HEATING AND COOLING KNOWHOW AND SOLUTIONS





Deliverable 6.4 Interim report gathering HACKS case-studies

HACKS' success stories in reaching different types of stakeholders

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HACKS coordinator: ADEME – www.ademe.fr European portal <u>www.topten.eu/hacks</u>

Project partners and websites

Austria, AEA www.topprodukte.at

Germany, co2online www.co2online.de

Norway, Naturvernforbund www.energismart.no/

Sweden, SSNC www.toptensverige.se Belgium, GoodPlanet www.topten.be

Italy, Eliante www.topten.it Poland, FEWE www.topten.info.pl Switzerland, Bush Energie www.topten.ch Czech Republic, SEVEn www.uspornespotrebice.cz

Lithuania, LNCF www.ecotopten.lt/ Portugal, Quercus www.topten.pt UK, EST www.toptenuk.org France, Guide Topten www.guidetopten.fr

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About HACKS

The objective of the Heating and Cooling Knowhow and Solutions (HACKS) project is to achieve market transformation for heating and cooling (HAC) appliances and improve comfort and health of European citizens.

Across the EU almost half of all buildings have individual boilers that were installed before 1992 with efficiency of 60% or less. The expected energy savings from a speedy replacement are immense.

To achieve this goal, 17 HACKS partners in 15 countries are working together, thanks to the financial support of the European Horizon 2020 programme.

After scanning market actors, current policies and most commonly used products in each country, starting from April 2020 the HACKS partners will implement involvement campaigns to raise awareness of the economic and environmental benefits brought by good HAC products and solutions:

- HACKS will motivate households equipped with old and inefficient devices boilers, water heaters, air conditioners, certain types of boilers and stoves, etc. to replace them with new super-efficient equipment.
- In each country, partners will set-up dedicated on-line platforms to assist consumers in their purchasing process. The platforms will propose: tools to assess households' needs and provide customised information; best product lists with technical specifications; direct links to suppliers of most efficient products; and advice on how to use and maintain equipment.
- For those households who need to improve their situation because they feel too hot, too cold, or too humid but who cannot invest in new equipment or can avoid getting equipped, HACKS will propose simple and low costs solutions. It is possible to reduce energy consumption and energy bills while improving winter and summer comfort, air quality and health conditions through the installation of shading devices, thermostats, water saving taps and showerheads, etc.

Beyond households, HACKS will target all relevant stakeholders ("multipliers") that participate in the decision-making process of consumers by setting up strategic partnerships to facilitate the purchase of energy efficient appliances. HACKS places a strong emphasis on installers but also retailers and consumer organisations because of their proximity to consumers, their capacity to involve them and bring them guidance on energy efficient equipment.

More information on the HACKS project can be found at www.topten.eu/hacks

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Introduction

The HACKS project is a market transformation project which uses many "soft measures" within its toolbox. By providing quality information on current best available products and advice on how to improve households' heating and cooling situations and by working with different target groups, it shifts the market, acts as a facilitator, an education tool, a decision-making aid.

Its quantitative impacts are best understood in the framework of an evaluation that also includes qualitative aspects. Since the HACKS project impacts the market and citizens in many different ways, in order to contribute to the qualitative evaluation of the project, this first interim report gathers illustrations of the HACKS's wide range of activities.

Despite the Covid pandemic, at the midterm of the project, the HACKS partners were able to undertake many activities, including those depicted in the following 15 case studies. They were prepared by national partners and illustrate success stories and achievements that help accelerate market transformation, emerging from:

- Communication targeting consumers: Austria and Poland chose to communicate using a non-technical language, Italy implemented a resilient communication strategy, whereas Czech Republic developed content for a utility.
- Cooperation with NGOs: Portugal (and other partners) joined European campaigns on HAC topics.
- Cooperation with retailers, installers, and industry: Spain targeted energy poor consumers with the help of a retailer and the social services, Norway highlights workers that are specialists in the building sector, Switzerland supports installers with technical information, Portugal cooperates with the sanitary tapware professional association.
- Support to housing organisations: Lithuania supports the Housing Energy Efficiency Agency, whereas Sweden's product lists serve as a basis to identify best products to stimulate the use of energy savings certificates.
- Participation in research projects: Switzerland studies the savings that could be achieved by using efficient air conditioners for heating.
- Inputs to the policy process: Belgium gathers partners from its different regions into a HACKS network, Lithuania participates in a consultation on the Recovery and Resilience Facility plan, Norway supports the strategy banning fossil fuel heating.





Austria: Infographic - Climate-friendly through the heating season

The HACKS Team of the Austrian Energy Agency decided to prepare an infographic on the topic of "Climate-friendly through the heating season".

On our topprodukte.at Website we have in-depth articles on various HACKS product categories and related consumer advice.

However, many end-consumers do not want to go into that much detail and prefer images with short explanations.

Thus, our goal was to make dry information (technical, comparisons) more accessible and easier to understand. Another goal was to create something which resonates with our endconsumer target audience, help boost our HACKS awareness and something which can be easily shared on social media channels (own and multipliers).

For the infographic we picked the top 5 tips which can be implemented by end-consumers without having to spend a lot of money on it. In addition, it was important to us to communicate what savings they can achieve if they implement that tip for one year.

The savings were translated in Euro, in saved trees and kgCO₂. This was important in order to make the savings more tangible for different end-consumer target groups.



The role out of the infographic is scheduled for the next heating season. In addition, co-branded infographics with multipliers are also a possibility.

Lessons learnt: The development of a powerful infographic takes time and many revision loops are necessary. Thus, it is important to start well in advance when developing infographics. For our purpose, we can use the infographic for the upcoming two heating seasons.

For more information (contact person from your organisation and www.topten.eu)

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https://www.topprodukte.at/de/service/Besseres-Wohnklima





Poland: Consumer education through comic books

Choosing heating and cooling appliances for home is not easy. Making a purchase decision is often very difficult. Buyers often don't have technical knowledge and are unable to evaluate which device is the best for them.

At www.topten.info.pl/hacks, lists of appliances that are the most energy-efficient on the Polish market have been published. However, the selection criteria and recommendation may appear unclear for "non-technical" consumers.

Therefore, the Polish partner of the HACKS project decided to support consumers with information presented in a friendly and easily accessible form, with no technical language. A series of short comics was created (<u>http://topten.info.pl/private/page/komiksowe-porady</u>) for consumers, potential buyers with issues related to effective heating and cooling and links to the HACKS website:

- 1. "Heat from heaven" the comic describes how to deal with the heat at home, both with the help of non-investment activities and activities that require low-cost investment (e.g. purchase of a fan or an air conditioner).
- "Your eco-house" the comic shows the possibilities of obtaining external financing available on Polish market for the replacement of energy-inefficient equipment with new, energy-efficient one. Along with the comic, a website with a description of supporting grant programs was promoted. <u>http://topten.info.pl/private/page/finansowanie-inwestycji</u>
- 3. "Heat in the house" the comic describes how you can make home warmer and more comfortable with the use of now or low-cost investments. It also shows the possibilities of improvements that require bigger investments and financial input.



Heat from heaven





Your eco-house

Heat in the house

The comics were promoted on the social media (Facebook, Twitter, LinkedIn) and gained the greatest reach among all the posts published as part of the HACKS project. Posts were published several times covering a total of 4,571 people (FB = 1,694, Twitter = 2,169, LinkedIn = 708).

For more information

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Italy: A resilient communication strategy

Energy saving at the time of smart working

During the start of the pandemic, at the end of winter 2020, and during the related lockdown, Eliante decided to postpone the launch of the communication campaign of the HACKS Project and the launch of the consumer outreach campaign. In fact, the lockdown, the attention of public opinion monopolized by COVID and the dizzying collapse of consumption made it counterproductive to hypothesize a communication campaign during such period. However, Eliante chose to launch a "soft" communication campaign, trying to transform what were evident critical issues into opportunities to be seized.

This is why a campaign dedicated to energy efficiency linked to the home and smart working was launched. The campaign saw the launch of a press release, containing useful tips for saving energy at home and a series of posts on social channels. The choice proved to be the right one, in fact the press release had a good success, with the publication in at least 23 online newspapers and Italian web portals.

Even the related social campaign, although not supported by sponsorships, had a good success (4 Facebook posts and as many on LinkedIn, on Eliante's channels, for a total coverage of about 1,800 people reached)

The success of this campaign convinced Eliante's staff to adopt a flexible strategy, adapting it to the contingent situations of the new socio-economic context.



U Energy efficiency is the way to overcome the crisis

The impact of the pandemic on the Italian economy was immediately devastating. Italy was in fact the first European country to discover the effects of the virus and to adopt a lockdown strategy. Precisely for this reason Italy was the first country in Europe to suffer the consequences in social and economic terms. One of the proposals of the Italian government to push the economy to restart was to launch a generous and unprecedented incentive linked to energy efficiency in the home. The incentive promoted by the government provides for a tax reduction equal to 110% of the expenses incurred for the renovation of the house. Among the equipment affected by the incentive there are also many HACKS appliances: heat pumps, solid fuel boilers, local space heaters and others. For this reason and with the idea of implementing a flexible communication that adapts to current events, Eliante has decided to provide detailed information on the incentive, right away, with the publication of news and insights on the subject. Also, in this case, the choice proved to be a winning one, because visits to the site, on the day the news was published, simply tripled.



The result of the news convinced Eliante's staff to enhance the information relating to incentives on the Topten.it portal, by inserting on the homepage a general overview on all the incentives present in Italy and publishing other and more specific news.

U Infographic and social media

In order to build a stronger visual image in social media, to engage specific targets and to promote WP4 and WP5 activities and tasks, Eliante has promoted together with other 5 partners from CZ, ES, FR, PL and PT, the production of a package 30 infographics, dedicated to the WP4 and WP5 tasks and activities. The infographics will "cover" the promotion of all project topics, activities, task, key messages, targets, tools and tips, using captivating graphic contents, in order to add value to the visual material, and to encourage sharing and interactions in social media. At the moment 11 infographics of 30 have been produced (see below).



Thanks to Eliante's contextual commitment to the Label 2020 project, we could start a very strong social campaign (by using Facebook and Linkedin most of all), involving followers and other people to find out all the energy news of this period and the good practices they can implement in their houses.

All the materials made in the HACKS project have been adapted to the social media target and spread alternating with the posts of Label 2020: every week we can arrange up to 3 energy posts. During this last month references to the Hacks project were edited at least every week, contributing to the promotion of the website.

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Czech Republic: HACKS cooperation with Czech energy utility Centropol

Czech Energy utility Centropol started a campaign on heating and energy consumption awareness in the autumn 2020. HACKS project provided utility with fact checks, energy saving tips and the whole energy usage context.

The campaign creation started in September 2020 and lasted for more than two months. The energy utility Centropol marketing department drafted few energy tips and asked HACKS representative, SEVEn, for additional information and quality check. SEVEn team provided mainly general tips on savings for heating systems (like using thermostatic valves, keeping appropriate temperature in different rooms, shower is more efficient than bath, open windows in winter for only reasonable time, etc.). However, it tried also to calculate some savings in computer model and verified some of these general tips. Some tips were proposed on households appliances too.

Examples of tips in English:

- Keep the temperature of the water in water heaters about 55-60°C as perfect a compromise between hygiene and energy savings,
- Use thermostatic valves as very cheap and fast repayable measure,
- The sufficient temperature for washing machines is 30°C for most cases.

The campaign is on internet only and is accessible at webpage: <u>https://www.centropol.cz/lp/jak-usetrit-v-domacnosti/</u> (Czech only)



The webpage links to the HACKS CZ website at the bottom of the page with direct access to efficient products (see pictures).

The cooperation was quite fruitful and will continue in next months – possibly mainly on air-conditioners.

The total number of visits: 47 thousands pageviews.

Utility information: One of the biggest "alternative" energy utilities in the Czech Republic, serving more than 330 thousand connection points. Centropol delivers gas and electricity.

For more information: Michal Stasa, michal.stasa@svn.cz







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Díky žárovkám uspoříte HNED.	i LED . Na jedné	
vyměněné žáro ušetříte až 250	ovce Kč za rok.*	
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Portugal: Joining EU campaigns to promote national website

Quercus is a member of several European coalitions of NGOs whose goal is to lobby for the implementation and improvement of policies regarding different environmental issues.

One of these coalitions is <u>Coolproducts for a cool planet</u>, led by the European Environmental Bureau (EEB) and the European Environmental Citizen's Organisation for Standardisation (ECOS), and working on ecodesign and energy labelling.



In 2020, within the revision of water and space heaters, two different campaigns were conceived, one released in July and the other in November (several HACKS partners supported the campaign).

I know what you did last Summer

The first one was released in July and focused on portable air conditioners, mainly consumers but also decision makers. The combination of an appealing infographics and the title from a slasher film that was a commercial success in the '90, seemed to work good.

The national campaign preparation covered translation, adaptation, inclusion of recommendations to avoid its need and a link to Topten/HACKS project. The dissemination included a press release (PR), an article on Topten website, posts of infographics in Portuguese on Quercus social media (twitter, facebook, instagram) and Quercus programme on regional radio.

The success of the campaign was mainly related to the media coverage. The major media press published the PR and a radio interview was made. Social media coverage was also good, as shown in Figure 1. Website traffic figures were not as positive as the above except for the Topten article published.

The message was also conveyed to the Directorate-General of Energy and Geology by email.





Twitter - 5 retweets | 7 likes





Figure 1 - First media social media dissemination

The EU must phase out new fossil fuel heaters by 2025 - or will not reach climate neutrality on time

The second campaign was released in December and called for the phase out of fossil fuel heaters, targeting mainly decision makers. Unlike the first one, the content, language and infographics were more technical and data oriented. The campaign was prepared to disseminate a report produced by ECOS.

The national campaign covered translation, adaptation, elaboration of PT own press release and a link to Topten/HACKS project.



Article on Topten - 199 views

Figure 2 - Second campaign social media dissemination

The dissemination was similar to the previous campaign, although infographics were not available for translation, and included the already mentioned PR, an article on Topten website, posts on Quercus social media (twitter, facebook, instagram), as seen in Figure 2 and Quercus newsletter.

Though the issue was more technical and complex the media coverage was identical to the first one and not surprisingly the social media posts were not as successful as on the previous campaign, especially on facebook. Once again traffic to the website did not increase but the article published had a good reading rate.

An email with national materials and the report was sent to the Directorate-General of Energy and Geology.

Lessons learnt

Although the website traffic did not show an increase on the campaigns dates, collaboration with ONGs operating at an European level is highly recommended for the following reasons:

- similar subjects that could be exploited to disseminate the project
- positive association with well-known organisations
- technical data that enrich the project
- exchanges with experts that can support the development of some categories
- articles and other materials that can be accessed any time after the campaign
- communication ideas for future project activities
- strong media coverage
- low national effort and ready-to-use dissemination materials
- facilitates the contact with multipliers and national authorities

On the other hand, national collaboration is important for these organisations, because their central efforts are spread and reinforced by national experts.

For more information, contact Laura Carvalho (lauracarvalho@quercus.pt) and www.topten.pt





Spain: Comfort fans for vulnerable households

We believe the comfort fan is a product that can improve comfort in the home during summer time, reducing the need to use air conditioning (very widespread in Spain), both during the day and at night, in order to cope with the so-called tropical nights that we experience throughout the summer in much of the country.

A comfort fan is a product that can be very useful for the general population, but also for a sector (vulnerable families), it may be the only way to improve thermal comfort in summer. That is why we collaborate with social services from different cities, which selected the families (more than 60 families) at risk of energy poverty, which help us to spread the competition among this population.

Leroy Merlin, the retailer where the product we were raffling could be found, helps us in the management of the product, but also in the diffusion of the raffle, as it is in their interest. The contestants have to find part of the information on the Leroy Merlin website, and another part on the Eurotopten.es website. Leroy Merlin contributed to the dissemination of the contest by retweeting the campaign on social media.



The HACKS website saw a 67% increase in the number of visits compared to the previous month, and the level of visits has been maintained since then.

More than 240 people participated in the competition.

We managed to strengthen the relationship with Leroy Merlin as a retailer and with social organisations.

The use of a Whatsapp chain was very important to ensure the dissemination of information to this population. In general, this is not an audience that uses email very often, so we had to find a more direct way.

We also used radio broadcasting, which allowed us to reach a more general public.

COMFORT FANS FOR VULNERABLE HOUSEHOLDS

Fans are products that can improve comfort at home during the summertime. They are very useful for the general population but especially **for vulnerable families**. Sometimes, they are the only way for them to deal with the hot weather that we experience throughout much of Spain.

For this reason we organised a **fan raffle** in collaboration with:



More information: Mónica Vidal - ECODES, monica.vidal@ecodes.org





Norway: The Energy Expert - Highlighting the Superheroes of the low Energy Society



There should be no question about it. The future low emission Society must also become a low energy society. And in reducing the overall energy consumption, buildings and especially households, the construction companies and workers are key actors.

There must be a transition where workers in different building disciplines like carpenters, plumbers, electricians, ventilation workers and refrigeration technicians etc. must become energy consultants (or even further along the way - a sustainability consultant) as well as performers.

With the concept "Energispesialist" (i.e. Energy expert) we would like to find, approach and highlight the highly competent, professional, and solid construction companies in Norway, and make a system that values competence and knowledge.

At the moment the concept mainly consists of the subcategories "Heating" and "Remediation", but we work on including "Carpentry/Rehabilitation", "Ventilation", "Electro" and "Consulting".



The need for such a concept is highly approved both in the building industry and the different Industry associations in Norway, and by consumer organizations.

As part of Topten HACKS we have:

- Collaborated with national and local Industry associations and authorities on developing criteria's for "Energispesialist" as a professional quality assurance scheme. We require:
 - Formal qualifications
 - Stable organizational form
 - Economical solidity
 - Excellent manufacturer and customer reviews
- Developed a market strategy for both industry associations, the construction companies, and consumers.

- Developed an integrated web system and a contact form on our Topten HACKS webpage where Energy expert installers receive and reply to consumers HAC-solution installation requests.
- Accepted 30 companies as Energy expert installers.
- Received 193 HAC-solution installation requests from consumers.

The goal is to highlight both the competent building workers and their importance in the green shift. At the same time, we want to make the consumer process from information to installation of efficient HAC-products as short as possible.

There are some important aspects we need to take into consideration in the future development of the concept.

- The building industry that used to be financially stable are now in a completely different situation due to Covid. This could be an advantage for the development of the concept, but we also have some difficulties implementing our original marketing strategy.
- The original strategy to involve and reach out to consumers to market the Energy expert installer needs to be revised.
- As an environmental NGO we have little or no innovation or venture capital available. There might be other institutions or actors more suitable for further development of "Energispesialist" as a professional quality assurance scheme.

For further information contact:

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Switzerland: Internet of Things Monitoring – providing installers with tools to make efficient technology even more efficient

Bush Energie cooperated in a project supported by EnergieSchweiz, one of their main partners, in creating a list of best Internet of Things (IoT) monitoring devices on the Swiss market. EnergieSchweiz is a national competence centre by the Swiss Federal Office of Energy and focusses on energy efficiency and communication projects. The goal of the project was to reduce the energy consumption of buildings in Switzerland by providing installers with a list of the best IoT monitoring devices on the national market and information about their handling.

Efficient building technology contributes greatly to reducing the electricity consumption of a household. Monitoring this technology has further advantages for optimising settings and serves as early warning system in case of failures. The monitoring systems themselves have very low consumption and are mostly battery-powered.

The project produced four main information sources in German, French and Italian:

- 1. An **information leaflet**, available for download on <u>https://storage.topten.ch/source/files/IoT_Merkblatt_EZS_suissetec.pdf</u>
- 2. A **product list** of the complete solutions for IoT monitoring systems available on the Swiss market, available at <u>www.topten.ch/iot</u>
- Clear selection criteria for the IoT monitoring solutions displayed on Topten.ch, as well as a glossary to explain terminology, available at https://www.topten.ch/private/selection-criteria/kriterien-iot-monitoring
- 4. An **adviser page**, explaining the function and advantages of IoT monitoring systems, the technologies used and steps to install the systems as well as giving an outlook into the global IoT initiative "The Things Network", available at https://www.topten.ch/private/adviser/iot-monitoring

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Picture 1: Screenshot of available solutions on topten.ch/iot

The materials were uploaded and publicly available on Topten.ch in October 2020 and communicated on the Topten.ch start page through a news article and carousel image as well as a Facebook post.

Impact: 822 page views on Topten pages. The leaflet was presented in October during a training course by Suissetec Nordwestschweiz, a Swiss trade association for heating, cooling and plumbing trades.

Extra: Topten stepped in to offer services the project partner could not provide (due to absolute neutrality of government stakeholders) in displaying best products on a known and professional platform.

For more information, contact Maike Hepp: maike.hepp@topten.ch





Portugal: Collaboration with a professional association

In Portugal there is a voluntary label for sanitary tapware created and managed by ANQIP - a non-profit technical-scientific association - that issues and revises the technical specifications these products must comply with, tests the products, trains installers, issues the yearly national product catalogue, among other activities.

The contribution of this relevant stakeholder was a key factor for the development of the faucets and flow regulators HACKS new category. They provided the technical criteria for the products selection, helped engage manufacturers in the process which supported data collection and, last but not least, the category uses a label recognised by national consumers, since some shops display the label in selling products.

Quercus had work with this association ten years ago in a national project and this previous contact facilitated our approach and their acceptance to be our partner. Their involvement was crucial to speed the definition of the new category which was launched on the National Water Day. Hence, on October 1st, a press release was published, a green minute was broadcasted on national TV highlighting also the partnership established, and other posts were published on Quercus social media channels - twitter, facebook, instagram - (see Figure 1). To reinforce communication, a HACKS infographics on water and energy savings of efficient faucets and showers was used. Whenever possible, links to the association's social channels were made.

Instagram (🐝 ۲ TORNEIRAS E (HUVEIROS MAIS EFI(IENTES POUPAM ÁGUA E ENERGIA VOV Instagram RTP minuto verde 0:33 TORNEIRAS E (HUVEIROS MAIS EFICIENTE OUPAM AGUA E ENER Bom_{Dia} ¹⁰ Tomeiros, chuveiros e redutores de cauda; bombes de calor; ventolnhas; aparelhos de ar condicionado; aspiradores automóveis; congeladores e arces, rispóriticos; fornos, impressoras, lámpadas, monitores; máquines de cafe; máquines de lavar loiça; máquinas de lavar loiça; refrigeração conditational elevisivoras. os, redutores de caudal e Tornei

IISTRAÇÃO DA TRAN

Green Minute (Minuto Verde)

That day the number of Topten.pt visitors increased and represented 30% of the hole month visits.

Press release

Figure 1 - New category dissemination in media and social media

Contacting manufacturers is. usually, very time consuming and not successful, especially when new product categories are being started. The link to the association "opened doors" because, on one hand thev provided the person manufacturers right contact, talked to some of them and, on the other hand, those contacts where more willing to cooperate and provide the needed data for the products lists.

ANQIP also reviewed all the information criteria and recommendations - linked to the product category. Additionally, they supplied Quercus with data from their own tests on flow regulators applied for different uses (kitchen, basin, shower). These data where further elaborated and redesigned to produce the images shown in Figure 2.

Torneiras da cozinha com caudal superior a 9 l/min*



se for inferior não é necessário o regulador de caudal

Torneiras de lavatório com caudal superior a 6 l/min*



se for inferior não é necessário o regulador de caudal

Cabeças de chuveiro com caudal superior a 7,5 l/min*



* se for inferior não é necessário o regulador de caudal

Figure 2 - Technical contribution from ANQIP

Installers training is included in ANQIP's activities and they list all the certified professionals. HACKS has a link to their list on the product category recommendation page.

In the future further joint activities should be developed but, so far, this case study shows that partnerships with professional associations can help overcome the difficulty in engaging manufacturers and installers, and can also supply technical support for more complex product categories.

It is important to let them know that the partnership does not necessarily demand a lot of time from their side to produce goods results, to keep them informed about the steps being developed with their associates and to include them in the communication materials preparation and dissemination.

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Lithuania: Towards energy-efficient and green multifamily houses



61% of Lithuanian population live in appr. 35 thou. multifamily houses, of which 80% were built in the 1960-90 period of mass construction. In these times, energy was abundant, cheap and consequently construction and energy efficiency standards were set low. Today, energy systems of these houses are outdated, worn out, inefficient and offering little comfort to flat owners. Since the sole modernisation of these houses was replacement of old heating substations by new, automated ones, which adjust room heating to outdoor temperatures. Meanwhile, all internal piping and heat distribution systems remained unchanged and many of them still lack both balancing and thermostatic valves thus preventing flat owners from adjustment of room temperature.

From 2005 government started a series of modernisation programmes intended for multifamily houses that were built by 1993. Houses that embarked on such modernisation were given 40% subsidy (currently, 30%). As a rule, modernisation embraced insulation of the building envelope, replacement of windows, outer doors and worn-out internal piping. This renovation model resulted in half-reduction of energy for heating, protection of the building envelope against ambient conditions and a better look of the building. However, it was quite expensive and unaffordable for many house owners. To date, about 3 thou. multifamily houses were renovated in line with this approach. This is just nearly 10% or the whole building stock to modernise.

From 2019 a so called "small or engineering renovation" was permitted. Multifamily houses were allowed to choose smaller improvements, mainly internal systems, piping and components, and still be eligible for the standard government support. This enabled more houses to decide on smaller and cheaper improvements, which, nevertheless, are efficient.

Lithuanian Nacional Consumer Federation (LNCF) considered this environment an appropriate time to contribute. Having obtained more expertise while working in HACKS project, LNCF initiated discussions with the key stakeholder in government modernisation programmes – Housing Energy Efficiency Agency (HEEA, <u>www.betalt.lt/en</u>). We proposed an idea to implement a few pilot projects with various packages of measures to implement starting from basic ones (and correspondingly, cheapest) to complex energy systems that incorporate alternative, environment-friendly energy sources and smart overall control. Interested house

owners would be able to see how these things work in reality and choose from them according to personal taste and financial capacity.

After a couple of discussions with HEEA in July 2020, it was agreed that LNCF would prepare a brief catalogue of technical means and technologies grouped in several packages of increasing cost and complexity. The work was done in September 2020 and the catalogue was submitted to HEEA.

The catalogue embraces some heating equipment presented on HACKS data base, which is combined into a few packages. This could serve as a good base for pilot buildings to demonstrate options and possibilities to choose from by interested customers.

Installation schemes of heating equipment were supported by financial evaluation. Below, is shown an example of installation of an "air-water" heat pump in a conventional setting and corresponding financial evaluation under certain assumptions. In this particular case, financial calculation shows that cost of produced heat is slightly above 5 ct/kWh. It is profitable only in the systems that produce/sell heat at cost/price above that value. In Lithuania case, about half of 50 district heat suppliers sell heat at a price above 5 ct/kWh, correspondingly, the heat pump would be financially viable in these regions only.



Picture. Extract from the catalogue. Installation of an "air-water" heat pump in the heating system of a typical multifamily house. On the left, a financial assessment of such investment is shown.

The catalogue is available in Lithuanian. For more information: <u>www.ecotopten.lt</u> Rimantas Zabarauskas: <u>Rimantas.Zabarauskas@gmail.com</u>





Sweden: Top Ten as a simple tool for homeowners to evaluate energy efficiency measures

The SSNC has been a part of a collaboration project titled *Development and test of a quota obligation scheme with a focus on power reduction*, nicknamed (and hereafter called) *the Casablanca project*. The project ran through 2018 to 2020 and gathered two universities, the Swedish energy agency, a power company, two other private companies and the non-profit organization SSNC. The main purpose was to examine energy efficiency measures on regional and local levels through the use of white certificates, an approach not currently used by Swedish authorities. The measures taken was concentrated on the Göteborg area as well as the Västra Götaland region.

Three main group of "tests" were set-up. The first targeted larger housing companies, the second housing cooperatives and the third homeowners. When the energy efficiency measures in the third group began to take a tangible form, the project group realised they needed a simple tool that homeowners could use to verify if new equipment to be acquired would increase energy efficiency. Limiting equipment to the most efficient on the respective market would assure this. Top Ten proved to be a very efficient tool in that regard. Homeowners used the website to find preferred products, then providing the project with receipts once the purchase was done. The project group would then match the receipts with Top Ten again to check that the equipment bought was indeed among the most energy efficient.

Since the Casablanca project was launched before all HACKS categories came online in 2020, the categories used at first were windows and circulations pumps, as well as a couple of non-HACKS categories such as refrigerators.

A total of 5 000 000 Swedish kronor (around 500 000 euros) was paid out from SSNC's energy efficiency fund during the project, distributed among 10 different large projects in test group 1 and 2. In the third group, homeowners, each received between 2 000 and 20 000 kronor (200-2 000 €) for measures in their houses, installing new HAC equipment present on Top Ten. The total energy savings were estimated to about 6 GWh yearly. The main purpose of the project, however, was to examine the potential of white certificates, which is still a fairly uncharted approach in Sweden.



Figure 1 - newly installed energy efficient windows in Murödlan i Bö, a housing cooperative in Göteborg.

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Switzerland: Research Project "Heating with Air Conditioners"

Many **inefficient direct electric heaters** are still in use in Switzerland. Their replacement is often prohibitively expensive if a central heat distribution system has to be installed. Here, **air-conditioning units in heating mode** present themselves as preferable alternative, as they have a threefold better efficiency thanks to heat pumps. There are, however, open questions about efficiency, heat distribution, comfort and noise.

Currently, the discussion about using air conditioners in heating mode seems to be based on preconceived opinions rather than on facts or research. It is also interesting to note the popularity of such heating solutions in Spain and Norway, while in comparable countries such as Italy and Sweden these solutions are unpopular.

Topten Switzerland started a research project in order to contribute to the possible exploration of such a large efficiency potential with fact-based research. The project was initiated in a **partnership with EKZ**, the utility company of the canton of Zurich.

The research is in progress, but was delayed by the Corona pandemic (poor accessibility of installers due to short-time work and subsequent overload). The **first results** are positive:

- Authorization
- Installation
- suitability for use / functionality

The house owner of the first test site of the project expects that electricity consumption for heating can be reduced by 70%.

Various houses with installed air-toair heat pumps could be found and it is planned to obtain the necessary technical information as well as information on the satisfaction and comfort of the owners of these installations. The Energy Office of the Canton of Ticino is very interested in the results and would also like to involve the Energy Directors' Conference.



Picture 2: Photos of the first test site using the split air conditioner for heating



An abstract about the project was submitted for each of the international conferences EEDAL and eceee 2021.

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Belgium: Networking stakeholders around HACKS

In the beginning of the HACKS project, GoodPlanet Belgium focussed on building a network with the required expertise to run the project. Given the complex structure of our country (Flanders region/Walloon region/Brussels), both expertise and decision making on energy tends to be fragmented.



First, we spoke to the Flemish Energy and Climate Agency (VEKA). They engaged to take up an advisory role over the course of the project. Additionally, they helped us with pointing out other possible partners. In the past year, they were available to discuss about the HACKS texts, product lists, on the calculator, etc.

Next, we contacted relevant sector organisations in Flanders. The following organisations agreed to take up a role in advising us and communication to their members:

- Sustainable Energy Organisation (ODE, the umbrella organisation for the sustainable energy sector in Flanders. Its members include study centres, universities, colleges and companies in consultation platforms and working groups to exchange knowledge and experience and to promote and stimulate the sector)
- Techlink (the professional federation that connects, strengthens and represents all techniques and installation companies in Belgium (such as electro & HVAC)
- Association for Thermal Techniques in Belgium (ATTB)

• Bouwunie (represents the rights and interests of construction companies in Flanders) Also, Fluvius, the system operator of electricity and natural gas in all municipalities in Flanders, was engaged.

We have regular contact with all partners, in order to gather information, support decisions and disseminate communication to relevant stakeholders.

Recently, we managed to get in contact with some of the corresponding organisations in the Walloon region through contacts in politics.

The overall experience with the established partnerships is very positive and their expertise adds to the project's professionalism.

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Lithuania: Advocacy for broader use of energy-efficient heating equipment



The Lithuanian National Consumer Federation (LNCF) contributed to the Recovery and Resilience Facility (RRF) plan, which is currently under preparation by the Lithuanian government. It will be submitted to the EU Commission in due time.

The Energy Ministry of Lithuania elaborates a RRF section "Green Transformation", which covers mainly electricity production and transport sectors and sets policies and projections for the future to achieve EU ambitious goals in fighting climate change. The draft plan prescribes more extensive use of wind, solar in electricity production and biofuels in transport.

On February 9, the ministry organised a public consultation on the topic. LNCF was invited and participated in a broad discussion with more than 200 participants. From our point of view, the draft plan still needs improvements, of which most important are as follows:

- The scope of considerations about the plan is confined to large electricity production and supply systems only. More attention should be given to small PV installations in the sites of consumption. The draft plan lacks clarity on how PV batteries will be integrated in the energy systems of buildings, what technological developments and advances are expected in this area, how they will be supported by government.
- A combined energy system within a building is a promising technology that is worth gaining more attention. Renewable energy sources (PV panels, heat pumps, solar thermal collectors) are installed on top of conventional energy supply sources – electricity grid and district heating. The whole system is operated by a smart control to bring minimum costs and maximum green energy to customers. Such arrangement also can serve as a decentralised energy accumulator provided PV electricity is accumulated in a heat form and used for hot water production in the buildings. The accumulator would reduce demand for electricity storage in the grid, of which construction is planned to base on expensive LI-ion batteries.
- It is a clear need to involve modernisation of public buildings and multifamily houses into further elaboration on green energy because these sectors are intertwined and cannot be dealt with separately. Moreover, it is necessary to pay more attention to numerous multifamily houses, of which 80% lack basic technical means for adjustment of heating and indoor climate and comfort to individual needs.
- Also, it should be recommended to enrich the document by including more costbenefit evaluations carried out for principal classes of energy equipment. For

example, heat pump financial viability strongly depends on the district heat price. Similarly, financial outcome of PV panels is very much determined by electricity price. For this reason, financial assessment is a must, because it will clarify economic outcome in the specific regional environment and economic parameters. In Lithuanian conditions, small PV-batteries (10-15 kW) have a 25-year payback period, which shows their still inefficient performance. But these green devices will become profitable in the nearest future with PV-modules prices going down and electricity prices up due to unavoidable introduction of carbon or environmental taxes.

These considerations and proposals were laid down in a letter to Energy Ministry (in Lithuanian).

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Norway: The Oil ban - How we banned fossil oil heating

Naturvernforbundet has for several years been working both politically and practically for the reduction of climate emissions from buildings related to oil heating. In January 2020 it was formally prohibited to use fossil oils for heating in most buildings in Norway.

Central to the success has been the collaboration with installers, municipalities, industry associations, authorities, politicians and environmental organizations, and the uniformity in the demand for the legal wording of the ban.

The regulations were adopted in 2018 and implemented $1.1.2020^1$, and the Norwegian Ministry of Climate and Environment assumes that the ban will reduce Norwegian CO₂ emissions by 0,34 million tonnes CO₂ yearly.

As part of Topten HACKS we have:

- Collaborated with national and local authorities like municipalities to inform the inhabitants on platforms like:
 - The Topten HACKS webpages www.energismart.no and www.oljefri.no
 - Municipal websites
 - Open informational meetings
 - Local and national media coverage
- Collaborated with local energy expert installers of HAC-products to ensure a safe and efficient transition from fossil fuelled to renewables.
- Made legislative and political proposals in collaboration with relevant partners.



But our activities and results stem from a long lasting engagement to increase the barriers to fossil fuel burning and reduce the barriers of the installation of both efficient and renewable HAC products and solutions. One of our long-term goals is to contribute in making the building sector the first fossil free sector in Norway.

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¹ § 4. It is prohibited to use mineral oil for heating buildings unless the Norwegian Water Resources and Energy Directorate has made a decision pursuant to § 6. This also applies to district heating systems with less than 1 MW installed thermal power if the system supplies heat for heating buildings. <u>https://lovdata.no/dokument/SF/forskrift/2018-06-28-1060</u>