmin.lrv.lt/uploads/enmin/documents/files/Gaminantys_vartotojai.pdf

Home renovation

The renovation of apartment buildings (the support for the renovation of apartment buildings and the support for the renovation of individual houses)

- The renovation of apartment buildings needs to be accelerated;

- Main obstacle – failure to reach agreement among the household communities.

Use of renewable energy resources in the transport sector

Promoting the purchase of less polluting cars and e-motorcycles and mopeds;

Promoting the purchase of electric vehicles for individuals

- Obstacles: prices of electric cars are still quite high; electric cars have a shorter range than gas-powered cars; recycling accumulators;

Obstacle: cycling/train/public transport quality and / or infrastructure is not efficiently ensured;

Session 2 *How to improve the impact of energy policy interventions on consumers'/citizens' behaviour towards energy efficiency? What could be done at the EU level?*

Recommendations:

- To ensure continuation of the support schemes for encouraging individuals to produce energy from renewable resources are quite successful and increase the funding.

- To accelerate the modernisation of apartment buildings;

- To take into account the real situation of the house (energy class) when renovating a house instead of basing the decision on the surveys of residents.

- Particular attention must be paid to the transport sector;

To ensure train infrastructure suitable to day-to-day commuting between cities for working people;

To improve the quality of the public transport system;

To ensure the quality of the cycling infrastructure;

- To establish a fund with a state minimum return guarantee for promoting the purchase of less polluting cars and e-motorcycles and mopeds.

9) National report: Portugal

Partner: DECO – Portuguese Association for Consumer Protection

Date of the seminar: June 14, 2021

Thematic focus of the seminar*:

- Support and sustain efficient energy use
- Manage your energy consumption

Overall number of participants (in all events, if you have organised more than one): 28

Types of stakeholders present at the seminar:

- Policy-makers
- NGOs

Agenda of the national event:

Title: What measures can promote behavioural change for better energy efficiency among consumers ?

16h00 – Opening and Presentation of the ECO2 project and its results
16h10 – Roundtable with invited specialists
17h00 – Discussion
17h45 – Closing

General comments:

DECO held a national seminar that brought together guest speakers and participants with responsibilities and interest in promoting energy efficiency among consumers.

For three hours, Zoom became a space for reflection and sharing of experiences with the purpose of collecting contributions and recommendations for measures to overcome the barriers that consumers face and that compromise energy efficiency.

The initial part of the seminar was dedicated to the presentation of the ECO2 project and its online learning platform ACT4ECO, being recognised its importance in empowering consumers for a more efficient and sustainable energy consumption.

This was followed by a very engaging debate, which was marked by the recurrent mention of the need to promote greater involvement and articulation among stakeholders regarding the definition, the implementation and communication of energy efficiency measures among consumers in order to promote the success of such measures.

* Each of the partners discussed two out of the five thematic areas on the Act4Eco platform (www.act4eco.eu).

One of the key topics was the need for energy efficiency policies and measures to reach vulnerable consumers, who, due to their socio-economic conditions and age (such as senior consumers, children and young consumers) are unable to access and/or use knowledge and tools such as ACT4ECO. It was also emphasised the importance of also reaching other market actors, such as professionals of the construction and real estate sectors, in order to promote a higher energy efficiency in housing design and construction.

The "act local" approach was pointed out as one of the priorities when it comes to promoting energy efficiency, which means that it is increasingly necessary to work on the ground with the consumer, investing in partnerships with local entities (municipalities, charities and others) to accompany the consumer, as well as in the creation of energy efficiency information services.

The information and awareness campaigns implemented in recent years with regulatory authority - ERSE's support, were highlighted for their importance in promoting more sustainable consumption behaviour. In this respect, the importance of continuing to make these types of mechanisms available was mentioned, but also the need for the continuity in their implementation, as well as the evaluation of the effectiveness of the campaigns over time.

The availability of affordable and simple financial support mechanisms for ordinary consumers to improve the energy efficiency of their homes was also mentioned in this seminar.

Summary of the discussions during the workshop

Session 1: Are the policies and measures for promoting energy efficiency, carried out in Portugal, effective in fostering changes in consumer behaviour and attitudes? What are the challenges and difficulties encountered?

- There is currently a broad set of strategies, roadmaps and plans that give leads and concrete metrics regarding energy efficiency. However, due to the many different actors involved, it ends up being difficult to articulate all the foreseen measures and actions so that they are applied and ultimately successfully. This highlights the importance of promoting the involvement and collaboration between all the entities that have responsibilities in the definition, in the communication and in the implementation of such measures.

- Regarding the communication for consumers, current measures fail to consider all target audiences and their specific needs, neglecting vulnerable consumers, such as seniors and children. We should be aware that digital tools such as the ACT4ECO e-learning platform can´t reach the most vulnerable consumers who, due to their age or because they don´t have access to digital channels, won´t seize these kind of tools and opportunities that could be helpful to reduce their energy consumption.

- Information and awareness campaigns regarding energy efficiency often only reach consumers who already have some interest, who are already aware of these issues or have the financial capacity to make interventions in their homes. These campaigns fail to target important market actors such as professionals linked to the housing and construction sector, whose training would help create

conditions in terms of the quality of the design and constructions of the houses, making them less energy consuming and thus facilitating the adoption of more efficient use patterns by consumers.

- In the last decade, thanks to the funding schemes promoted by ERSE - Energy Services Regulatory Authority, a vast set of information, awareness and capacity building initiatives have been implemented, allowing the involvement of a wide range of stakeholders and bringing a growing change in consumer behaviour over time. However, these measures end up not having continuity over the years, nor are there any medium-term evaluation mechanisms to verify their effectiveness over time, which somehow hinders the integration and promotion of energy efficiency in the medium and long term.

- It is important to highlight that there is often a lack of knowledge regarding consumers' needs by those who end up planning and implementing these measures and policies for energy efficiency, this is also associated to a lack of a regular support and monitoring of the different target audiences. Not taking into account the real needs and priorities of consumers will ultimately decrease the efficiency of the measures.

Session 2: How to increase the impact of energy efficiency policies and measures that focus on consumer behaviour and choices? What interventions can be made at national and European level?

- A wider collaboration between stakeholders and prioritising local level interventions that can reach all target audiences, paying special attention to vulnerable consumers, in a way that no consumer would be left behind. In this sense it is also important to support and monitor consumers and to resort to professionals and technicians that work closely with consumers, such as municipalities' and charities' technicians, so that consumers can rely on these professionals and make the proper decisions and choices regarding energy efficiency.

- It is important to remember the importance that children and young people may have as a dissemination and multiplying effect within the household and in this sense it is essential to work with schools and create conditions so that there is room in the school curriculum to incorporate energy efficiency issues in students' education. At this level, it is also important to resort to strategies and tools that can capture the attention and involve the consumer, using for example gamification methodologies, whose success has been notorious in past and current awareness campaigns.

- Foster consumers' energy literacy must be one of the priorities, since technical knowledge is often necessary but is not available to the ordinary consumers and this ends up hindering a more efficient use of energy. The topic of energy efficiency should be placed among the priorities of consumers and for this to happens it is necessary to invest in the empowerment of consumers to make them capable to evaluate and make decisions that will help them be more energy efficient in their daily lives. This also means that it is important to create conditions, in terms of market (equipment) and

housing and construction conditions so that there is effectively room for a change of behaviour of consumers and an effective reduction of energy consumption in our homes.

- More funding schemes should be made available to enable the implementation of information and consumer empowerment measures. These measures should prioritise the most vulnerable populations, either through the creation of specific information points on energy efficiency issues at the municipality level or by investing in close contact initiatives and partnerships with technicians on the ground.

- The creation of energy efficiency support mechanisms so that consumers can easily and increase the energy efficiency of their homes. What happens most of the time is that the complexity and difficulty in accessing and implementing this kind of subsidised measures, ends up not making it possible for consumers to seize these energy efficiency support schemes.

10) Summary report: EU-level policy outreach seminars

Partners: ARC Fund, DBT and HEBES

Dates of the seminars:

- **Seminar 1**: 19 July 2021
- **Seminar 2**: 23 August 2021

Thematic focus of the seminars:

- **Seminar 1:** "Setting the agenda of the future policy discourse regarding energy efficiency measures and their impact on consumer behaviour".
- **Seminar 2:** "Policy options for encouraging change in consumer behaviour on energy efficiency".

Overall number of participants (in the two events): 61

- **Seminar 1**: 15 external stakeholders + 11 ECO2 partners
- **Seminar 2**: 25 external stakeholders + 10 ECO2 partners

Types of stakeholders present at the seminars:

- Policy-makers at the EU level
- National governments of the ECOs partners' countries
- Academia
- NGOs
- Businesses

Agendas of the EU-level seminars:

Agenda, Seminar 1: "Setting the agenda of the future policy discourse regarding energy efficiency measures and their impact on consumer behaviour"

10:00–10:05 Welcome and objectives of the seminar

10:05–10:15 ECO2 project and its main results

10:15–10:35 Theme 1: Gaps and challenges in terms of Theme "Produce your own energy" *(Plenary discussion and formulation of policy relevant messages)*

10:35–10:55 Theme 2: Gaps and challenges in terms of Theme "Improve your home" (*Plenary discussion and formulation of policy relevant messages*)

10:55–11:05 Break

11:05–11:25 Theme 3: Gaps and challenges in terms of Theme "Manage your energy consumption" (*Plenary discussion and formulation of policy relevant messages*)

11:25–11:45 Theme 4: Gaps and challenges in terms of Theme "Become a smart consumer" (*Plenary discussion and formulation of policy relevant messages*)

11:45–12:00 Break

12:00–12:30 Theme 5: Gaps and challenges in terms of Theme "Sustain efficient energy use" (*Plenary discussion and formulation of policy relevant messages*)

12:30–13:00 Reflection and wrap-up

Agenda, Seminar 2: "Policy options for encouraging change in consumer behaviour on energy efficiency"

13:30-13:35 Welcome and objectives of the seminar

13:35-13:45 ECO2 project and its main results

13:45-13:55 Policy challenges on energy efficiency of households

13:55-14:25 Plenary discussion (*Validation of the present challenges)*

14:25-14:35 Break

14:35-14:45 Policy options on energy efficiency measures for households

14:45-15:30 Discussion in 2 breakout groups (*What more needs to be done at policy level to address the identified challenges in terms of energy efficiency measures targeted at households? How could policy boost energy efficiency of households? How to support consumers in changing their behaviour?)*

15:30-16:00 Group's results, reflections and wrap-up

General comments:

In July and August 2021, the ECO2 Consortium hosted two online EU-level policy outreach seminars, organised by ACR Fund, DBT and HEBES, aiming to inspire a debate among European stakeholders on scenarios that envisage and support consumers' active role in the future energy transition. Approximately 60 participants got engaged in total, among which representatives of organisations at EU and national level, providing insights on tackling certain existing challenges that affect consumers' energy-related behaviours and choices.

Both were collaborative seminars, investigating the key enablers and barriers that can affect the take-up of energy efficiency measures by households, their energy-saving performance and the persistence of those energy savings. To facilitate the discussions, opening remarks were given on the challenges and policy recommendations considered at the national-level seminars and participants were invited to reflect on them in an attempt to evaluate and refine them towards proposing a more coherent strategy to foster the transition to overall more energy efficient behaviours. Interactive work in small breakout groups allowed participants to share knowledge and

experience on the topics under scrutiny. Received inputs were presented and validated in the closing sessions to achieve the final expected outcome: the creation of a participatory-driven policy roadmap setting out the goals and measures that both push and pull and eventually induce behavioural change.

The ACT4ECO online platform and its five Thematic Topics, developed under the ECO2project, offered a key starting point for the constructive discussions at the first seminar that ended up with brainstorming on ongoing policies and innovative initiatives that could scale up energy efficiency interventions and accelerate behavioural change for each of the ACT4ECO fields. During the second seminar participants got involved in a more enlightened debate on how the sustainable practices identified in the first seminar might be largely implemented to encourage changes in everyday energy-related behaviour among European citizens and help them adjust to a more sustainable way of life.

As a result of the discussions participants agreed that challenges could be financial as well as behavioural since energy consumption patterns are shaped by ingrained habits that are hard to change. At the same time, lack of awareness and identified informational barriers can hinder energy saving efforts, even for consumers who are motivated to preserve the environment. What was emphasised during the seminars was the need of enhancing energy efficiency with policies and programmes designed to educate consumers and encourage them to alter their daily habits – without necessarily resorting to large-scale structural improvements. Participants concluded that integrating behavioural interventions in current policy endeavours alongside:

- finance-based instruments such as energy taxes, subsidies for efficient purchases or time-of-use energy pricing,
- technology-based instruments, such as feedback mechanisms tracking households' energy consumption patterns, or targeted prompts, which alert consumers to pay particular attention to their energy usage at peak times,
- regulatory interventions such as product efficiency standards or setting minimum energy performance standards,

can support the achievement of ambitious energy efficiency objectives. Also, it was pointed out that instead of focusing exclusively on individuals, policies may be more effective when they target groups or whole segments of society with tailored approaches.

Summary of the discussions

International Policy Outreach Seminar 1

How effective are national/local level energy policy interventions in changing consumers'/citizens' behaviour towards increased energy efficiency? Where are the challenges?

Even though best practices implemented at a national level have been shared among participants, there are still many challenges that need to be addressed to make it possible for all households to have access to energy efficiency measures and to take advantage of them.

In relation to each ACT4ECO Theme, the challenges identified are:

***Challenges presented to households producing their own energy**

1. Informational barriers

- limited awareness regarding the environmental impact of energy use

- lack of knowledge regarding the technology solutions available, and the benefits and economic viability of the onsite energy generation

- lack of clear and easy to understand information on the role of prosumers (i.e. ambiguous tax policies, lack of transparency regarding the tariffs and the revenue etc.)

- lack of free and impartial advice by public authorities/unfamiliarity with prosumers' needs

- uncertainty/unfamiliarity with the future framework and conditions

2. Economic barriers

- high investment cost and long payback period

- missing monetary incentives both on the profit side (e.g., premium for load shift) and the cost side (e.g., subsidies)

- limited access to public funds or bank loans due to credit constrains (especially for low-income homes)

3. Regulatory barriers

- bureaucracy and complex, time-consuming administrative procedures

- lack of legal and economic "prosumer protection" across EU

- lack of supportive measures and framework in relation to private render sector (owners; consent is required to establish energy sources)

- inadequate social participation and regulation/inadequate regulation framework for energy communities

*** Challenges presented to households' improvement interventions in terms of energy efficiency**

1. Informational barriers

- limited understanding of what constitutes energy and the amount of energy consumed by buildings

- uncertainty about the benefits of home energy improvements/lack of accredited and trustworthy information

- no homogenous information regarding energy efficiency and renovation among EU member-states/no coordinated effort to spread information

- excessive focus on financial aspects of home improvements interventions/limited access to personalised guidance for implementing home renovations (consumers, even if having the financial means, do not have actionable information that will help them achieve energy efficiency)

2. Financial barriers

- insufficient incentives to proceed with energy efficiency implementations/high cost of large-scale home improvements

- lack of financial rewards when implementing energy efficiency home improvements/existing rewards (especially for tenants) are very short-term

3. Regulatory barriers

- need for structural intervention and regulation targeting especially old residential buildings, where small improvements are usually inadequate

- need for a framework supporting tenants in making home improvements in terms of energy efficiency

***Challenges presented to the energy consumption monitoring and management**

1. Informational barriers

- lack of validated and trustworthy information and advice related to sustainability/ consumers rely on informal invalidated information available mainly on internet

- lack of awareness raising campaigns towards energy efficiency and sustainable behaviour/linked to current trends of “sustainable lifestyles”

-lack of knowledge regarding the “smart” technology solutions available

-limited attention to hidden features of products or services/clear energy labels

- unclear energy bills/no specific data presented to consumers regarding their energy consumption or their achieved energy efficiency

2. Technical/structural barriers

- lack of consumption and demand data/no incentives are provided to proceed with home improvements and investments

- lack of smart integrated solution for the grids and the households that could facilitate the provision of information on real-time consumption

- limited support to intermediate actors (i.e. ESCOs) targeting residential buildings

3. Financial barriers

- the actual costs of our current sources go well beyond what consumers pay to the utility company, mainly due to additional costs of energy use (i.e. taxes etc)/ even though the actual price of energy (power generation) has decreased, supply rates and thus overall electricity bills increase (at least in many territories), discouraging the conservation of more efficient habits

- lack of financial instruments (i.e. rewards or CO2 taxes) that could motivate consumers towards tracking their energy consumption

***Challenges presented to the transition to the status of "smart" consumer**

1. Informational barriers

- limited awareness on individual benefits of energy efficiency as well as the proper course of actions to achieve it

- limited availability to trustworthy information

- limited campaigns to empower consumers to change their habits and adopt more responsible attitude towards energy use

- information and awareness campaigns targeting also children and young adults

- individualised approach to allow consumers understand which area of their everyday life is less sustainable/allow consumers reject and/or redefine social norms

2. Technical/structural barriers

- not just the acquisition of technologies and smart equipment, but mainly their "domestication" should be considered as the most important constrain factor

3. Regulatory barriers

- need to support the role and the active involvement of municipal energy providers in raising consumers' awareness

- cooperation between all actors in the energy sector, including consumers, authorities and different stakeholders from both public and private sector.

***Challenges presented to the sustain efficient energy use**

1. Informational barriers

- provision of low-cost motivation that can influence consumers' behaviour

- consumers are usually encouraged to save energy with the prospect of saving money, mostly related to technological intervention

- encourage consumers to adopt a more sustainable lifestyle through "nudges"

- promote tips and advices for implementing low-cost interventions to reduce energy consumption

2. Financial barriers

- secure support to implement awareness campaigns

- address energy poverty through more direct interventions

***Cross-cutting challenges**

1. Low level of awareness and knowledge among households on energy issues such as:

- feedback on energy consumption (bills, costs, habits)

- available solutions, funding, eligibility for grants

- environmental impact of energy usage

- smart meters, real-time consumption monitoring

- energy saving advice

2. Informational barriers

- limited access on trustworthy and easy-to-understand information

- cognitive overload/too much information

3. Lack of accountability and public information on measuring the impact of energy efficiency measures

- consumers usually see the “beautiful packaging” of homes as a result of the implemented energy efficiency measures

- limited awareness on the exact impact of their energy efficiency interventions (energy savings, reduced emissions, increased housing comfort)

4. Current policies aim mainly at individuals/households

- behavioural change is not directly encouraged

- collective practices are rather achieved through the involvement in participatory projects (i.e. energy communities)

5. Economic barriers

- liquidity or credit constrains limit the adoption of more efficient and active behaviour

- households cannot afford large-scale home improvements

- missing monetary incentives/ lack of public funding

6. Energy poverty and insufficient support for vulnerable consumers

- energy poor households experience limited access to information and services as well as limited participation in energy efficiency projects and initiatives

***

International Policy Outreach Seminar 2

How to improve the impact of energy policy interventions on consumers'/citizens' behaviour towards energy efficiency? What could be done at the EU level?

Policy options identified

1. Access to specialised information and guidance

- knowledge sharing platforms, such as the ACT4ECO, can influence consumers' behaviour by disclosing crucial information and raise awareness

- need for additional services to provide personalised and specialised guidance to home owners to prioritise and implement energy efficiency renovations

2. Share knowledge and communicate best practices

- promote common energy conservation strategies across the EU

- EU funding and pilot schemes to encourage energy transition and display positive results to policy makers

- develop tools and repositories of data on energy efficiency measures and their impact

3. Regulatory options

- develop a well-defined framework and regulation for energy communities so as to promote participation and involvement

- promote and support innovative collaborative and citizen-driven schemes and energy services (i.e. energy communities) through capital funding

- support "energy mediators" (i.e. small ESCOs) at the local level

- support/EU subsidised ESCO scheme for private homes to enhance home renovations (especially for households living in energy poverty)

- more proactive government initiatives to promote energy efficiency (i.e. reward "green" purchases, support RES production)

4. Proposals for research questions

- the potential of subsidised ESCOs for private home at EU level

- legal research on the opinion that EU member states have on regulating/subsidising energy conscious actions

- comparative research on the use of subsidies and their results regarding the most energy/CO_2 conservation

Breakout group 1 - *What more could be done at the policy level to address the identified challenges in terms of energy efficiency measures targeted at households?*

Information instruments

- National authorities should work towards communicating efficient day-to-day practices for consumers in an easy-to-understand way

- Sharing practical information on large-scale good practices - promote success stories and lessons learned

- Communicate the need to have energy sufficiency before energy efficiency/the need to invest in more sustainable way of living when possible, starting with energy sufficiency, moving to renovation in terms of energy efficiency or renewables and onsite energy generation, and finally to the curtailment measures that people implement to change their everyday habits

Technology-based instruments

- Promote and make available tools enabling more accurate predictions (close the gap, give confidence to estimates, and secure good results)

- Promote the proper use of equipment: ECO/SMART mode/programmes of appliances/services to become the default. The default mode to be the smart use, not the users to have to choose between default or ECO/SMART

Investments in Buildings Energy Efficiency

- EU policies should focus on supporting the core retrofitting of existing homes (the envelope of the building, including fabric insulation and air tightness), ensuring this as a priority and a baseline

- National authorities should provide training for professionals working in the construction sector to learn how to retrofit efficiently old buildings (improving their energy efficiency), not only to build energy efficient new ones

Regulatory instruments

- Subsidies issue – energy policies need to be more flexible and to target different and wider categories of consumers/households. A priority should be to understand what are the barriers they face, why certain groups of consumers do not access the funding, and then design policy measures that really tackle these barriers for these certain groups

- The promotion of a common EU-valid definition of energy poverty remains still a debate. However, EU and its member states should be pushed to reduce poverty levels by adopting the appropriate measures, taking into account their national context and conditions. On the other hand, EU should ensure that no one is lagging behind

- Focus on simplicity and coherence of EU-National-Regional-Local policies and regulations

- As energy savings are going to come from the big energy consumers, the ones that consume more energy, they need to be efficiently supported if we want to achieve energy savings

Breakout group 2 - *What is to be done by policy makers to ensure that citizens start to change their energy-consumption behaviours?*

Information instruments

- Policymakers have to organise awareness-raising campaigns to motivate people towards changing their energy life-styles and change their energy consumption behaviour and support them to engage in energy efficiency measures

- Citizens are more motivated when there is a central point of communication

- As energy knowledge is very demanding, diverse strategies should be employed to address the different information needs and the needs for communication as general information is one of the main barriers which prevents consumers from follow-up actions

Regulatory instruments

- Policymakers should develop the appropriate economic / financial instruments to motivate consumers to take energy efficiency measures

a. Local level/Municipalities

- In regard to energy efficiency, collaboration is the key word

- Several national-level campaigns have to be organised jointly with the municipalities:

    - All differences among municipalities have to be perceived as an added value

    - It will be always beneficial to collaborate with a municipality

- When policy makers are engaged at the local level there is higher trust by the local community, easier communication and better acceptance, diverse strategies are designed and implemented based on local needs and demands

- As smaller municipalities can showcase a lot of good practices, involvement of local actors is then not only a matter of resources but also a matter of willingness. On the other hand, bureaucracy and complex administrative procedures remain relevant in many cases.

b. EU level

- In addition, policy innovations and stronger collaboration and coordination among the different EU-supported programmes is required. For instance, between the Interreg programmes and Horizon Europe.

Good practices

a. Local level

- Information on good practices at the local level is required but the key challenge is their adaption to a different local context.

- Municipalities to be encouraged to share knowledge, skills, success stories and lessons learned to inspire and create social norms around efficiency.

- Due to different priorities in different municipalities and local areas, a package of initiatives is needed that sends the right signals towards coordinating the efforts (i.e. an initiative in Denmark for the municipalities to calculate their budgets in the same way).

- Need to set an open dialogue between the municipality and the citizens, but also across Europe to develop a model, starting with those municipalities, which want to proceed with some sort of innovations.

b. EU Level

- One-stop shop model, a good practice from H2020, could be established at municipality level, acting as a reference point for the citizens. (The idea is to present this model to the central and local governments and to set up 2-3 such shops in different municipalities of different size and geographical location).

- ESCOs role can be also considered but their business model is still a matter of debate, as it cannot be easily adopted due to the model's poor fit with different energy environments. In this regard, policy-makers have to think more broadly about the factors that constrain or enable the uptake of this sustainable business model.

4. Conclusion

The set of 11 ECO2 policy outreach seminars contributed to the discussions on the impact of energy efficiency measures upon the consumer behaviour in Europe, and further identified major challenges and proposed policy options to be applied at the EU level to address these challenges. The ECO2 consortium summarised the main messages that emerged from the 11 policy outreach seminars and grouped them in five clusters as presented below.

1) Energy efficiency improvements in residential buildings

The comments and suggestions of the stakeholders who participated in the policy seminars focused on the need for public funding for energy efficiency measures as a way to incentivise deep retrofits. At the same time, it was acknowledged that even when consumers have access to public funding programmes that support energy efficiency renovations, they still need accurate guidance so that to plan, prioritise and implement these renovations according to their specific circumstances. One suggested solution was the provision of such guidance by one-stop shops where citizens may receive personalised advice on how to improve their home's energy efficiency by presenting the conditions and parameters of their living space (one-stop shops operate already in some EU-member states, including Bulgaria and Belgium).

Further, the lack of information on the benefits from implementing any efficiency measure was mentioned as a limiting factor. The information available to consumers is either biased towards specific technological solutions or too opaque with respect to the conditions that must be present so that these benefits can be attained. The existence of national repositories of data on energy efficiency measures and their impact on buildings could fill this information gap.

Energy efficiency improvements have to start with the building's envelope. Upgrading the smartness of the building's technical systems and/or installing renewables should be implemented after core retrofitting of existing homes (the envelope of the building, including fabric insulation and air tightness) has taken place. Furthermore, the planning of the retrofitting interventions must be carried out in a way that maximises their impact and not in a way that only seeks to match the requirements of a public funding programme.

Another discussed issue was the lack of accountability in the way most energy efficiency support programmes are structured. Public funding should be used to achieve specific goals, and there should be some sort of link between the provided funding and the achieved impact. The impact of an energy efficiency intervention should be primarily the achieved energy savings, but could also include other social goals, such as mitigation of energy poverty. This consideration leads to two observations:

(a) There is a need for a consistent way to define energy poverty.
(b) Energy efficiency programmes should be able to differentiate their goals. Energy savings are going to come from the consumers that consume the most energy, so programmes should be able to track and verify the savings of this category of consumers. Addressing the energy poverty issue requires different approaches to verification.

Finally, the owner-tenant split incentive barrier was discussed, as well as the need for innovative approaches to overcome it. One suggestion was that part of the public funding for energy efficiency programmes could be used towards fuelling innovation and competition between energy service companies (ESCOs) that introduce new ways to overcome it.

2) On-site power generation and self-consumption

The main issue that was discussed was the fact that the revenue offered to citizens is incomparable to what bigger actors receive, which implies that citizens are the weakest actors in the energy sector. A promising remedy can be found in the new regulatory framework of energy communities. Any policy action that helps operationalise the energy community concept and/or makes energy communities more accessible to citizens has the potential to strengthen the citizens' role and participation in the energy system.

3) Supporting consumers to understand and reflect on the details of their energy consumption

The main message from the discussions has been that policy design should not overemphasise technology and smart appliances. While it is true that technology is an enabler of energy demand flexibility and improved control over energy consumption, it cannot offset the need for consumers that understand enough to use this technology and evaluate when and if an investment in it would be beneficial for them.

4) Supporting energy sufficiency

The issue of energy consumption cannot be addressed separately from the overall way in which citizens define a sustainable lifestyle. As a consequence, any policy action that aims at increasing citizens' awareness of their energy consumption should focus on the impact of all purchasing and travel practices on the environment and the climate, and then highlight the aspects that are related to energy consumption in particular.

5) Funding opportunities

Finally, the "no one size fits all" principle should be applied to the way programmes for funding energy efficiency are designed. In contrast, the programmes should be flexible so as to support different levels of energy performance (for instance more compensation for deeper renovations) or building type (such as schemes targeting rented buildings).

***

To conclude, the ECO2 policy seminars proved to be very successful with a positive feedback from the participants and appeals for more deliberations about how policy can support behaviour change among citizens in the future, since it is yet an underestimated and underdeveloped policy area.